

***A Survey on Prevalence and Management of Asthma and Allergic
Inflammation in the Dhaka Medical College & Hospital***



Daffodil
International
University

*[In the partial fulfillment of the requirements for the degree of Masters of
Pharmacy]*

Submitted To

Department of Pharmacy
Faculty of Health & Life Sciences
Daffodil International University

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APPROVAL

This thesis paper, “**A Survey on Prevalence and Management of Asthma and Allergic Inflammation in the Dhaka Medical College & Hospital**”, submitted to the Department of Pharmacy, Faculty of Health & Life Sciences, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Masters of Pharmacy and approved as to its style and contents.

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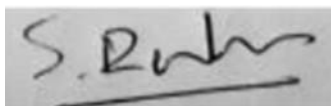
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DECLARATION

I hereby declare that this thesis report, “**A Survey on Prevalence and Management of Asthma and Allergic Inflammation in the Dhaka Medical College & Hospital**”. I am declaring that this thesis is my original work. I also declare that neither this thesis nor any part thereof has been submitted elsewhere for the award of Masters or any degree.

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My Parents,

The persons who always encourage me in every sphere of my life.

My teacher,

The persons who guided me in this process and the faculties who kept me on track.

Abstract

Asthma and allergic rhinitis are significant global public health concerns, affecting millions and heavily burdening healthcare systems. This study presents findings from a comprehensive survey assessing the current status of asthma and allergic rhinitis in Dhaka, Bangladesh. Using a cross-sectional study design, data were collected from a representative sample of Dhaka's population. Participants completed a structured questionnaire that included demographic information, symptoms of asthma and allergic rhinitis, environmental factors, and healthcare-seeking behaviors. Notably, 34% of individuals reported an asthma diagnosis, with 20% experiencing severe and persistent chest tightness. Additionally, 45% of participants frequently encountered secondhand smoke, wheezing, and coughing. Wheezing caused discomfort in 30% of respondents, and 20% were regular smokers. The study also revealed that 37% of respondents lived or worked in areas with high air pollution, and 33% resided in cloudy areas. Regarding treatment, 36% of respondents used inhalers, and 29% took oral medications for relief from asthma and allergic rhinitis. These findings highlight the urgent need for early diagnosis, effective treatment, and patient education to mitigate the impact of these conditions in Dhaka.

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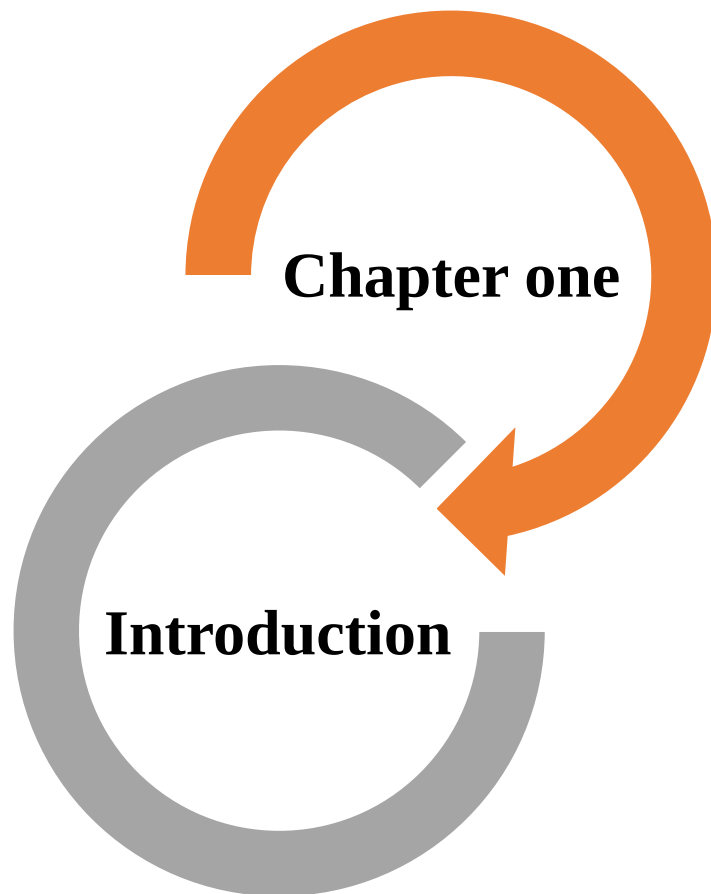
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1. Introduction

Asthma and allergic inflammation represent significant global health challenges, with their prevalence steadily increasing, particularly in urban areas. These chronic conditions not only impair quality of life but also impose substantial economic burdens on healthcare systems. Understanding their prevalence, triggers, and management practices is crucial for devising effective public health strategies and improving patient outcomes [1]. Dhaka Medical College & Hospital, a leading healthcare institution in Bangladesh, serves a diverse and densely populated urban population, making it an ideal setting for investigating these conditions. The unique socio-economic, environmental, and lifestyle factors present in Dhaka offer a distinctive context for studying asthma and allergic inflammation. This survey aims to explore the prevalence, contributing factors, and current management practices of asthma and allergic inflammation among patients at Dhaka Medical College & Hospital [2]. By analyzing data from this institution, we hope to gain valuable insights into the local epidemiology of these conditions and identify potential areas for intervention and improvement in patient care. This study will contribute to a better understanding of how asthma and allergic inflammation are managed in a major urban hospital setting and provide a foundation for future research and policy development to address these pervasive health issues effectively [3].

1.1 Etiology of Asthma and Allergic Rhinitis

Asthma is a chronic respiratory condition characterized by inflammation and narrowing of the airways, leading to symptoms such as wheezing, shortness of breath, chest tightness, and coughing. The etiology of asthma is multifactorial, involving genetic, environmental, and immunological factors:

1. Genetic Factors:

- **Family History:** Asthma often runs in families, suggesting a genetic predisposition. Specific genes, such as those involved in immune system regulation and lung function, have been associated with asthma [4].
- **Polymorphisms:** Variations in genes, including those encoding for cytokines, receptors, and other immune response elements, can influence susceptibility to asthma.

2. **Environmental Factors:**

- **Allergens:** Exposure to indoor and outdoor allergens, such as pollen, dust mites, animal dander, and mold, can trigger asthma symptoms.
- **Infections:** Respiratory infections, particularly viral infections during early childhood, can influence the development of asthma.
- **Pollutants:** Air pollution, tobacco smoke, and occupational exposures to chemicals and dust can contribute to the onset and exacerbation of asthma.
- **Diet and Obesity:** Poor diet and obesity have been linked to increased asthma risk, possibly due to systemic inflammation [5].

3. **Immunological Factors:**

- **Allergic Response:** Asthma is often associated with atopy, a genetic tendency to develop allergic diseases. The immune system's overreaction to harmless substances leads to airway inflammation.
- **Th2 Cells:** Asthma is linked to a predominance of T-helper 2 (Th2) cell-mediated immune responses, resulting in the production of cytokines that promote Eosinophilic inflammation [6].

4. **Other Factors:**

- **Microbiome:** Alterations in the gut and respiratory microbiome may influence immune development and asthma risk.
- **Socioeconomic Status:** Lower socioeconomic status is associated with higher asthma prevalence, likely due to increased exposure to environmental risk factors and limited access to healthcare.

Etiology of Allergic Rhinitis

Allergic rhinitis (AR) is an inflammatory condition of the nasal mucosa triggered by allergen exposure, resulting in symptoms such as sneezing, itching, nasal congestion, and

rhinorrhea. Similar to asthma, the etiology of allergic rhinitis involves genetic, environmental, and immunological factors [7]:

1. **Genetic Factors:**

- **Family History:** A positive family history of allergic rhinitis or other atopic diseases increases the risk of developing AR.
- **Gene-Environment Interaction:** Specific genetic polymorphisms related to immune function and mucosal response interact with environmental exposures to influence AR risk.

2. **Environmental Factors:**

- **Allergens:** Exposure to airborne allergens like pollen, dust mites, pet dander, and mold spores is a primary trigger for AR.
- **Pollutants:** Air pollution, tobacco smoke, and occupational irritants can exacerbate allergic rhinitis.
- **Climate:** Seasonal variations and climate changes can affect the prevalence and severity of allergen exposure, influencing AR symptoms [8].

3. **Immunological Factors:**

- **IgE-Mediated Response:** Allergic rhinitis is characterized by an IgE-mediated immune response to inhaled allergens. Upon exposure, IgE binds to allergens and triggers mast cell degranulation, releasing histamine and other inflammatory mediators.
- **Th2 Cells:** Similar to asthma, a Th2-dominated immune response is central to the pathophysiology of AR, leading to the production of cytokines that promote allergic inflammation [9].

4. **Other Factors:**

- **Microbiome:** Alterations in the nasal and gut microbiome may influence immune responses and susceptibility to allergic rhinitis.

- **Lifestyle Factors:** Diet, physical activity, and stress can impact immune function and the development of allergic diseases.

Both asthma and allergic rhinitis share common etiological factors, including genetic predisposition, environmental exposures, and immunological mechanisms. Understanding these factors can aid in the prevention and management of these conditions [10].

1.2 Pathogenesis of Asthma

Asthma is a chronic inflammatory disease of the airways characterized by episodes of reversible airflow obstruction, bronchial hyperresponsiveness, and airway inflammation. Its pathogenesis is complex and involves a combination of genetic, environmental, and immunological factors [11]. Here is a detailed explanation of the pathogenesis of asthma:

1. Genetic Factors

Asthma has a hereditary component, and multiple genes have been associated with its development. These genes are involved in the regulation of the immune system, airway hyperresponsiveness, and mucosal inflammation. Examples of genes implicated in asthma include:

- ADAM33: Associated with airway remodeling.
- IL-4, IL-5, IL-13: Cytokines involved in the promotion of IgE production and Eosinophilic inflammation.
- ORMDL3: Linked to inflammation and airway hyperresponsiveness [12].

2. Environmental Factors

Environmental exposures can trigger asthma symptoms and contribute to its development. Key environmental factors include:

- Allergens: Common allergens include pollen, dust mites, animal dander, and mold.
- Air pollutants: Tobacco smoke, ozone, and particulate matter can exacerbate asthma.
- Infections: Respiratory infections, particularly viral infections in early childhood, can increase the risk of developing asthma.

- Occupational exposures: Certain occupational environments with chemicals or irritants can induce asthma [13].

3. Immune Response

Asthma is primarily an immune-mediated disease involving a dysregulated immune response. The pathogenesis can be divided into the sensitization phase and the effector phase.

Sensitization Phase

- Allergen Exposure: Initial exposure to an allergen leads to its uptake by antigen-presenting cells (APCs), such as dendritic cells.
- Th2 Differentiation: APCs present the allergen to naïve T cells, promoting their differentiation into Th2 cells.
- Cytokine Release: Th2 cells release cytokines, including IL-4, IL-5, and IL-13.
- IgE Production: IL-4 and IL-13 stimulate B cells to produce allergen-specific IgE antibodies.
- Mast Cell Sensitization: IgE binds to high-affinity receptors (FcεRI) on mast cells and basophils, sensitizing them to the allergen [14].

Effector Phase

- Allergen Re-exposure: Subsequent exposure to the same allergen leads to cross-linking of IgE on mast cells.
- Mast Cell Degranulation: This triggers mast cell degranulation, releasing histamine, leukotrienes, prostaglandins, and cytokines.
- Inflammation: These mediators cause acute inflammation, leading to bronchoconstriction, mucus production, and vascular permeability.
- Eosinophil Recruitment: IL-5 recruits eosinophils to the airways, which release toxic granules and cytokines, contributing to chronic inflammation and tissue damage [15].

4. Airway Remodeling

Chronic inflammation in asthma can lead to structural changes in the airways, known as airway remodeling. These changes include:

- Goblet Cell Hyperplasia: Increased mucus production due to the proliferation of goblet cells.
- Subepithelial Fibrosis: Thickening of the basement membrane due to collagen deposition.
- Smooth Muscle Hypertrophy: Enlargement of the smooth muscle layer, contributing to bronchoconstriction.
- Angiogenesis: Increased blood vessel formation, which can exacerbate inflammation and edema.

5. Neural Mechanisms

Neural mechanisms also play a role in asthma. Sensory nerves in the airways can become hyperresponsive, leading to bronchoconstriction and increased mucus secretion upon exposure to irritants or allergens. This neural hyperresponsiveness is mediated by neuropeptides such as substance P and neurokinins A.

The pathogenesis of asthma is multifactorial, involving genetic predisposition, environmental exposures, and a dysregulated immune response leading to chronic inflammation and airway remodeling. Understanding these mechanisms is crucial for developing targeted therapies to manage and treat asthma effectively.

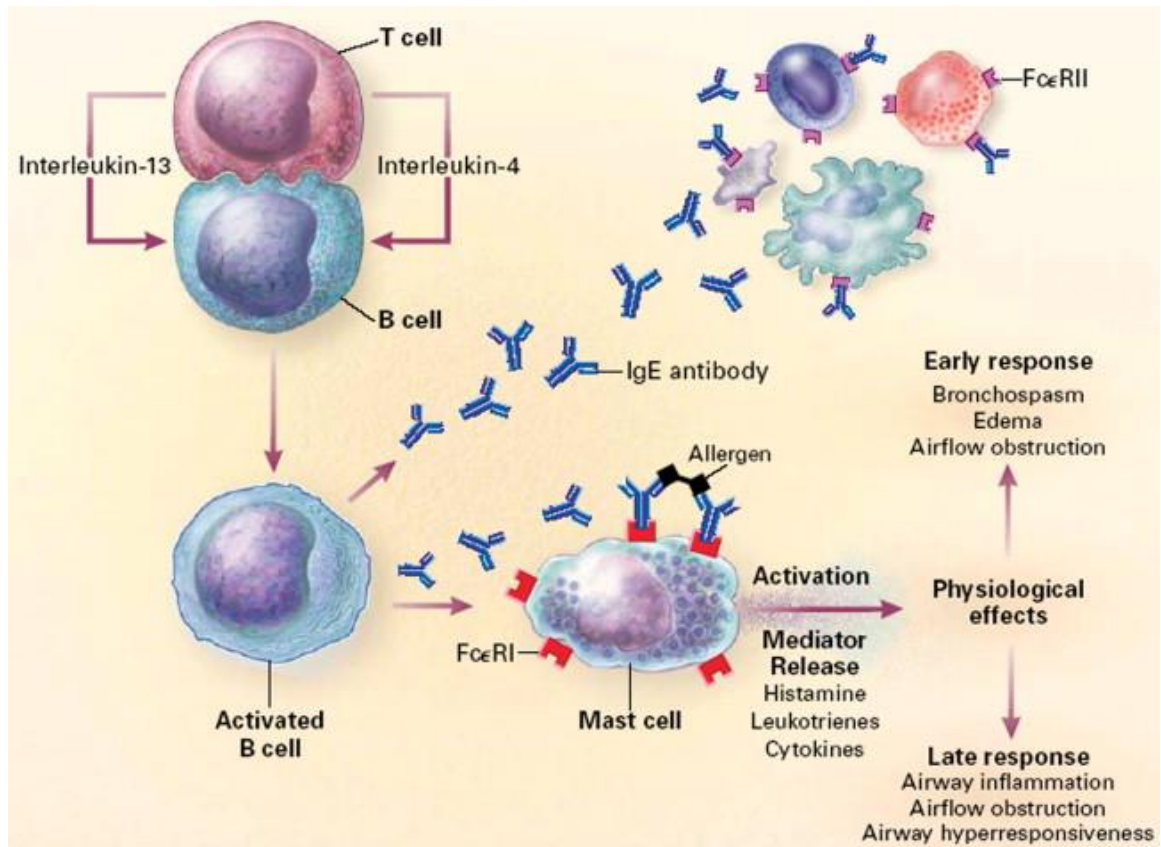


Figure 1: Pathogenesis of Asthma [14]

1.3 Pathogenesis Allergic Rhinitis

Allergic rhinitis, commonly known as hay fever, is an allergic reaction that causes sneezing, congestion, runny nose, and other similar symptoms. Its pathogenesis involves a complex interaction between genetic and environmental factors, leading to an inappropriate immune response to airborne allergens. Here's a detailed explanation of the pathogenesis of allergic rhinitis:

1. Sensitization Phase

- **Allergen Exposure:** The process begins when an individual with a genetic predisposition is exposed to an allergen (e.g., pollen, dust mites, animal dander).
- **Antigen Presentation:** Dendritic cells in the nasal mucosa capture the allergen and process it.

- **T-helper Cells Activation:** These dendritic cells present the processed allergen to naïve T-helper cells (Th0) in the lymph nodes, which then differentiate into Th2 cells under the influence of various cytokines (e.g., IL-4, IL-5, IL-13).
- **B-cell Activation:** Th2 cells produce cytokines (IL-4 and IL-13) that stimulate B cells to transform into plasma cells, which produce specific IgE antibodies against the allergen.

2. Early Phase Reaction

- **IgE Binding:** The produced IgE antibodies bind to high-affinity receptors (FcεRI) on the surface of mast cells and basophils, sensitizing them.
- **Subsequent Allergen Exposure:** Upon subsequent exposure to the same allergen, the allergen cross-links the bound IgE on the surface of sensitized mast cells and basophils.
- **Degranulation:** This cross-linking triggers these cells to release preformed mediators (e.g., histamine, tryptase) and newly synthesized mediators (e.g., leukotrienes, prostaglandins) into the nasal mucosa.
- **Symptom Manifestation:** These mediators cause the immediate symptoms of allergic rhinitis such as sneezing, itching, nasal congestion, and rhinorrhea (runny nose).

3. Late Phase Reaction

- **Inflammatory Cell Recruitment:** 4-8 hours after the initial allergen exposure, additional inflammatory cells, including eosinophils, Th2 cells, and basophils, are recruited to the nasal mucosa.
- **Sustained Inflammation:** These cells release further inflammatory mediators (e.g., cytokines, chemokines) that sustain and amplify the inflammatory response.
- **Chronic Symptoms:** The late-phase reaction contributes to prolonged symptoms such as persistent nasal congestion and increased sensitivity to allergens and irritants.

4. Chronicity and Remodeling

- **Chronic Inflammation:** Repeated exposure to allergens and ongoing inflammation can lead to chronic symptoms and complications like nasal polyps or sinusitis.
- **Tissue Remodeling:** Chronic allergic rhinitis may lead to structural changes in the nasal mucosa, including increased goblet cell activity (leading to excessive mucus production) and thickening of the epithelial basement membrane.

Factors Influencing Pathogenesis

- **Genetic Factors:** Family history of atopy (genetic predisposition to develop allergic diseases) increases the risk.
- **Environmental Factors:** Early life exposure to allergens, pollutants, and respiratory infections can influence the development of allergic rhinitis.
- **Immune System Dysregulation:** A skewed immune response towards a Th2 profile is central to the pathogenesis.

Allergic rhinitis results from a multi-step process initiated by sensitization to an allergen, leading to an IgE-mediated hypersensitivity reaction. Subsequent exposures result in early-phase and late-phase reactions, characterized by the release of inflammatory mediators and recruitment of immune cells, leading to the clinical symptoms of allergic rhinitis. Chronic exposure and inflammation can lead to tissue remodeling and persistent symptoms.

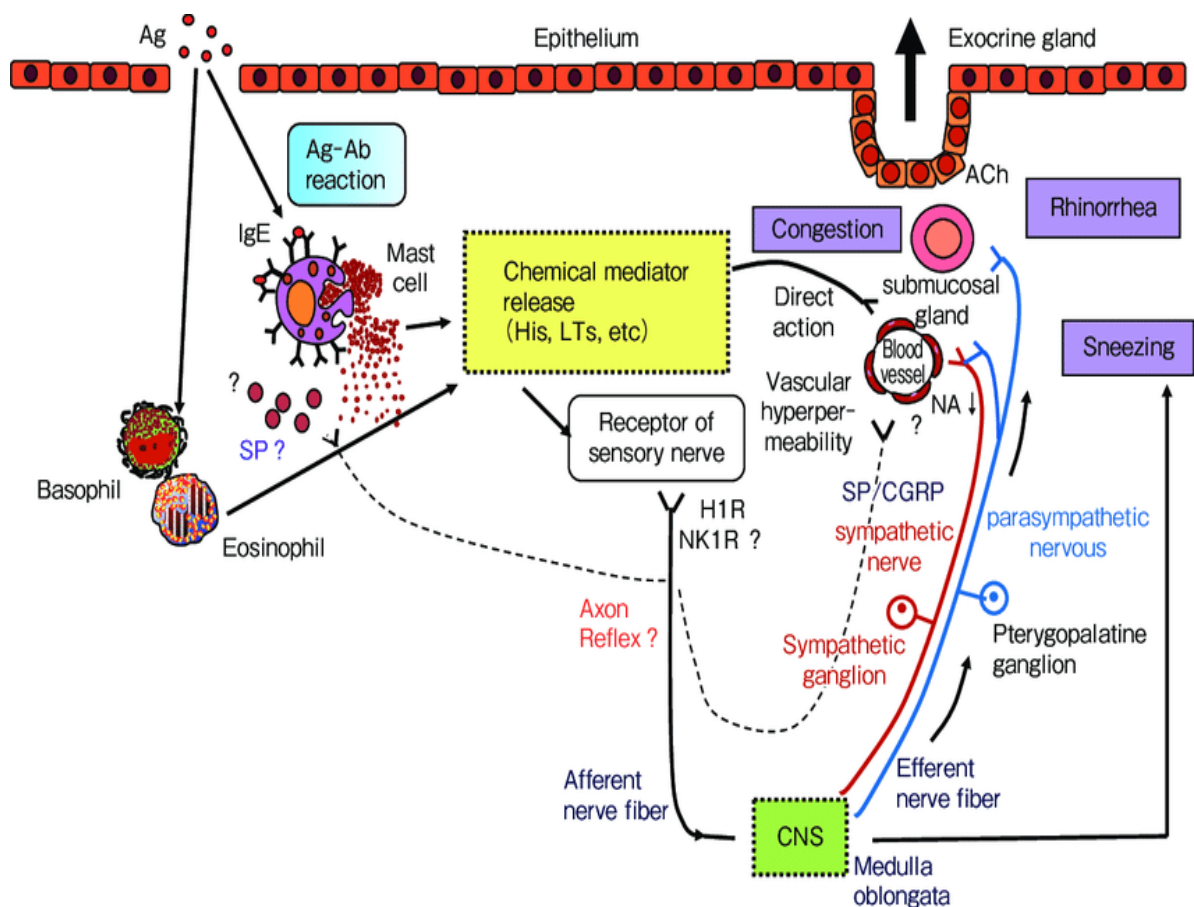


Figure 2: Pathogenesis Allergic Rhinitis [24]

1.4 Prevalence and Management of Asthma and Allergic Rhinitis

Asthma and allergic rhinitis are common chronic respiratory conditions that significantly impact public health worldwide. Both conditions often coexist, share similar pathophysiological mechanisms, and can adversely affect the quality of life of affected individuals. Understanding their prevalence, underlying causes, and management strategies is essential for effective control and treatment.

Prevalence

Asthma

- **Global Prevalence:** Asthma affects approximately 300 million people worldwide, with varying prevalence rates across different countries. Higher prevalence is observed in developed countries compared to developing nations.
- **Age and Gender:** Asthma is more common in children than adults, and prevalence often decreases with age. In children, boys are more frequently affected, whereas, in adults, the condition is more prevalent in women.
- **Geographical Variability:** Urban areas tend to have higher rates of asthma compared to rural areas, likely due to increased exposure to pollution and allergens.

Allergic Rhinitis

- **Global Prevalence:** Allergic rhinitis affects about 10-30% of the global population. It is one of the most common allergic conditions, particularly prevalent in developed countries.
- **Age and Gender:** Allergic rhinitis can occur at any age but is more common in children and adolescents. There is no significant gender difference in prevalence.
- **Seasonal and Perennial Forms:** Allergic rhinitis can be seasonal (hay fever) or perennial, with seasonal allergic rhinitis being more common and often linked to pollen exposure.

Management

Asthma

- **Education and Monitoring:** Patient education on asthma triggers, proper inhaler technique, and self-monitoring of symptoms are crucial. Peak flow meters can help patients monitor their lung function.
- **Medications:** The primary medications include:

- **Long-term Control Medications:** Inhaled corticosteroids, long-acting beta-agonists (LABAs), leukotriene modifiers, and combination inhalers.
- **Quick-relief Medications:** Short-acting beta-agonists (SABAs) like albuterol for acute symptom relief.
- **Biologics:** For severe asthma, biologic therapies targeting specific immune pathways (e.g., anti-IgE, anti-IL-5) can be effective.
- **Avoidance of Triggers:** Identifying and avoiding triggers such as allergens, smoke, and pollution is essential.
- **Action Plan:** Personalized asthma action plans help manage exacerbations and maintain control over the condition.

Allergic Rhinitis

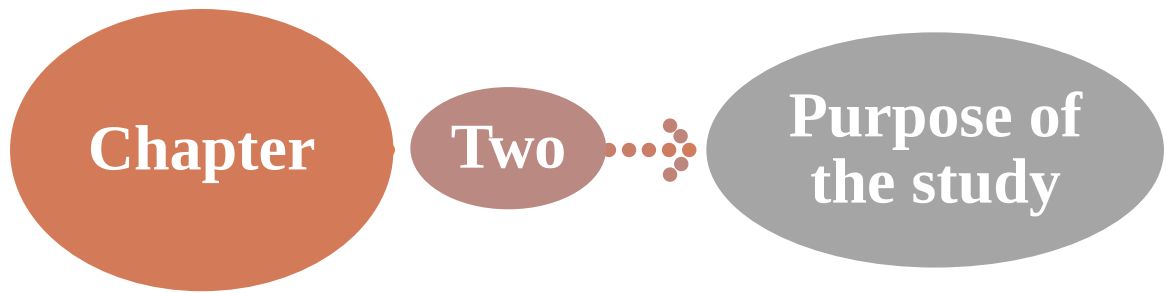
- **Avoidance of Allergens:** Identifying and avoiding allergens, such as pollen, dust mites, pet dander, and mold, is the first step in management.
- **Medications:**
 - **Antihistamines:** Oral or intranasal antihistamines reduce symptoms like sneezing, itching, and runny nose.
 - **Nasal Corticosteroids:** Effective in reducing inflammation and treating moderate to severe symptoms.
 - **Decongestants:** Short-term use can relieve nasal congestion but are not recommended for long-term use due to potential side effects.
 - **Leukotriene Receptor Antagonists:** May be used in combination with other medications.
 - **Immunotherapy:** Allergen immunotherapy (sublingual or subcutaneous) can reduce sensitivity to allergens and provide long-term relief.
 - **Saline Nasal Irrigation:** Helps to clear nasal passages and reduce symptoms.

Co-management of Asthma and Allergic Rhinitis

- **Integrated Approach:** Since these conditions often coexist, a combined management approach is beneficial.

- **Allergen Avoidance:** Minimizing exposure to common triggers that exacerbate both conditions.
- **Medications:** Using inhaled corticosteroids for asthma and nasal corticosteroids for allergic rhinitis can provide synergistic effects.
- **Monitoring and Follow-up:** Regular monitoring and follow-up with healthcare providers to adjust treatment plans as necessary.

The effective management of asthma and allergic rhinitis requires a comprehensive approach involving patient education, avoidance of triggers, and appropriate use of medications. By understanding the prevalence and implementing evidence-based management strategies, individuals with these conditions can achieve better control and improved quality of life.

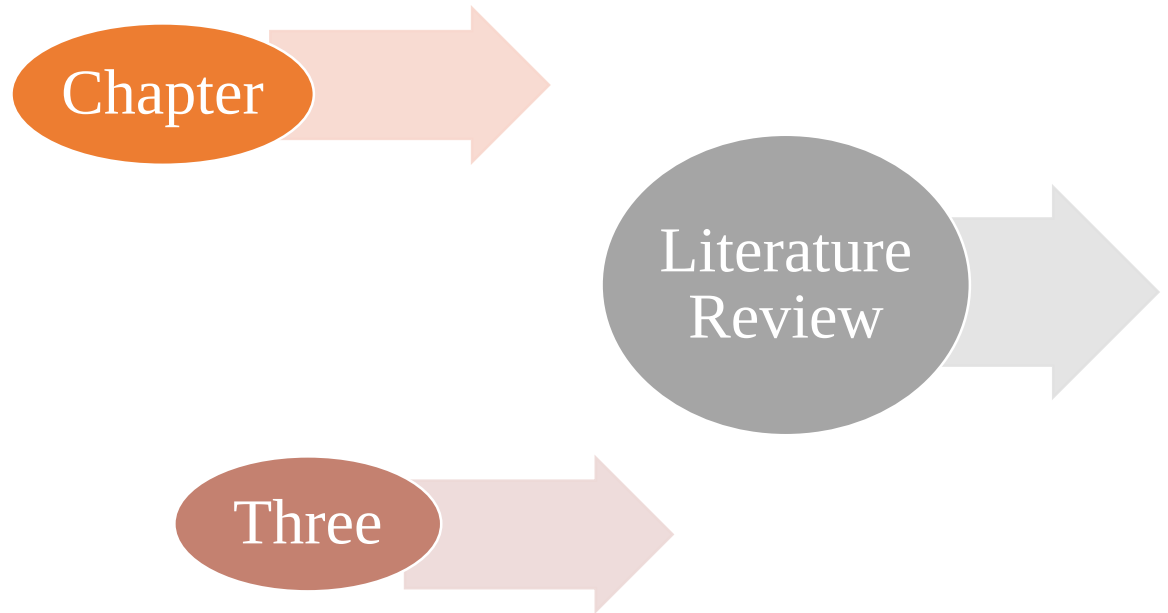


2.1 Purpose of the study

The primary objective of this study is to assess the prevalence and management practices of asthma and allergic inflammation among patients at Dhaka Medical College & Hospital.

The study aims to achieve the following specific goals:

- ❖ To estimate the current prevalence of asthma and allergic inflammation among patients.
- ❖ To identify demographic patterns, including age, gender, and socioeconomic status.
- ❖ To analyze the management and treatment strategies employed by healthcare professionals.
- ❖ To assess the effectiveness of current management practices and identify areas for improvement.
- ❖ To identify common environmental, genetic, and lifestyle factors contributing to the prevalence of asthma and allergic inflammation among the patient population.
- ❖ To evaluate the level of awareness and understanding among patients.



3.1 Literature Review

Analysis part: 1

Asthma and allergic rhinitis are common conditions that frequently occur together. This concept is referred to as unified airway disease in scientific literature. Epidemiological studies have shown that most people with asthma also have rhinitis, and that having rhinitis increases the likelihood of developing asthma. The physiological characteristics of patients with asthma and rhinitis are similar, featuring increased bronchial hyper responsiveness and heightened sensitivity to various stimuli. The immunopathology of allergic rhinitis is also similar, dominated by tissue eosinophilia and T-helper type 2 inflammation. Research on pharmacotherapy has shown that treating rhinitis can benefit asthma and vice versa. However, systemic therapies, such as immunotherapy, yield better results when both conditions are treated simultaneously. This paper will focus on the evidence supporting the similar pathophysiology, epidemiology, and treatment approaches for asthma and allergic rhinitis as a single respiratory disease.

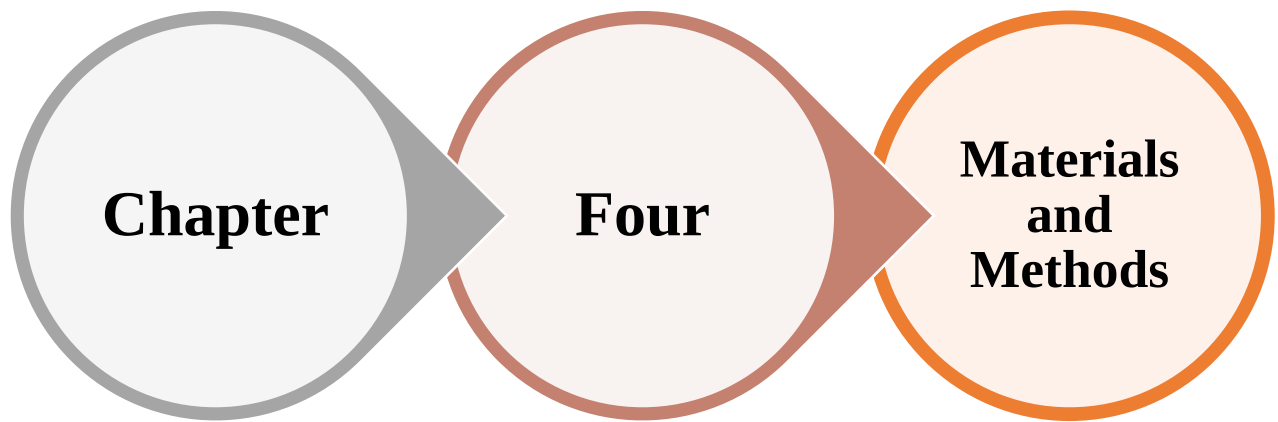
Analysis part: 2

Asthma and rhinitis are often connected and influence each other in various ways. Typically, asthma develops after rhinitis, which can lead to inadequate management of asthma. The duration and severity of allergic rhinitis, as well as allergen sensitivity, affect the severity and type of asthma. Nasal symptoms, airflow, and inflammatory markers are directly related to lower airway involvement. Several local tissue factors, including systemic inflammatory processes and microbial stimulation, contribute to the clinical presentation of allergic airway disease. While it is uncertain whether treating established rhinitis will directly reduce lower airway inflammation, addressing rhinitis may impact airway obstruction and improve asthma control.

Analysis part: 3

In the US, chronic rhino sinusitis (CRS) is a prevalent illness. A considerable proportion of CRS patients do not respond well to conventional medicinal and surgical treatments. Asthma and allergic rhinitis (AR) are also common among numerous of these patients, albeit it is yet unknown what pathophysiological mechanism links these three illnesses

together. This article's objective is to examine the connections between asthma, AR, and CRS. A study of scientific publications was conducted to determine the incidence of asthma and AR in people with CRS, how these conditions influence the seriousness of the illness, and potentially treating asthma and AR can have an impact on CRS results. Although there is no concrete proof of a causal association among AR and CRS, the research does suggest an association among the two conditions. Patients with asthma are more likely to have CRS, and having CRS is linked to worse asthma results. Weak data suggests that treating CRS could lead to better asthma consequences. Therapy for CRS and asthma may involve using biologics that target type 2 inflammation. Asthma, CRS, and AR are closely connected conditions, and knowing the relationships between these comorbid conditions will have a big impact on therapeutic practice [35].



4. Methodology

Choose a cross-sectional survey design to gather data from a representative from Dhaka medical college and hospital.



I have started work for this survey in February 2024.



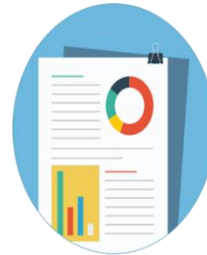
Questionnaire design
and preparation



Data Collection



Data processing



Documentation



Outcome

4.1 Data Collection

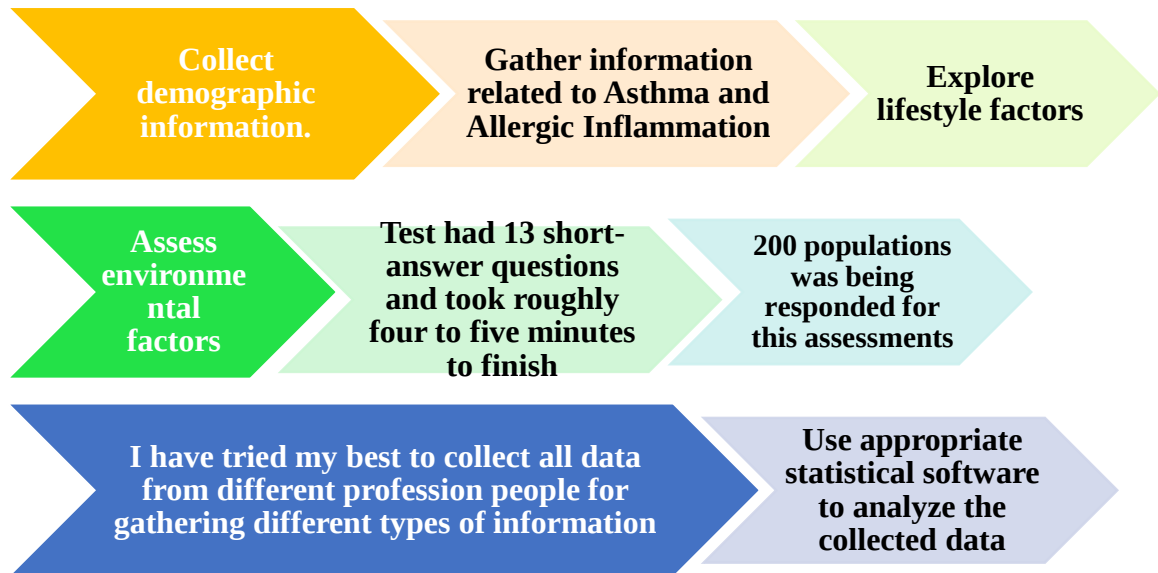
Develop a structured questionnaire related to Asthma and Allergic Inflammation.

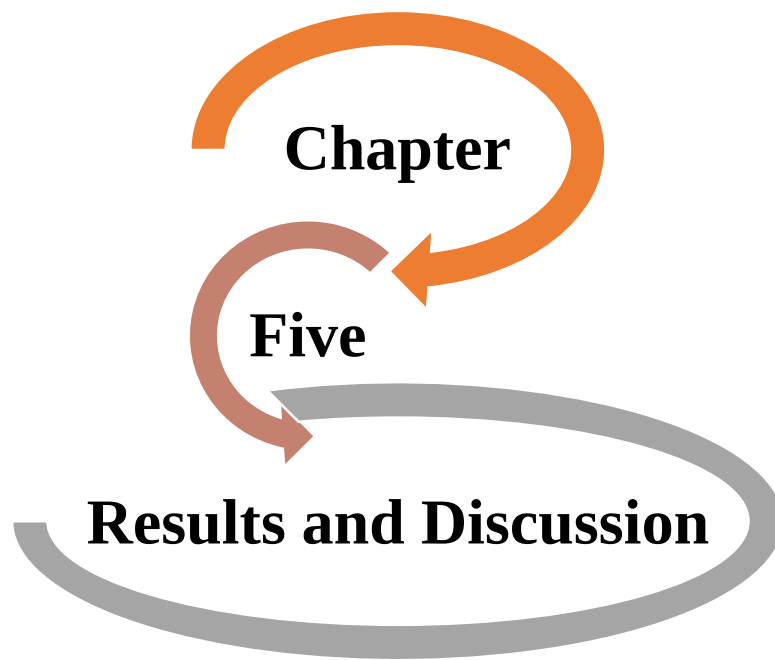
Train a team of data collectors on the questionnaire and ethical considerations.

Conduct face-to-face interviews, phone interviews, or online surveys.

Some important data has been collected by reviewed number of related article paper.

4.2 Data Variables & Analysis process





5.1 Age of Responders

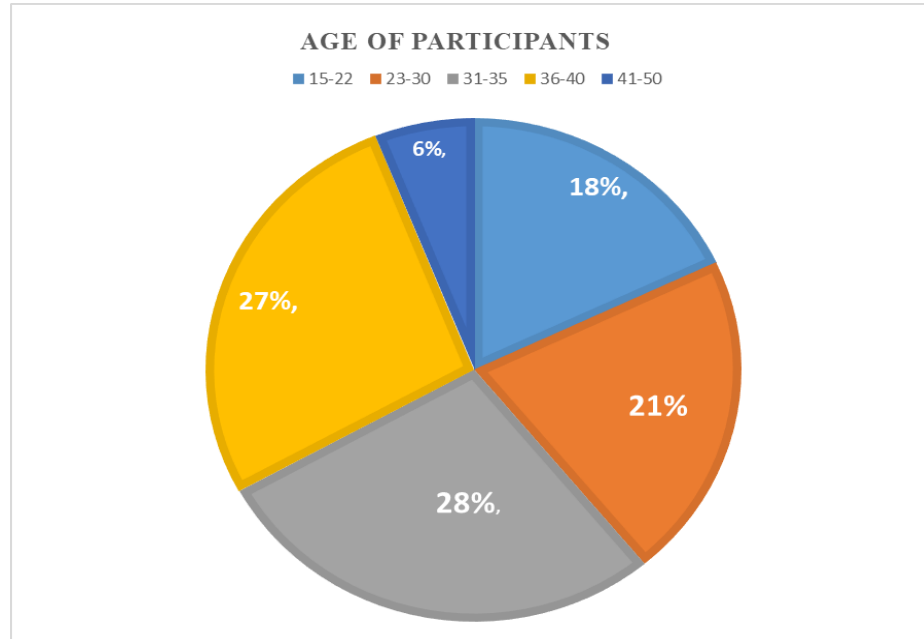


Figure 3: Age of Responders

Discussion: Various age groups participated in this survey, with the highest percentage of respondents falling within the ages of 31 to 35 at 28%, closely followed by the 36 to 40 age range at 27%. Eighteen percent of participants were aged between 15 and 22.

5.2 Gender of Participants

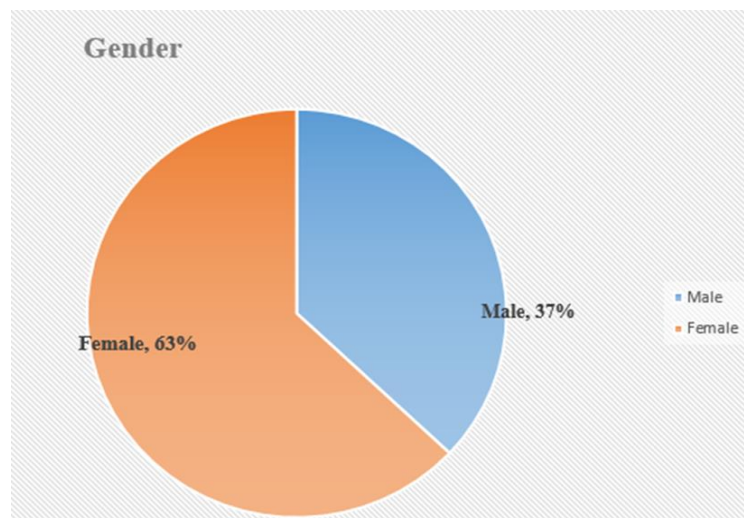


Figure 4: Gender of Participants

Discussion: Figure 4 provides a demographic summary of the survey participants. It shows that the majority, comprising 37% of respondents, are male, while 63% are female.

5.3 Professional Status of Responders

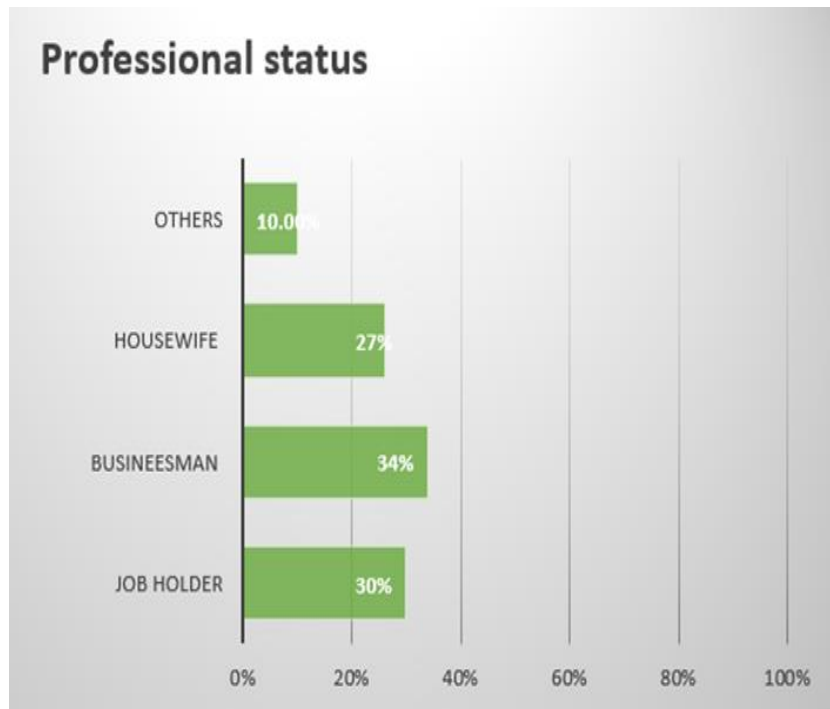


Figure 5: Professional Status of Responders

Discussion: As illustrated in the previous Figure 5, a significant proportion of individuals (34%) holding this perspective identified themselves as entrepreneurs. A smaller percentage of participants, 27% and 30% respectively, indicated they were homemakers and employed.

5.4 Ratio of asthmatic patients

Q: Have you ever been diagnosed with asthma?

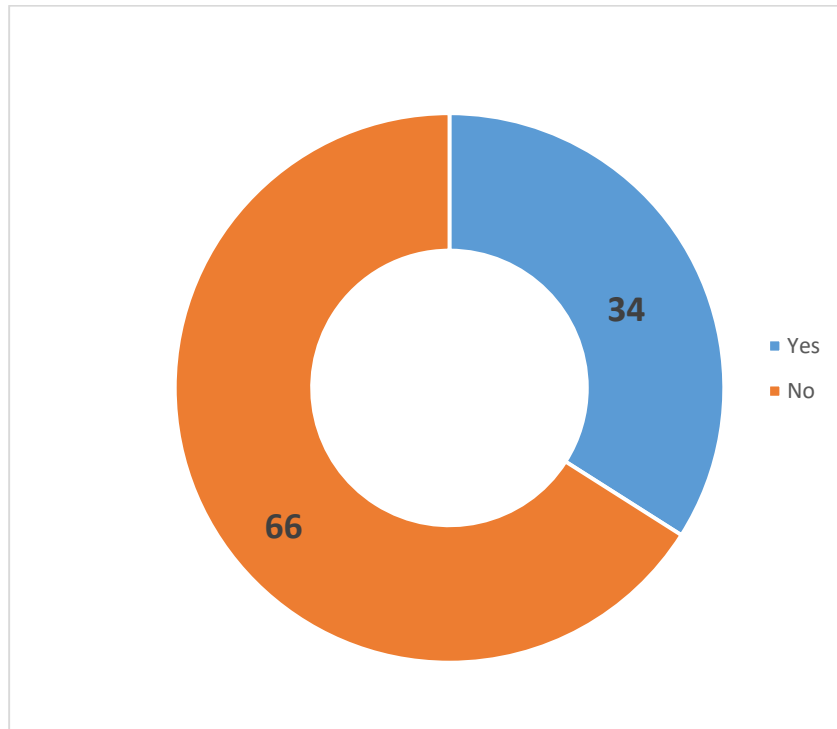


Figure 6: Ratio of asthmatic patients

Discussion: Asthma, a prevalent respiratory ailment impacting a considerable portion of society, is alarming with 34% of people receiving a diagnosis. This figure emphasizes the necessity of promoting understanding about asthma, its control, and preventative strategies. Moreover, it stresses the requirement for readily available healthcare and assistance for individuals managing asthma.

5.5 Symptoms

Q: Which of the following symptoms have you experienced?

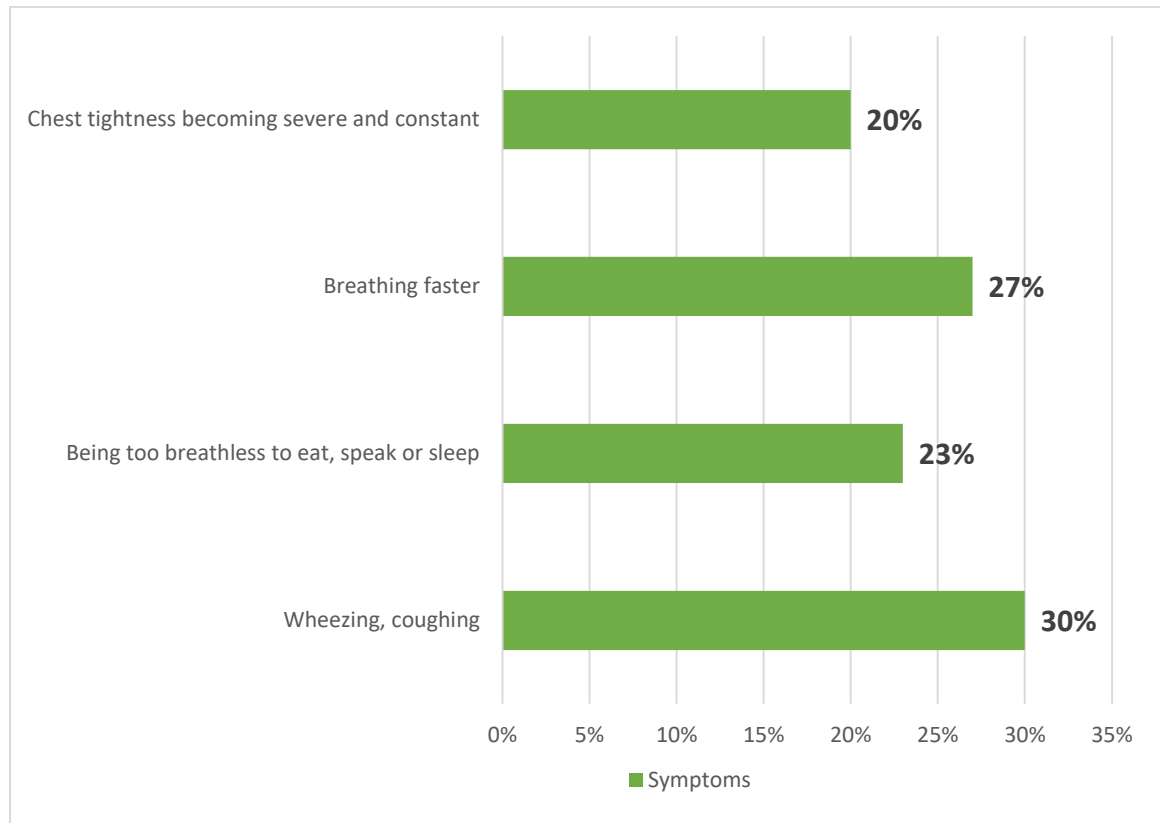


Figure 7: Symptoms of Asthma

Discussion: Among those with asthma, they reported experiencing various symptoms. Specifically, 20% mentioned enduring severe and persistent chest tightness. The majority, accounting for 30% of participants, stated experiencing wheezing and coughing.

5.6 Duration of illness

Q: If yes, how long have you been experiencing symptoms related to asthma or allergic inflammation?

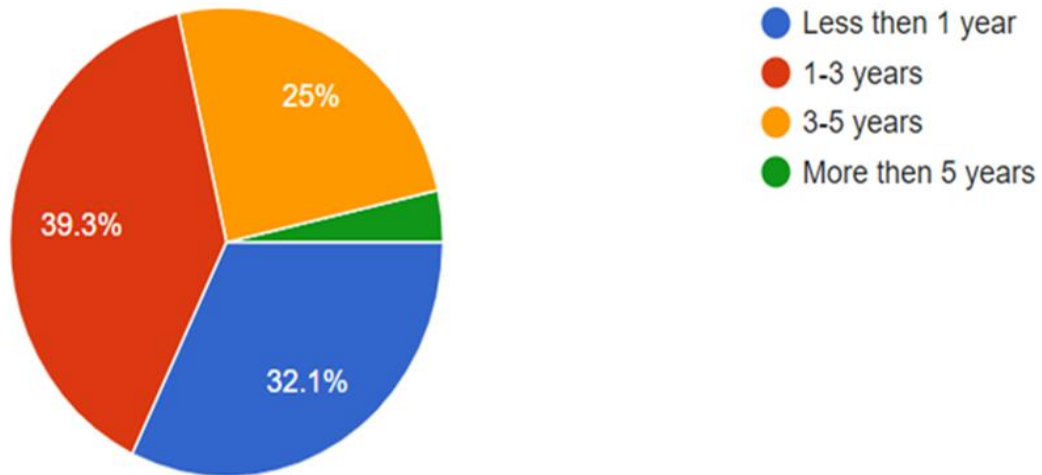


Figure 8: Duration of illness

Discussion: The study findings indicate that 32.1% of respondents were diagnosed with asthma within the past year. Furthermore, 39.3% received their asthma diagnosis one to three years ago. About 25% of individuals were diagnosed with asthma between the ages of three and five. Over the past five years, asthma has impacted 3.6% of the population.

5.7 Ratio of smoking

Q: Do you smoke or are you regularly exposed to secondhand smoke?

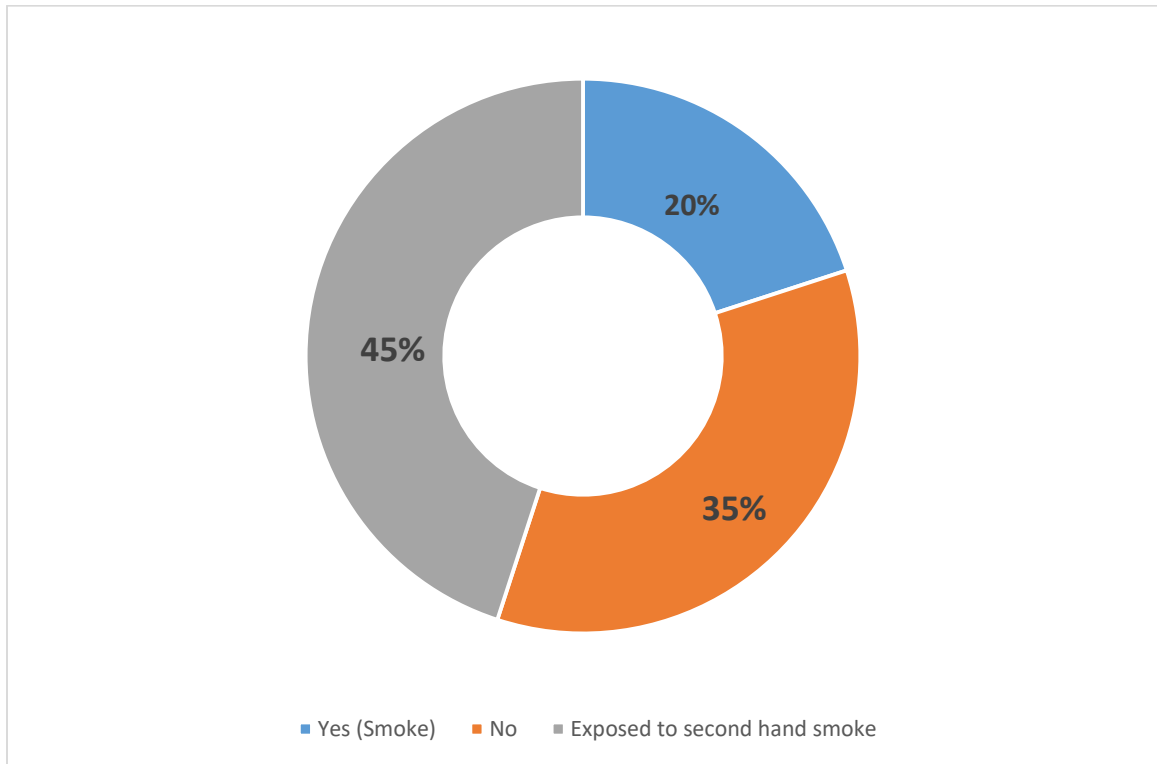


Figure 9: Ratio of smoking

Discussion: No level of secondhand smoke exposure is safe; even short-term exposure can be harmful. Non-smokers exposed to secondhand smoke risk developing coronary heart disease, lung cancer, and stroke. The data shows that a significant number of respondents either smoke or are exposed to secondhand smoke: 20% are smokers, 35% are non-smokers, and 45% frequently encounter smoking around them. Smoke irritates airways, leading to inflammation and mucus accumulation. Consequently, it is recommended that everyone avoid smoking.

5.8 Exposure of significant air pollution or dust

Q: Do you work or live in an environment with significant air pollution or dust exposure?

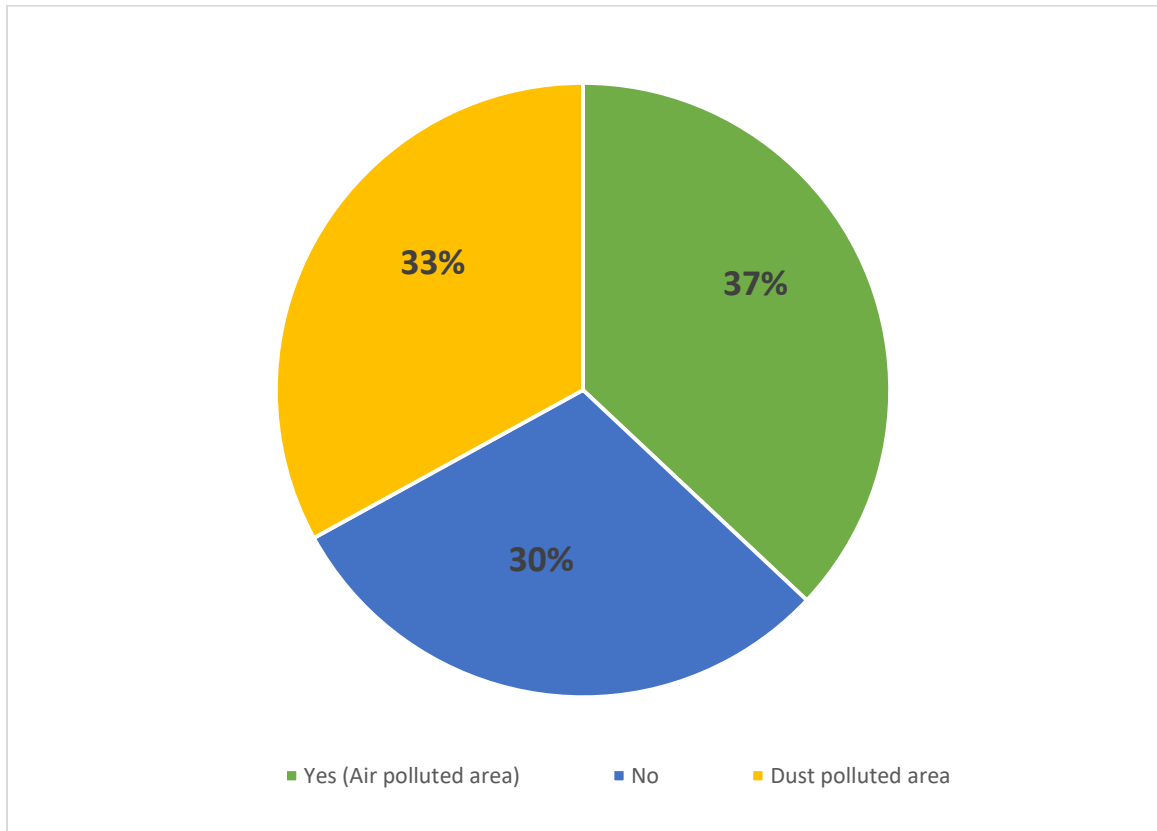


Figure 10: Exposure of significant air pollution or dust

Discussion: Unhealthy indoor environments, often affected by common pollutants such as mold, tobacco smoke, and household dust, can worsen symptoms of asthma and allergic rhinitis. Indoor air quality at home can be two to five times worse than outdoor air quality, which is regulated. According to the survey, 37% of respondents live and work in areas with polluted air, while 33% live and work in areas with poor air quality. Preventing asthma and allergic rhinitis involves avoiding substances and products that have previously triggered respiratory issues and reducing exposure to allergens like dust and mold.

5.9 Awareness for managing asthma or allergic rhinitis

Q: Are you aware of any government or community programs in Dhaka that provide support or education for managing asthma or allergic rhinitis?

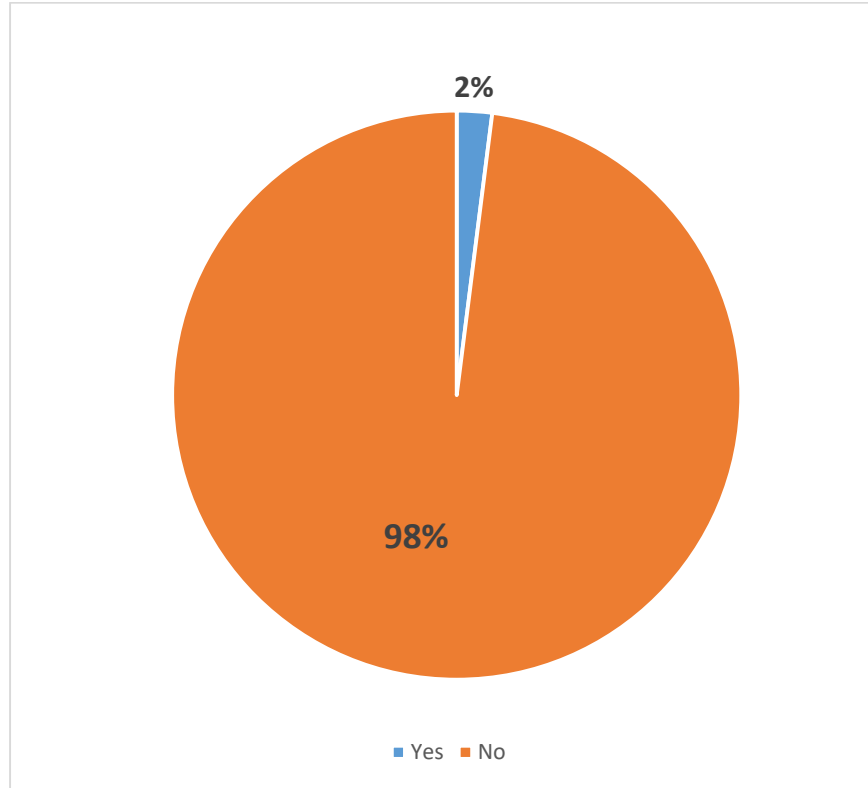


Figure 11: Awareness for managing asthma or allergic rhinitis

Discussion: According to the study, most respondents indicated that they were unaware of any governmental or community initiatives in Dhaka aimed at offering support or education for the management of asthma or allergic rhinitis.

5.10 Type of taken treatment

Q: What type medications do you currently use to manage your asthma or allergic inflammation?

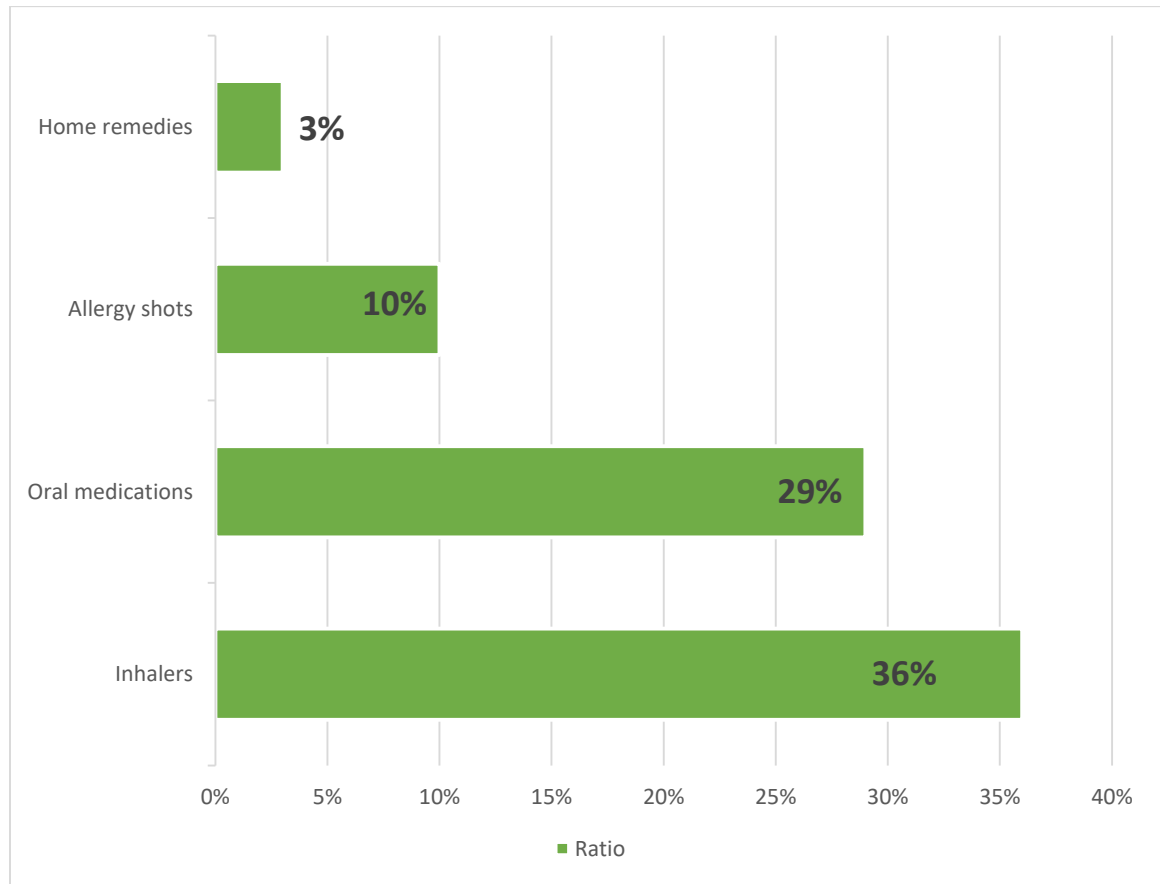


Figure 12: Type of taken treatment

Discussion: The survey showed that 36% of respondents use inhalers and 29% take oral medication to manage asthma and allergic rhinitis symptoms. A small portion of individuals live with asthma or allergic rhinitis without receiving any treatment.

5.11 Medicine suggested by doctor

Q: Which types of medications or treatments have been suggested doctor for your Asthma or Allergic Rhinitis?

Name of drugs	Participants
Montelukast	100
Theophylline	50
Salbutamol	150
Corticosteroids	75
Fexofenadine Hydrochloride	150
Ruptadine	125

Table 1: Medicine suggested by doctor

Discussion: Respondents in the study reported that their doctors had recommended theophylline, salbutamol, corticosteroids, fexofenadine hydrochloride, and Ruptadine as treatments for their allergies and asthma.

5.12 Asthma or Allergic Rhinitis symptoms interfere with daily activities

Q: How often do asthma or allergic rhinitis symptoms interfere with your daily activities

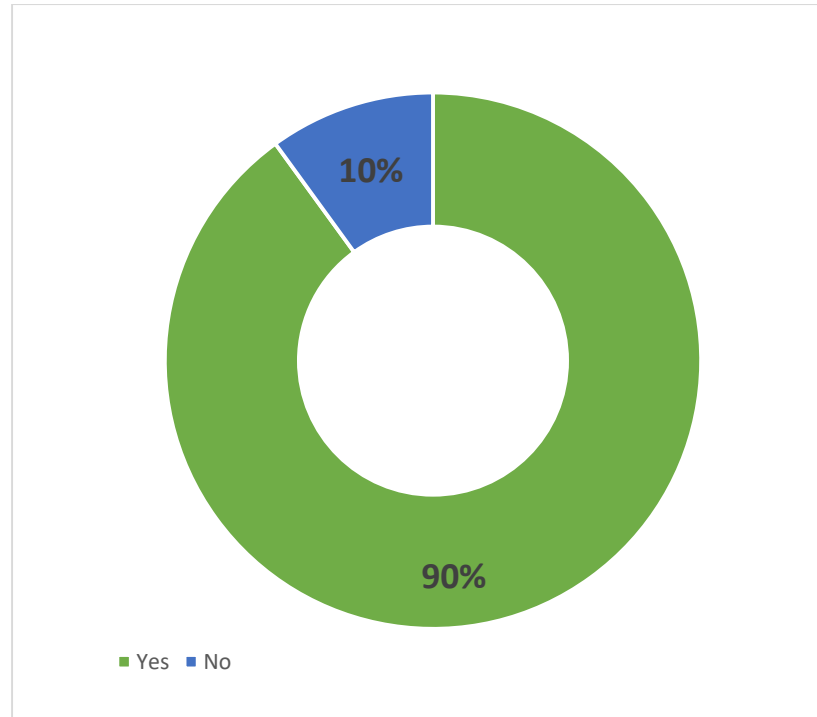


Figure 13: Asthma or Allergic Rhinitis symptoms interfere with daily activities

Discussion: Asthma and allergic rhinitis greatly affect an individual's quality of life, leading to issues like sleep disturbances and decreased work productivity. In the study, 90% of participants reported that their daily activities were disrupted by symptoms of asthma or allergic rhinitis.

5.13 Family History

Q: Do you have any family member who have been suffered from asthma?

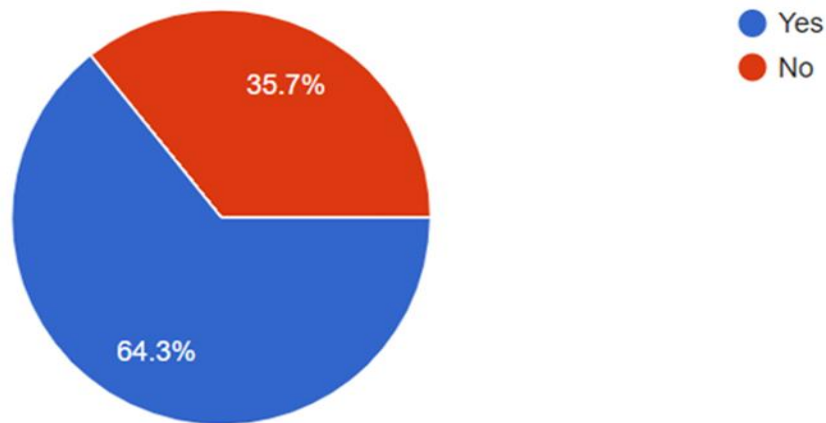
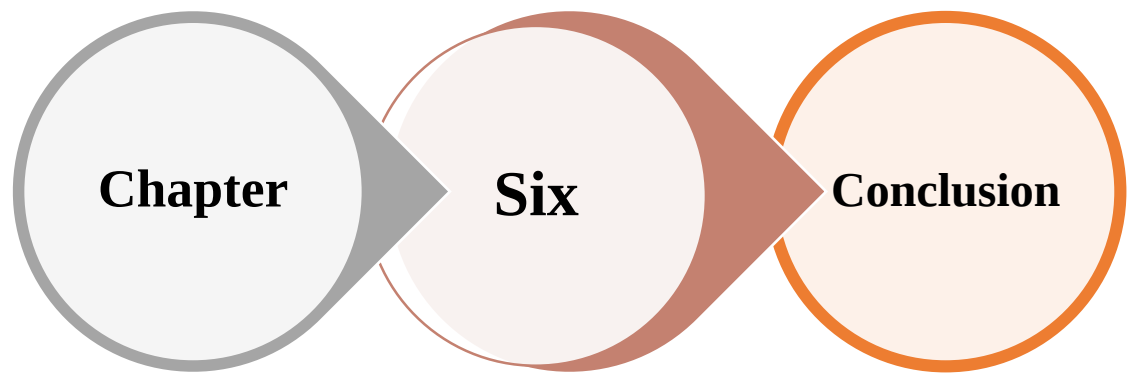


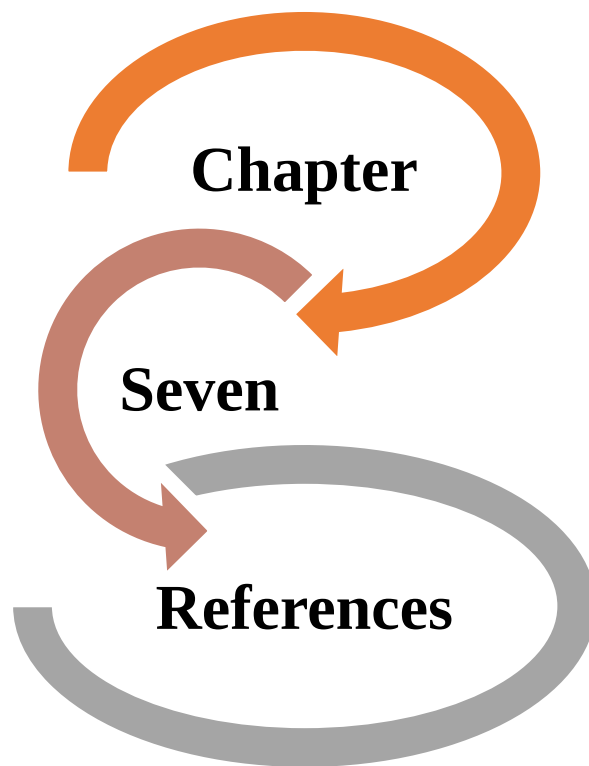
Figure 14: Family History

Discussion: A CDC analysis indicates that a child with one asthmatic parent is three to six times more likely to develop asthma, and if both parents have asthma, the child's likelihood increases to 70%. Like many illnesses, asthma is thought to result from a mix of genetic predisposition and environmental exposure. In this study, 64.3% of respondents reported a family history of asthma.



6. Conclusion

The survey on asthma and allergic rhinitis in Dhaka, Bangladesh, provides valuable insights into the prevalence, risk factors, and management of these respiratory conditions in the region. The results indicate a significant impact of asthma and allergic rhinitis on the population, underscoring the need for comprehensive public health strategies and targeted interventions. The study highlights the importance of raising awareness about these conditions, particularly in urban areas like Dhaka, where environmental factors may contribute to their increased prevalence. By pinpointing specific triggers and risk factors unique to the local environment, policymakers and healthcare professionals can create effective preventive strategies and customized treatment plans. Moreover, the survey emphasizes the need for collaboration among healthcare providers, researchers, and policymakers to address the challenges of asthma and allergic rhinitis. This includes enhancing access to healthcare services, implementing preventive measures, and fostering research initiatives to better understand the epidemiology and causes of these conditions in Dhaka. Asthma affects a considerable portion of the population, with 34% of individuals diagnosed, and 20% of these experiencing severe and persistent chest tightness. Additionally, 37% of participants reported living and working in air-polluted areas, while 33% lived and worked in cloudy environments. The survey also found that 29% of respondents had taken oral medication for allergy-related rhinorrhea, and 36% had used inhalers.



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