PROJECT ON

Survey on Asthma and it's treatment pattern in Brahmanbaria city, Bangladesh.

[A dissertation submitted to the Department of Pharmacy, Faculty of Allied Heath and Sciences, Daffodil International University, Dhaka. This report presented in partial fulfillment of the requirements for the degree of Bachelor of Pharmacy (B.Pharm).]

Submitted By

Sabbir Ahmed Sagar

ID: 191-29-1564

Batch: 21th B

Department of Pharmacy,

Faculty of Allied Health Sciences,

Daffodil International University

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Approval

This Project paper, survey on "**A survey on Asthma and it's treatment pattern in Brahmanbaria city, Bangladesh.**" submitted to the Department of Pharmacy, Faculty of Allied Health Sciences, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Pharmacy and approved as to its style and contents.

BOARD OF EXAMINERS

…………………………………………

Dr. Muniruddin Ahmed

Professor and Head

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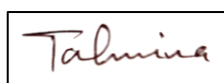
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Declaration

I, Sabbir Ahmed Sagar, hereby declare that, this project is done by me under the guidance of Ms. Tahmina Afroz, Assistant Professor, Department of Pharmacy, Daffodil International University, in partial fulfillment of the requirements for degree of Bachelor of Pharmacy. The results embodied in this project have not been submitted to any other university or institute for the award of any degree.

Guidance by:

Ms. Tahmina Afroz

Assistant Professor

Department of Pharmacy,

Daffodil International University

Submitted by:

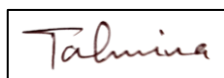**Sabbir Ahmed Sagar**

ID: 191-29-1564

Batch: 21th B

Department of Pharmacy

Daffodil International University

Certificate

This is to certify that the results of the investigation that are embodied in this thesis works are original and have not been submitted before in substance for any degree or diploma of this university. The entire present work submitted as a thesis work for the partial fulfillment of the degree of Bachelor of Pharmacy.

Ms. Tahmina Afroz

Assistant Professor

Department of Pharmacy,

Daffodil International University

Acknowledgement

DEDICATION

Dedicated To,

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 committee who kept me on track.

Abstract

A solid foundation for assessing asthma management is provided by demographic analyses of asthma conditions and medication use in a community. The purpose of this study is to identify risk factors among patients in addition to the medical care recommended by doctors in the heart of Brahmanbaria, Bangladesh. Asthma sufferers' monotherapy and combination therapies are highlighted in this treatment section along with various therapeutic classes. This investigation was carried out in a number of notable secondary-level hospitals in the Brahmanbaria city. The patients were questioned regarding the duration of the illnesses they were suffering from, possible causes of asthma development, and prescription regimen. Extrinsic asthma affects 63% of individuals, while intrinsic asthma affects 37% of patients. It was discovered that 34 people smoke actively, 59 people smoke passively around their family, and 7 people smoke completely consciously. In the other hand, Patients who have had the condition for 6 to 12 months make up 43%. The majority of patients—56%—have complained of chest discomfort. 28% of people wheeze while breathing.

Here are the total 100 patients where 15% have been prescribed salbutamol. Mostly prescribed monotherapy was given with LTRA in 23% of patients. 11% of patients have been prescribed inhaled corticosteroids budesonide. Loratadine was rarely used in 2% of patients. LTRA and Doxofylline combination had a prevalence of 31% which was the maximum. In the case of severe persistent asthma, 8% of patients had been prescribed formoterol ipratropium bromide and budesonide combination.

Contents

Chapter One

Introduction

INTRODUCTION:

Asthma patients already number 300 million worldwide, and estimates show that this number will increase by 50% every ten years. Despite the absence of data, prevalence is substantial ($> 10\%$) in wealthy nations and rates are rising as developing regions westernize(including data for much of Africa) (Fig 3). South Africa and the nations of the old Eastern Europe, notably the Baltic States, have also seen significant rises[1]. It is the most common chronic disease in children [2]

Asthma was discovered in Bangladesh's south-western and southeast regions, respectively, in 3.5% of rural and 5.0% of urban people [3]. There is evidence that residing near busy roads is detrimental to your respiratory health. Currently, and most certainly for some time to come, transportation, together with the gaseous and particulate emissions it produces, is the primary cause of air pollution in most urban areas [4]. Obesity is a strong predictor of incident asthma and worsens the condition, according to epidemiological studies [5]. Asthma is one of the risk factors for the development of panic disorder [6]. It is now well known that certain forms of occupational asthma, for example, might arise because of the workplace environment. [7].
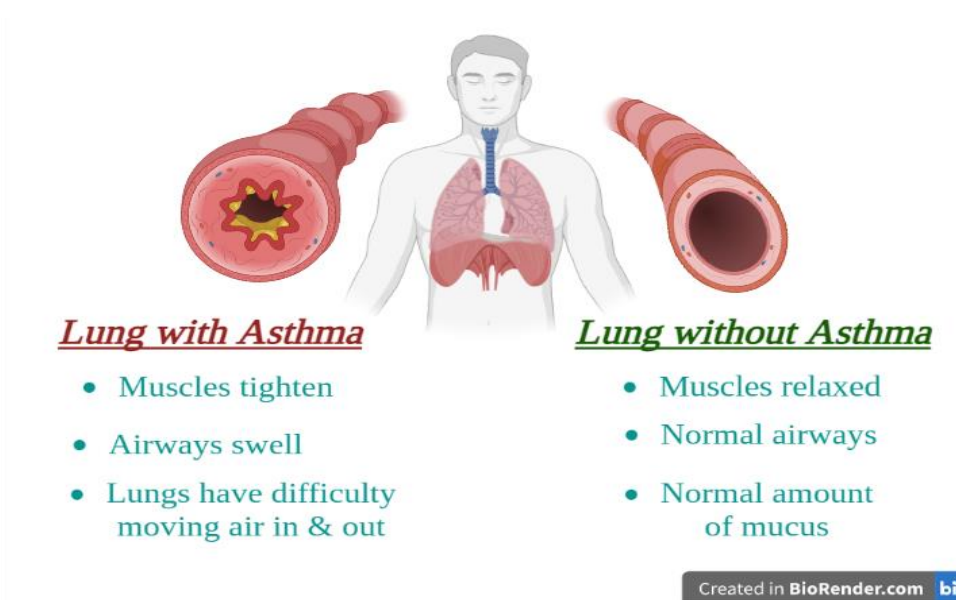

Figure 01: Asthmatic airways vs Non-asthmatic airways

The affected family, the government, and the state all bear heavy financial burdens as a result of the chronic, often fatal illness known as asthma. Nonetheless, it is treatable and manageable with the use of preventive care and customized asthma trigger tests [8]. Researchers from Bangladesh's specialist hospital for asthma found that among hospitalized asthma patients, the rates of habitual use of cigarettes, tea, and betel leaf with tobacco leaf were, respectively, 69%, 41%, and 15%. Asthma risk is significantly influenced by the interaction of genetic and environmental variables [9].Wheezing, dyspnea, tightness in the chest, and coughing were the most common symptoms of asthma, and they all had an impact on how severe it was [10]. Lung function tests and induced sputum analysis were used to identify a group of people who had clinical indications of asthma, evidence of eosinophilic airway inflammation, but insufficient airflow variability to be classified as asthmatics [11].Unaware of the FENO measurement results, pneumologists made an asthma diagnosis. The development of the prediction criteria utilized the multiple logistic regression analysis. There is a free calculator available that can compute all combinations [12].

According to the current ERS/ATS Task Force on Severe Asthma, asthma is deemed severe if it requires treatment with high-dose inhaled corticosteroids (ICSs) and a second controller (and/or systemic corticosteroids) to prevent it from becoming uncontrolled or if it does so despite this therapy[13]. According to a study, the bronchial mucosa's capacity to reduce inflammation may be the cause of inhaled corticosteroids' beneficial benefits on asthma [14]. After almost 50 years as first-line treatments for asthma and COPD, methylxanthines have mostly been supplanted by inhaled adrenoceptor agonist and anticholinergic bronchodilators, which are more effective and much less toxic [15].

Oral CysLT1 receptor antagonists can be used as a monotherapy for patients with mild persistent asthma, but they frequently have lower efficacy than inhaled glucocorticoids. Combining CysLT1 receptor antagonists and inhaled glucocorticoids may improve asthma management in people with more severe asthma and enable the dose of inhaled glucocorticoids to be lowered while retaining equal efficacy [16].
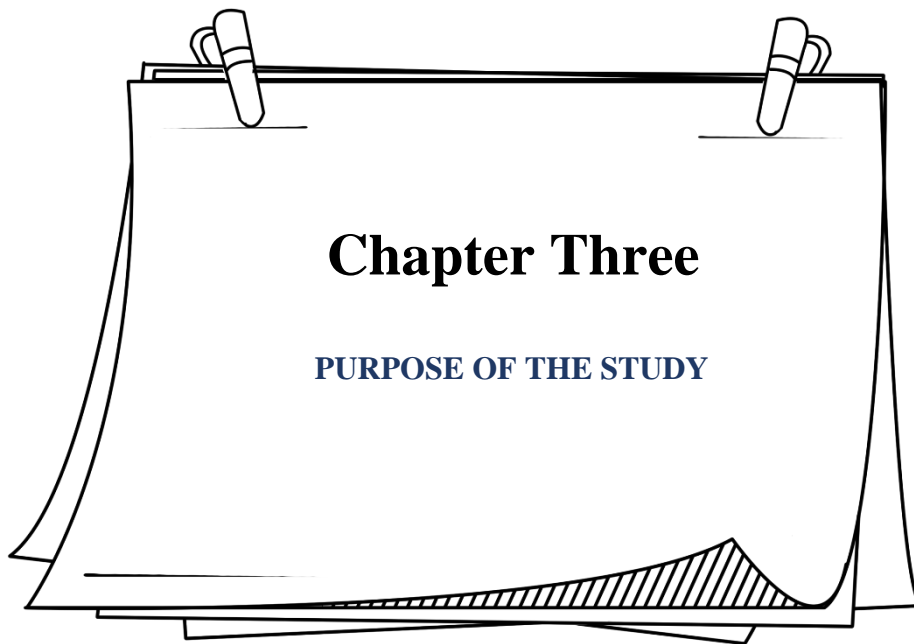
Chapter Two
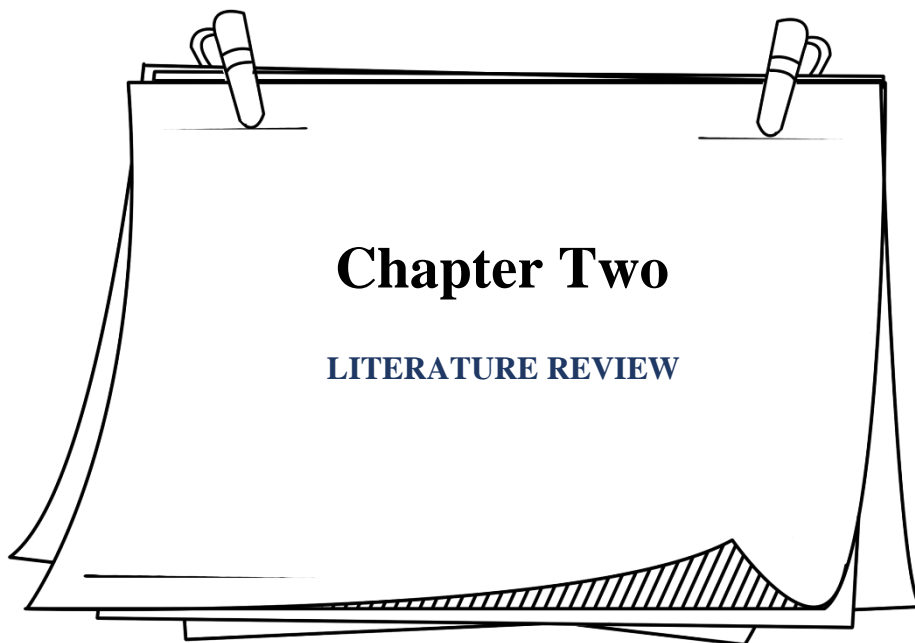
LITERATURE REVIEW

LITERATURE REVIEW:

- The diagnosis of asthma depends on how we define the term. Its definition is still up for debate because there is no one genetic or environmental origin. When the condition is defined descriptively, its elements include airway inflammation, symptoms, variable airflow restriction, and chronic airflow restriction. The lengthy essentialist description conveys the sense that asthma is a unique disease entity but fails to identify a fundamental characteristic that sets it apart from other illnesses. These issues are resolved by the nominalist definition of asthma, which utilizes the term to refer to an abnormality of airway function, specifically to wide variations in airflow limitation over short periods of time. The additional elements of airway disease need to be taken into account in people with asthma. They include, each with its own nominalist explanation, various kinds of bronchitis for airway inflammation and chronic obstructive lung disease for continuous airflow limitation. Different things could exist between and within patients. For a correct diagnosis of any disease, including asthma, objective measurements are necessary. Today, spirometry and airway responsiveness should be available to general practitioners who treat patients with milder illness. More quantitative sputum cell counts ought to be offered in specialized practice settings where moderate to severe illness is more prevalent. These measures provide information about the patient, highlight heterogeneity, and allow for tailored care. [17].

- Allergy sensitivity and asthma, an inflammatory disorder of the conducting airways, are closely related. However, selective therapies have not been successful in targeting the polarized Th-2 (T-helper-2)-type T-cell response that distinguishes the condition, and the majority of therapy still relies on bronchodilators and corticosteroids rather than addressing the underlying disease processes. After the disappointing outcomes of focusing on particular Th-2 cytokines or altering T cells, it is necessary to reevaluate the area of interest for this disease's research. Asthma is thought to originate in the airways themselves from abnormalities in the morphological and functional responses of the epithelium to the

environmental stressors. T Once sensitized, repeated exposure to allergens will cause-continuing sickness. The remodeling of the airway wall and the asthmatic lung's sensitivity to attacks brought on by respiratory viruses, periods of air pollution, and contact with biologically active allergens could also be explained by these mechanisms. Variable activation of this epithelial-mesenchymal trophic unit could lead to different asthma phenotypes, necessitating a more tailored approach to treatment. It also implies that therapies could be developed to increase the lung's resistance to the inhaled environment rather than concentrating all efforts on attempting to reduce inflammation once it has already begun[18].

Chapter Three

PURPOSE OF THE STUDY

PURPOSE OF THE STUDY:

Observe the
Current status

Understand the
Diagnostic procedure

PURPOSE

Determine the
Prevalence of disease
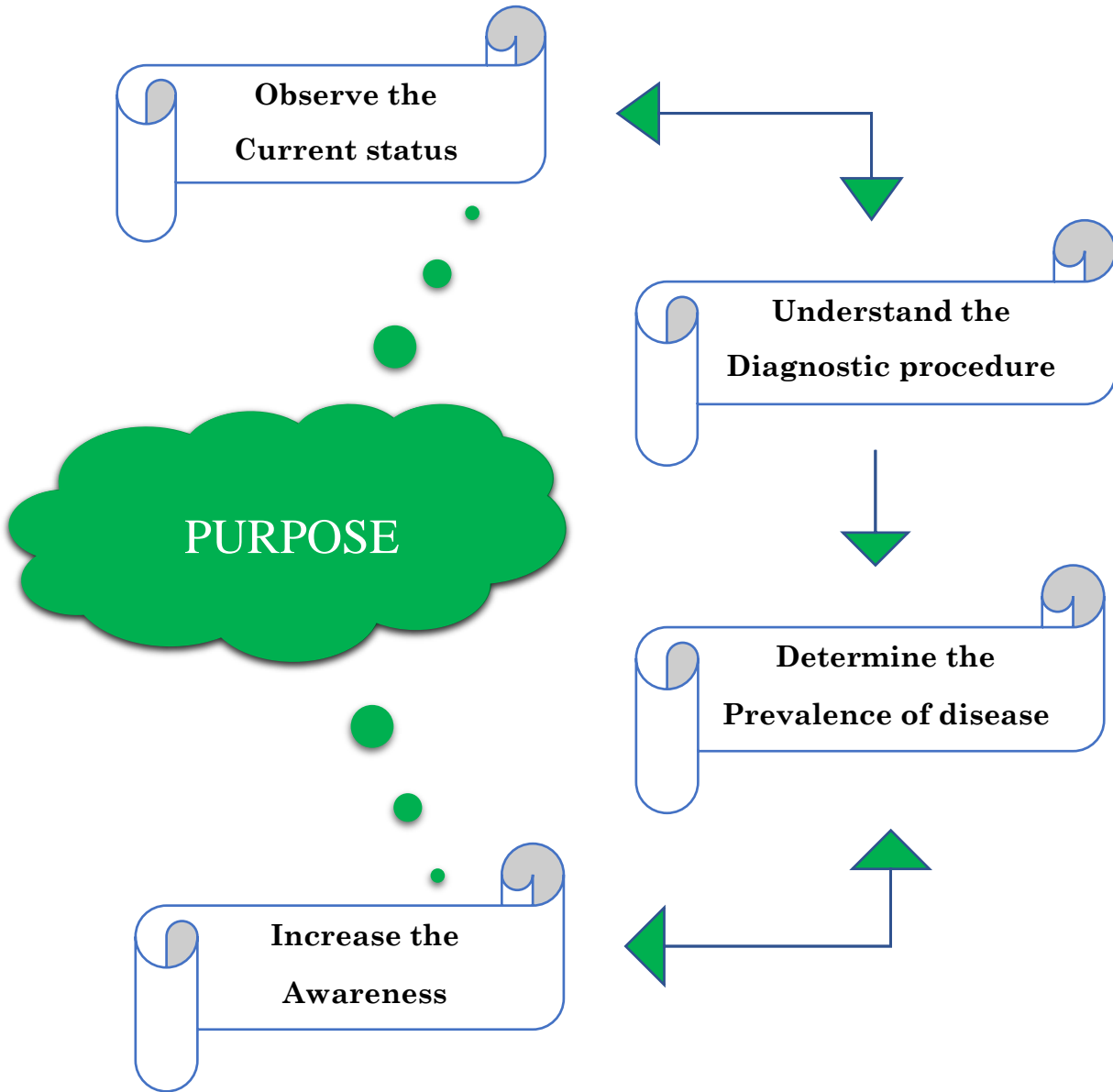
Increase the
Awareness

Figure 02: Purpose of the case study

This study's main objective is to monitor how asthma patients who are now residing in Brahmanbaria, respond to the medication that their doctors have recommended. In the city of Brahmanbaria, the degree of air pollution is rising daily. Lung diseases are a big threat to those who live in this city. This study's goal is to determine the prevalence of asthma patients. The safe and successful treatment of these specific disorders is another area of emphasis in this work. to determine if it is possible to identify the risk factors related to asthma patients. The purpose of this study is to continue investigating asthma care strategies and safe, effective medications.

Chapter Four
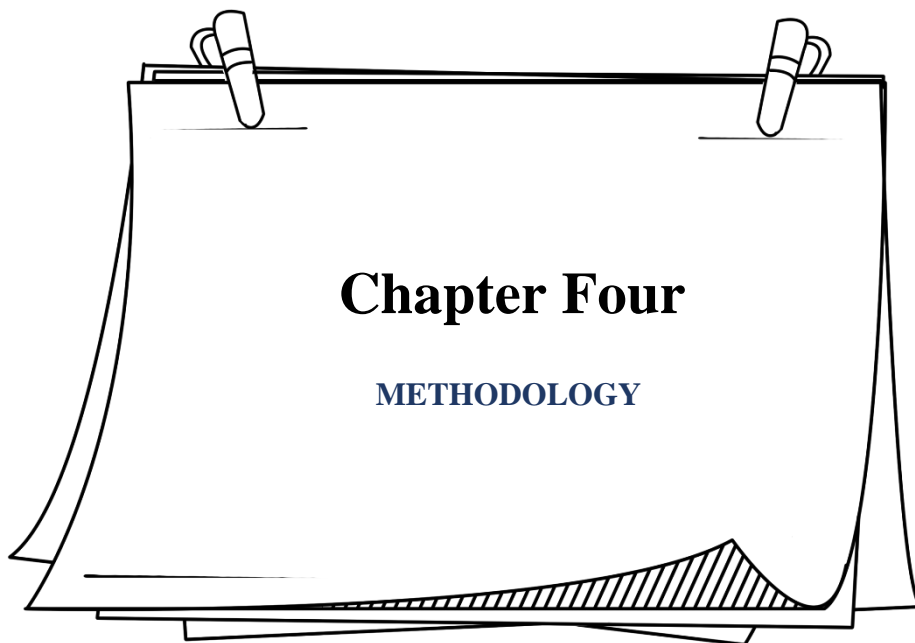
METHODOLOGY

METHODOLOGY:

At first, careful planning was done for the selection of a certain hospital in Brahmanbaria before beginning this investigation. A few questions were also created for the purpose of conducting interviews. At Brahmanbaria city, a number of notable secondary level hospitals were the sites of the interview. The interview was conducted after receiving authorization. The interviewer questioned the patients about their asthma symptoms and medications. The length of the condition, risk factors, and diagnosis were questioned of a random sample of asthma patients. Also, there were some inquiries on the options for managing this disease's treatments.

Chapter Five
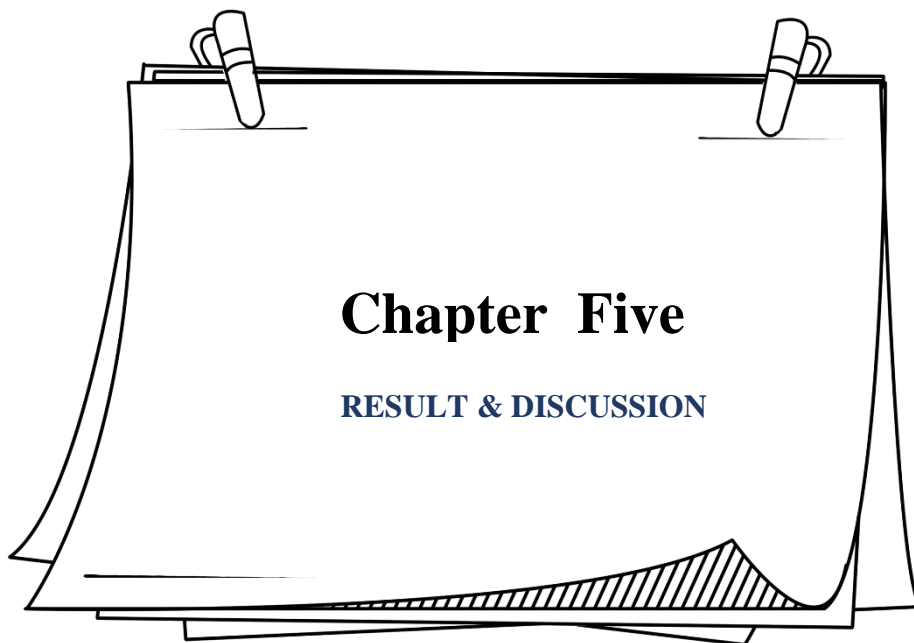
RESULT & DISCUSSION

RESULT AND DISCUSSION:

For this survey, 100 asthmatic patients in total were chosen. These data were gathered by the interviewer at the chosen hospital in Brahmanbaria. The majority of them are renowned, lower-level hospitals. Data were gathered from inpatient patients as well as outpatients..

- Extrinsic and intrinsic asthma illnesses are the two main subtypes based on the triggering causes. Extrinsic asthma sufferers are more common than intrinsic, according to the interviewer. Extrinsic asthma affects 63% of individuals, while intrinsic asthma affects 37% of patients.
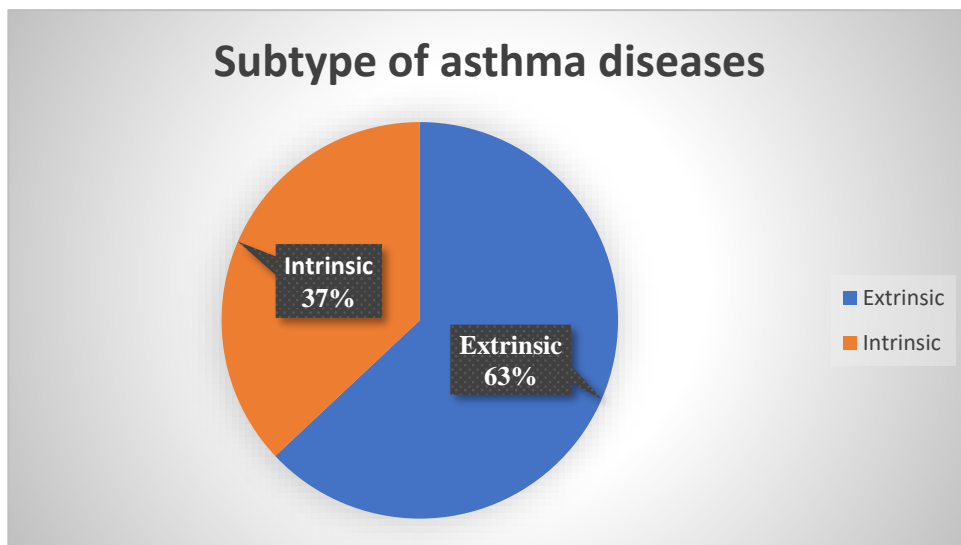
Figure 03: Subtype of asthma diseases

Gender

Survey data was taken from 100 asthmatic patients. According to the survey 55% of them were male and 45% of them were female.
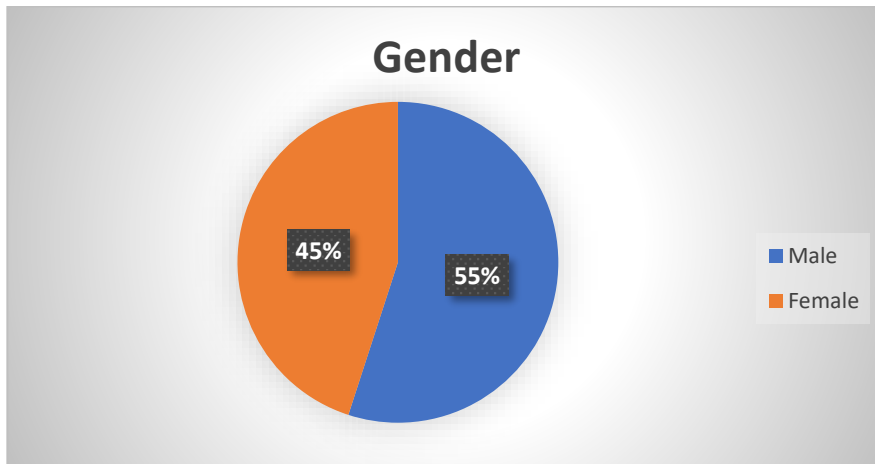

Figure 04: Gender ratio

Age

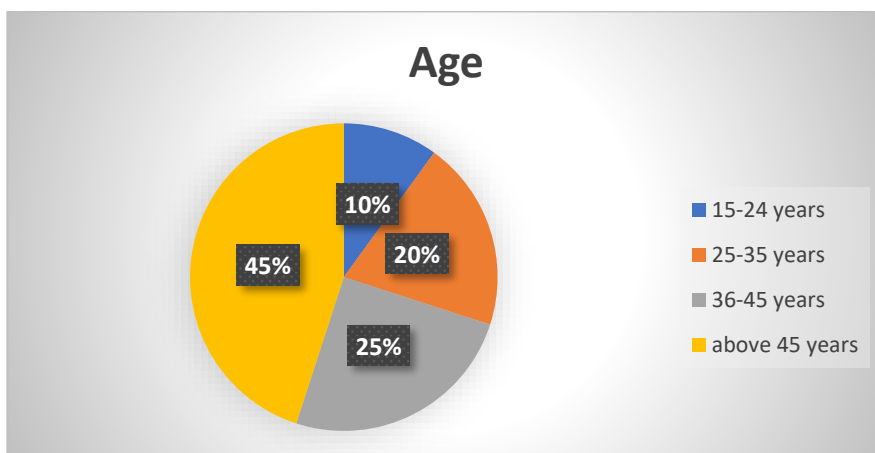According to the survey response, most of the asthmatic patients were above 45 years old.

Figure 05: Age

⬩ There were threw some questions on smoking among asthma patients if there were found any patients who used actively smoked or passively smoked. There were found 34 who are actively smoking 59 are passively by their family members and 7 are totally aware of smoking.
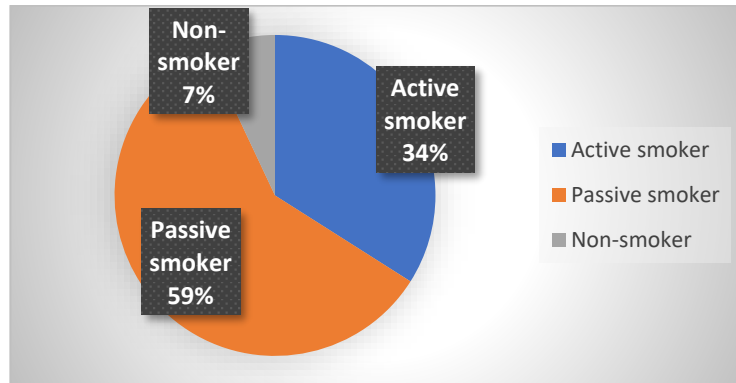

Figure 06: Exposure of smoking

⬩ In asthmatic patients, certain symptoms are linked to a higher likelihood of asthma exposure, making it simpler for a doctor to diagnose the precise illness. Chest tightness or constriction is more frequent in most patients. The majority of patients—56%—have complained of chest discomfort. 28% of people wheeze while breathing. 12% of individuals experience pulmonary irritation, and 4% experience symptoms of coughing.
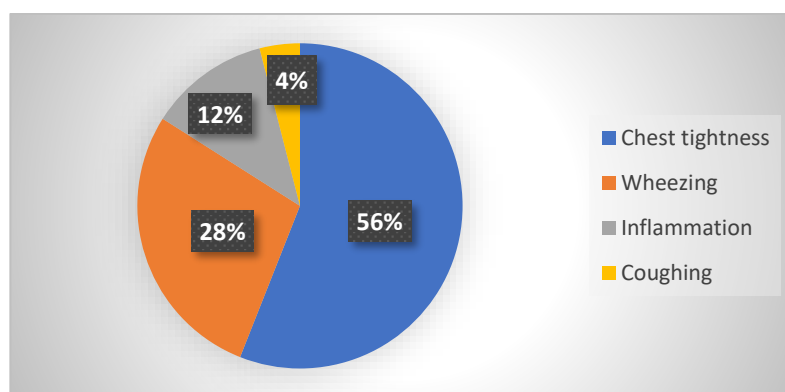

Figure 07: Symptoms of asthma.

⬥ Diagnosis of Asthma

An asthma diagnosis is vital for the medication of asthma diseases. There are some possible devices for identification purposes. There are the majority of patients get information about being affected by asthma from doctors.
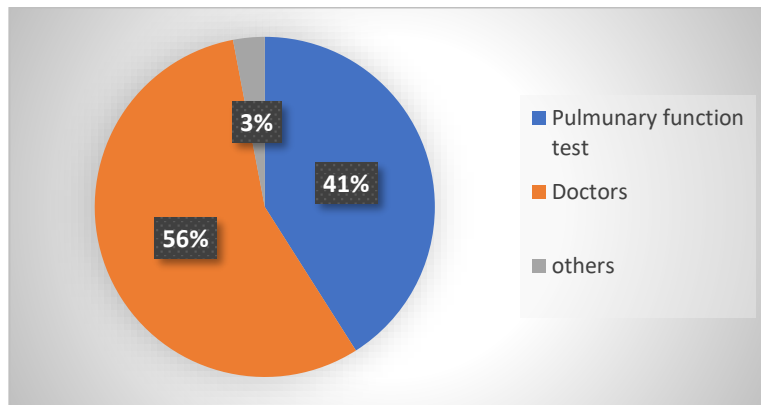

Figure 08: Source of information

⬥ Duration of Asthma diseases in patients

There were 28 patients with new cases of asthma in 100 individuals. 43% of patients have had this condition for 6 to 12 months, and 17% have had it for 24 months or more. Last but not least, 12% of patients have had asthma for longer than 24 months.
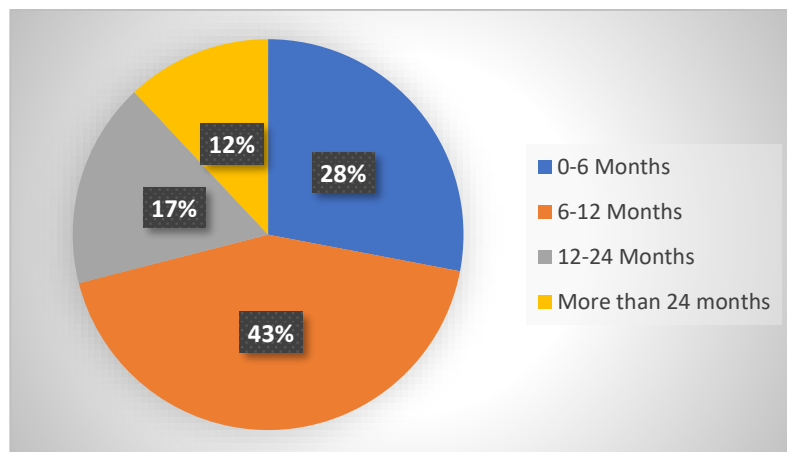

Figure 09: Duration of asthma diseases

✦ Classification of asthma

Three-quarters of the patients (39% of them) had mild persistent asthma. Patients with intermediate persistent asthma made up 33% of the population, while 19% had intermittent asthma. Hospital admissions revealed that 9% of patients had severe persistent asthma.
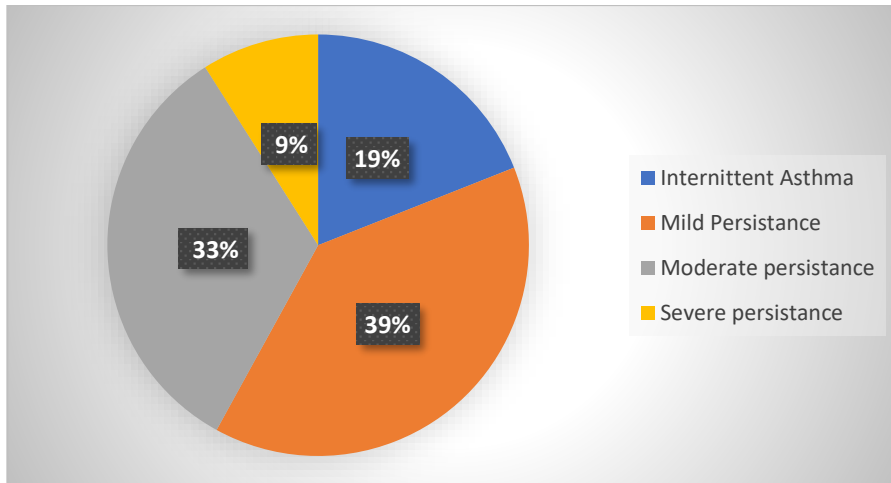

Figure 10: Classification of asthma

⬥ Medication

Here is the different type of medicine prescribed to patients with the different condition of asthma. Here are the total 100 patients where 15% have been prescribed salbutamol. Mostly prescribed monotherapy was given with LTRA in 23% of patients. 11% of patients have been prescribed inhaled corticosteroids budesonide. Loratadine was rarely used in 2% of patients. LTRA + Doxofylline combination had a prevalence of 31% which was the maximum. In the case of severe persistent asthma, 8% of patients had been prescribed formoterol, ipratropium bromide and budesonide combination.

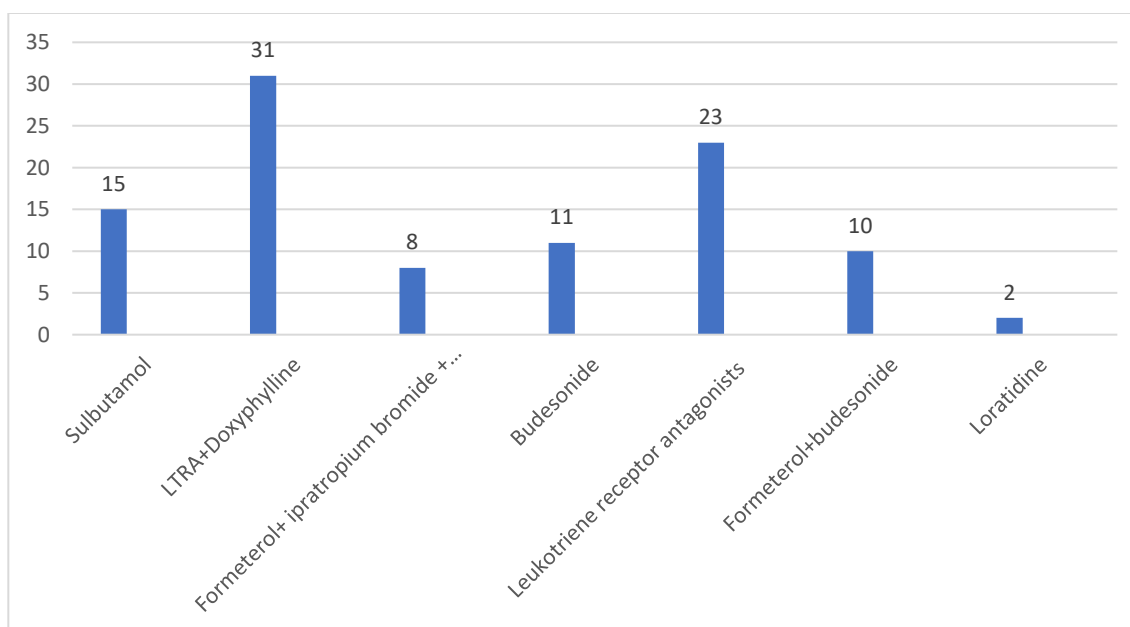| Type of Medication	Number of Patients. (n=100)	Percentage (%)
Salbutamol	15	15
LTRA + Doxofylline	31	31
Formoterol + ipratropium bromide + budesonide	8	8
Budesonide	11	11
Formoterol + Budesonide	10	10
Leukotriene receptor antagonists	23	23
Loratadine	2	2

Table 01: Medication pattern

Figure 11: Prescription pattern

♣ According to the survey response, the majority of respondents (95%) are satisfied with the treatment which is provided by their physician.
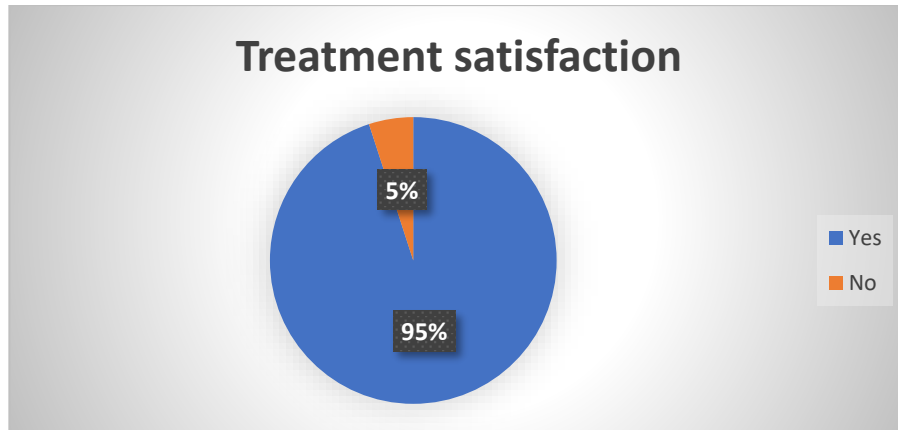

Figure 12: Treatment satisfaction ratio

♣ According to the survey, majority of the respondents (55%) are well known about the prescribed medicines.
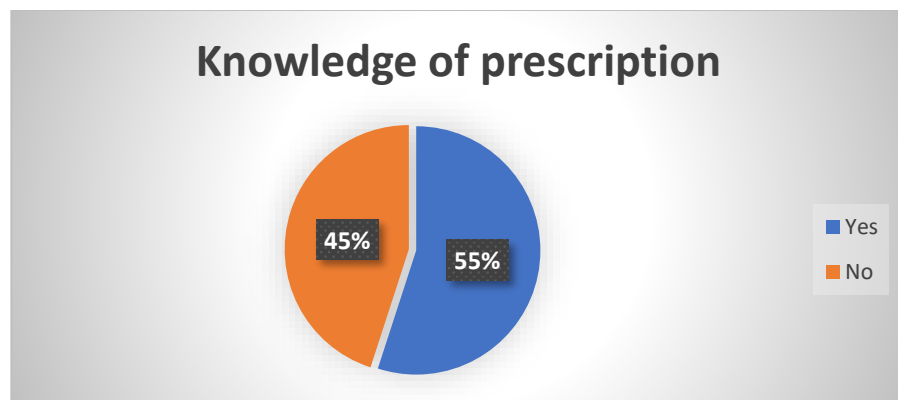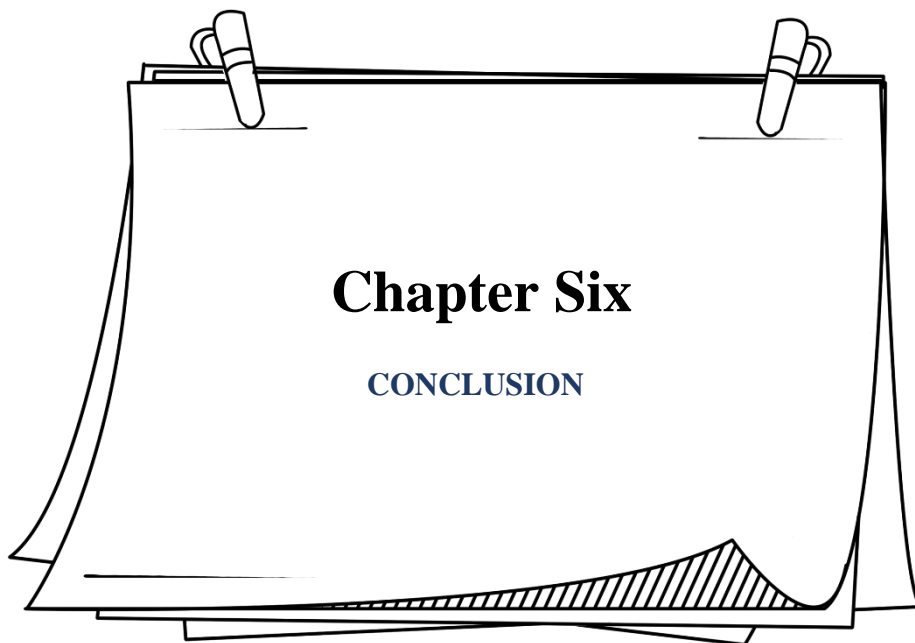

Figure 13: Prescription knowledge ratio

Chapter Six

CONCLUSION

CONCLUSION:

This particular study made it possible to thoroughly and in-depthly review asthma, a number of diagnostic methods, and the doctor's preferred course of treatment. Most of the patients received LTRA as monotherapy, and the majority of them received LTRA plus Doxofylline as combination therapy. This pharmaceutical regimen may meet the requirements for treating asthma. This study shows that the circumstances and patients treated with both monotherapy and combination therapy have an impact on the management of asthma. This study must guarantee that asthma sufferers receive safe and efficient medicine as it will undoubtedly benefit the healthcare system.

Chapter Seven

REFERENCES