Effect of Self Care Management Program for Asthma Patients on Their Quality of Life

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Abstract

Background: Asthma is one of the most prevalent chronic diseases around the world and has a significant impact on quality of life of patients due to their duration, disabilities and exacerbations. **Aim:** To evaluate the effect of self- care management program for asthma patients on their quality of life. **Design:** A quasi-experimental research design was utilized. **Setting:** The current study was carried out at Minia University Cardiothorathic Hospital in inpatient Chest Department and followed up in the Chest Outpatient Clinic. **Subjects:** A purposive sample of 66 adult asthmatic patients (males and females).**Tools:** Two tools were used: **First Tool:** Patient Health Assessment, includes two parts, **First Part:** Socio-demographic data **Second Part:** Medical data. **Second Tool:** Asthma Quality of Life Questionnaire. **Results**: About (27.7 %) of the subjects had severe impairment of their asthma quality of life on pre test, while (18.5 %) of the subjects had minimum impairment of their asthma quality of life after one month from the application of self care management program **(SCMP)** and about (90.8 %) of subjects had moderate impairment of their asthma quality of life on follow up after 3 months. **Conclusion:** implementation of **(SCMP)** affected positively and helped in improving quality of life of asthmatic patients compared to pre **(SCMP)**. **Recommendations**: Continues **(SCMP)** for asthmatic patients on a larger probability sample from dissimilar geographical settings to generalize the finding.

Key Words: Asthma, Program, Quality of Life, Self Care Management

Introduction

Asthma is still partially or not controlled disease in most cases despite the availability of effective treatment options. It is among the most common causes of annual intensive care unit visits and physician admissions. Asthma is a common chronic respiratory condition that affects approximately 300 million people worldwide, with a mortality of around 250,000 per year. It is the 14th most important disorder in the world in terms of the extent and duration of disability. It is a common, chronic respiratory disease characterized by variable symptoms of wheeze, shortness of breath, chest tightness and/or cough, and variable expiratory airflow limitation. Both symptoms and airflow limitation characteristically vary over time and in intensity, particularly at night or in the early morning **(Asher et al, 2021& Mortimer et al, 2022 and Belachew et al., 2023).**

Triggers for exacerbation of asthma include changes in lifestyle, allergen or irritant exposure, change in weather, certain foods, cigarette smoking, dust mites, cold air, physical exercise, obesity, chronic rhino sinusitis, gastro esophageal reflux disease (GERD), viral infection, certain medications. Asthma can also be provoked in response to non allergens like stressful situations and extreme emotional arousal such as anger or fear. Symptoms and airflow limitation may resolve spontaneously or in response to medication, and may sometimes be absent for weeks or months at a time **(Youssef et al., 2023 & GINA, 2023).**

Patients who have asthma can experience episodic flare-ups (exacerbations) of asthma that may be life-threatening and carry a significant burden to patients and the community. During asthma attack three things can happen: A) Bronchospasm: muscles around the airways constrict and make the airways narrow, B) Inflammation: Lining of airways becomes swollen, C) Mucus Production: Increase mucus production which clogs airways. In some asthma attacks, the airways are blocked such that oxygen fails to enter the lungs. This also prevents oxygen from entering the blood stream and traveling to the body's vital organs. Asthma attacks of this type can be fatal, and the patient may require urgent hospitalization. At the same time carbon dioxide deposition in the lungs leads to carbon dioxide poisoning **(Mounika et.al, 2018 & Valero et al, 2019 & Deepa & Satish, 2020 & Meghi et al, 2021 and Bereda, 2022).**

Asthma is treated with two types of medicines: long-term control and quick-relief medicines. Long-term control medicines help reduce airway inflammation and prevent asthma symptoms. Quick-relief, or "rescue," medicines relieve asthma symptoms and are used to reverse bronchodilation in acute asthma attacks. Another treatment is non-pharmacological asthma treatment, which aims to improve asthma control or prevent the disease entirely. It includes environment management, physical exercise, breathing exercises, smoking cessation, influenza vaccines, weight reduction, and the management of anxiety and depression **(Kaewsing etal.,2020 & Bereda, 2022 and Witt et al., 2022).**

Patients who experience asthma often have impaired quality of life (QOL), low pulmonary function, descending exercise tolerance and poor symptom control, which may be life-threatening and carry a significant burden for society. Over the past decade, the goals of asthma management have shifted to focus on achieving better quality of life, keeping good asthma control and reducing future risks, such as decreased lung function, asthma exacerbations, hospitalizations, adverse effects of treatment, and death **(Feng et al., 2021)**.

People living with asthma have to accommodate their long-term condition within the context of their daily life. They need to remember to use regular medication, to keep a supply of inhalers, avoid their triggers where possible, cope with the variability of asthma and the impact this has on their lifestyle. Crucially they have to recognize when their asthma is deteriorating, and make decisions about when to adjust their

medication, when to use emergency treatment and when to seek professional help **(Al moamary et al, 2021)**.

Despite the fact that asthma can't be cured, exacerbations can be prevented and asthma can be controlled by adequate patient counseling and proper self management. Self management is a process used to control one's day to day behavior and develop the skills necessary to maintain acceptable levels of psychosocial functioning and suitable quality of life (QOL). Self management also defined as learning the knowledge and practical skills necessary for living with quality and enjoyment, despite having a chronic illness. Self-management education is thus not an optional extra. It is the duty of all professionals involved in the care of people with asthma to ensure that all patients have personalized advice to enable them to improve their quality of life **(Adachi et al., 2019 & Kharaba et al., 2022)**.

Quality of life refers to satisfaction of individuals in relation to the areas of life issues that are important for individuals. Quality of life (QOL) is important for people with asthma to better evaluate their functional status and symptoms since their QOL is not as good when they are unable to maintain their physical function or experience limitations in their daily and social activities **(Aaron etal., 2018 & Kaewsing et al., 2020)**. If asthma symptoms are controlled, the patient should have fewer exacerbations, reduced emergency use of healthcare resources, reduced emergency department (ED) visits and hospital admissions, lower costs, slower progression of airway remodelling from inflammation, less morbidity and mortality from asthma and higher quality of life **(British Thoracic Society, 2019 & Liao et al., 2019)**.

Significance of the Study

Asthma is a serious global health problem. People of all ages in countries throughout the world are affected by this chronic airway disorder that, when uncontrolled, can place severe limits on daily life and is sometimes fatal. Globally, asthma is ranked as the 16th disease among the leading causes of years lived with disability and 28th among the leading causes of the burden of disease, as measured by disability-adjusted life years **(Dunn et al., 2018 & Ibrahim et al., 2019)**.

According to the data from the 2023 Global Initiative for Asthma (GINA) report, the prevalence of asthma in various countries was between 1 to 29 %, and it was estimated that more than 339 million people worldwide suffer from asthma with a mortality of around 250,000 per year mainly in low and middle income countries **(WHO, 2020 & Cloutier et al, 2020 and Ghozali & Urrohmah, 2023)**. It is estimated that the number of people with asthma will grow by more than 400 million by 2025. In the United States, 7.7% of Americans (more than 27 million) have asthma. This equals about 1 in 12 people **(National Center for Health Statistics, 2023)**. In Egypt, asthma is estimated to be 8.2% and 6.7% among children and adults respectively, being more predominant in males than females (1.2:1) **(Tarraf et al, 2018 & Eissa et al, 2020 & Abd el Hakeem et al, 2022)**.

Patients with asthma play a pivotal role for the under treatment and mismanagement of the disease. Unless the patient possesses basic knowledge about bronchial asthma and its management, there is no likelihood to make the best use of the available facilities. Though my experience as a clinical instructor working in different departments at Minia university chest hospital, I observed that many asthmatic patients have poor control over their disease and this is reflected negatively on their quality of life. I noticed that many patients lack necessary knowledge and skills essential for better asthma control. When patients have good knowledge and practice about bronchial asthma management, they will be able to control asthma and achieve better quality of life.

Aim of the Study:

The present study aimed to evaluate the effect of self-care management program for asthma patients on their quality of life.

Research Hypothesis:

The self care management program will have a positive effect on the quality of life among asthmatic patients.

Operational Definition:

Self management: Self-care management refers to the tasks individuals must undertake to manage chronic conditions, which include confidence to deal with medical management, role management, and emotional management of their conditions. In the context of asthma, it has focused on the medical aspects of living with a variable condition and emphasized the importance of recognizing and acting on symptoms and signs of deterioration **(British Thoracic Society, 2019 & Adachi et al., 2019 & Kharaba et al., 2022)**.

Quality of Life: According to the World Health Organization (WHO), "quality of life" (QOL) is defined as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns (Belachew et al., 2023). Quality of life (QOL) is important for people with asthma to better evaluate their functional status and symptoms since their QOL is not as good when they are unable to maintain their physical function or experience limitations in their daily and social activities (Aaron etal., 2018 & Kaewsing et al., 2021).

Health-related quality of life (HRQoL): HRQOL is defined as a rating of the subjective state of health and quantifies the influence of the illness on daily living and well-being. Thus, HRQOL is a multifaceted phenomenon, including physical, psychological and social dimensions. Especially in the context of chronic illness, treatment does not only aim at prolonging life expectancy or reducing symptoms, but also at promoting health related quality of life (AbdEl-Aziz, 2020& Abdel-Gwad al.,2022 and Ozoh et al., 2022).

Research Design:

A quasi-experimental (QE) research design was utilized in the current study.

Setting:

The current study was carried out at Minia University Cardiothorathic Hospital in inpatient Chest Department and followed up in the Chest Outpatient Clinic. Minia University Cardiothorathic Hospital belongs to the Minia University Hospital in Minia City, Egypt. The inpatient chest department is located at the first floor. It consists of four rooms each room contains about 8-10 beds; two rooms for adult males and two rooms for adult females. The chest outpatient clinic is located at the first floor; it includes one room for examination.

Subjects:

A purposive sample of 65 adult asthmatic patients (males and females). All of them were included in this study with the following inclusion and exclusion criteria:

Inclusion Criteria

Patient has mild and moderate asthma control with previous attacks, age (18 and 65 years old), specialists' confirmation of the patients' asthma, willing to participate and able to communicate with others, and free from immunocompromised disease.

Exclusion Criteria

Patients with mental handicapped, being absent from educational classes for two or more sessions, or participating in other similar educational programs.

Sample Size

It was planned that the sample would be collected a period of 12 months according to the above mentioned inclusion and exclusion criteria. Collected sample 65 adult asthmatic patients

Study Duration

Data collection started from September 2020 to August 2021.

Tools for Data Collection

The current study data were collected by using two tools. These tools were developed by the researchers after revising an extensive relevant literature review **(Harding et al., 2020 & Hinkle et al., 2022)** and reviewed by a panel of five experts. These tools are as follows:

First Tool: Patient's Health Assessment: It includes two parts:

First Part: Socio- demographic data was developed by the researchers. Covered the following: Patient's age, sex, phone number, marital status and level of education, occupation, socioeconomic status, and living situation.

Second Part: Medical data of the patient. It covered:
A. Past history such as family history of asthma, sibling with asthma, smoking, duration of bronchial asthma, severity of asthma, inhaler devices (type, duration and frequency), hospitalization during last year due to the disease, and asthma triggers.
B. Current Medical data as: date of admission, time of follow up, daily activities, medications used, presence of co-morbid medical illness and body mass index (BMI).

The International classification of adult underweight, overweight and obesity according to BMI as follow: underweight if < 18.5, normal weight from 18.5-24.9, overweight (pre-obese) from 25-29.9, and obese class 1 from 30-34.9, obese class II from 35-39.9 and obese class III ≥ 40. BMI = Body weight (kg)/(Height in meters)^2(yadav, 2018).

Second Tool: Asthma quality of life questionnaire (AQLQ):

Second tool adopted from **Juniper (1999)** who developed the AQLQ in order to evaluate the quality of life of patients diagnosed with asthma. The AQLQ has 32 items and includes 4 domains: symptoms (12 items), emotional function (5 items), environmental stimuli (4 items), and activity limitation (6 generic and 5 patient-specific items).This allows patients to select 5 activities in which they are most limited and these activities will be assessed at each follow-up. Patients are asked to think about how they have been during the previous two weeks and to respond to each of the 32 questions on a 7-point scale with 7 representing no impairment of quality of life at all and 1 representing severe impairment.

Scoring System: The overall AQLQ score is the mean of all 32 responses and the individual domain scores are the means of the items in those domains. Total scores obtained from the scale range between 32 and 224 and average scores change between 1 and 7. Higher total or sub dimension scores indicate a better quality of life. Scoring system of AQLQ was classified into the following categories: minimum or no impairment (score ≥6.0), moderate impairment (score 3.0–5.9), and severe impairment (score <3.0) **(Garina et al., 2020).**

Educational asthma control booklet: It was prepared by the researchers based on knowledge and skills needs. It was supplemented with information based on a review of relevant literature about bronchial asthma **(Harding et al., 2020 & Hinkle et al., 2022)**. The booklet was reviewed by supervisors and consists of two parts: **Theoretical part covered:** introduction to the disease, definition of bronchial asthma, asthma triggers, signs and symptoms, complications, prevention, medication, and actions during asthma attacks. **Practical part covered:** using inhalers or nebulizers, breathing and coughing exercises, diaphragmatic breathing, oral care, and also self-care strategies in case of any related problems such as: dyspnea, orthopnea, cough, cyanosis, and chest pain.

The researcher used language in a simple form to be convenient to the patients' level, with motivation and reinforcement to enhance learning. Study participants were received a handout booklet that was written in Arabic and established for future use. It was designed and supported with photos to help patients and their families understand the content of the booklet.

Tools Validity:

The developed study tools were submitted to a jury of five experts specializing in the fields of Medical Surgical Nursing (MSN) to test their content validity and clarity of items. The tools were examined for clarity, relevance, applicability, wording, length, format, and overall appearance. Jury agreed that the current study tools were valid and relevant to the aim of the study.

Tools Reliability:

Reliability was ascertained statistically by using the Alpha Cronbach test to ensure that the study tools were reliable. Reliability of Asthma quality of life questionnaire was (0.987).

Pilot Study

A pilot study was carried out on 10% (n = 6) of the total sample of patients admitted to the previously mentioned setting, meeting inclusion criteria to test the applicability, clarity, and objectivity of the study tools and estimate the time required for fulfilling them. Based on the results of the pilot study, no modifications were made to data collection tools so;

the patients who were included in the pilot study were also included in the actual study sample.

Ethical Considerations

Official permission to conduct the study was obtained from the ethical committee of research, the dean of the faculty of nursing at Minia University, director of Minia University Cardiothorathic Hospital, academic for the research center and technology, and the head nurse of the unit. Patients in this study were entirely voluntary and were informed about the aim, purpose, procedure, benefits and nature of the study and had the right to refuse to participate or withdraw from the study independently at any time without any rationale. Informed oral consent was obtained from the subjects, and informed them that obtained data will not be included in any further research without a second consent. For each subject, confidentiality and anonymity were guaranteed through coding all data and protecting the collected data.

Study Procedure
Preparatory Phase

The researcher carried out the present study after formal authorization was achieved, tools were prepared through reviewing the current and relevant related literature and theoretical knowledge of the various related aspects using textbooks, and articles, and it ended by carrying out the pilot study.

Implementation Phase

1. The researchers obtained written informed consent from those who agreed to participate in the study.
2. The researchers have begun a collection of data from study subjects by obtaining patient's demographic and medical characteristics from patient by using Tool I: Patient Health Assessment, Tool II: Asthma Quality of Life Questionnaire on the first day. The implementation time for this tool was (1 hour).
3. The researchers prepared the training places, teaching aids and media (computer, picture, and handout).
4. Self care management program was conducted to study subjects through discussion, demonstration, and re-demonstration. Patients were divided into groups according to age and level of education.
5. Carrying out the program had been done through providing five educational sessions classified into two sessions for the theoretical part and three sessions for the practical part. Each session lasted for 20-30 minutes included face to face lectures, video and physical demonstration firstly by the researcher and then let the patient re-demonstrate skills.
6. Patients were given educational asthma control booklet prepared by the investigator to ensure that patients will perform exercises accurately after their hospital discharge.

The asthma educational sessions was applied as follow:

- Session I: Includes introduction about the disease, definition of bronchial asthma and asthma triggers.
- Session II: Includes the information on complications, prevention, dietary practices, medication, and warning signs.
- Session III: Preventive measures for asthma trigger exposure and acute attacks by self-monitoring and actions during asthma attacks.
- Session IV: Includes demonstration and re-demonstration about use of inhalers, nebulizer, and spirometry by using real objects.
- Session V: Includes demonstration and re-demonstration about breathing and coughing exercise, diaphragmatic breathing, oral care, and positioning.

Evaluation Phase

- The researchers followed up patients two times 1st follow up (post one month) and 2nd follow up (post three months) from implementation of asthma self-care management program.
- Follow-up of the development of the patient's condition done through several telephone calls.
- The Pre-test and Post-test scores were compared to evaluate the effectiveness of the self- care management program.

Limitations of the Study

The finding is less amenable to generalization because the sample was selected from one geographical area in Egypt. Limited national studies have been conducted regarding the correlation between the application of self care management program and asthma quality of life. Some of the participating patients were unable to read and write, we helped them to fill out the questionnaires and we explained it to them. Some lectures were shortened to reduce the feeling of the bored people because the aim was awareness.

Statistical Analysis of Data:

All statistical tests were conducted using SPSS for windows version 25.0 (SPSS, Chicago, IL). Continuous data were normally distributed and were expressed in mean ±standard deviation (SD). Categorical data were expressed in frequency and percentage. Chi-square test was used for comparison of variables with categorical data. The comparisons were determined using Repeated ANOVA test for repeated measures with continuous data Pearson correlation analysis was used for assessment of the inter-relationships among quantitative variables. Statistical significance was set at $p < 0.05$

Results
Table 1: Sociodemographic Characteristics of the Study Patients (N=65).

Items	No	%
Age Group (Years)		
• 20:30	7	10.8
• 31:50	28	43.1
• 51:65	30	46.1
Mean Age ± SD	48.969 ± 10.474	
• Min.	27	
• Max.	65	
Gender		

Items	No	%
• Male	47	72.3
• Female	18	27.7
Marital Status		
• Married	58	89.2
• Not married	7	10.8
Occupation		
• Hand Craft (Industry)	28	43.1
• Farmer	19	29.2
• Housewife	18	27.7
Education		
• Illiterate	6	9.2
• Read & Write	12	18.5
• Secondary	26	40
• Higher Education	21	23.3
Residence		
• Rural	39	60
• Urban	26	40
Economic status		
• Low (up to 1500 Pound)	24	36.9
• Moderate (3000 Pound)	41	63.1

Table 1 showed that the mean age of the study patients was 48.969 ± 10.474. Concerning gender, the results revealed that the majority of the study patients (72.3%) were males. As regards marital status, the results revealed that the majority of the study patients (89.2%) were married. Concerning occupation, the study data demonstrated that less than half of the study patients (43.1%) were handcrafters (industry), and about one third of the study patients (29.2%) were farmers. Concerning educational level, the study data demonstrated that less than half of the study patients (40%) had secondary education. In respect to residence, the results revealed that more than half of the study patients (60%) lived in rural areas.

Table 2: Distribution of the Study Patients Regarding their Asthma Triggers (N=65).

Triggers of Asthma	Yes		No	
	Yes	No %	Yes	No%
• Dust	65	100	0	0
• Smoke	65	100	0	0
• Cold	32	49.2	33	50.8
• Exercise	39	60	26	40
• Perfume	33	50.8	32	49.2

Table 2 reflected that all study patients developed asthma symptoms when they were exposed to smoke or dust. Also, more than half of the study patients (60%) developed asthma symptoms when they practiced heavy exercise
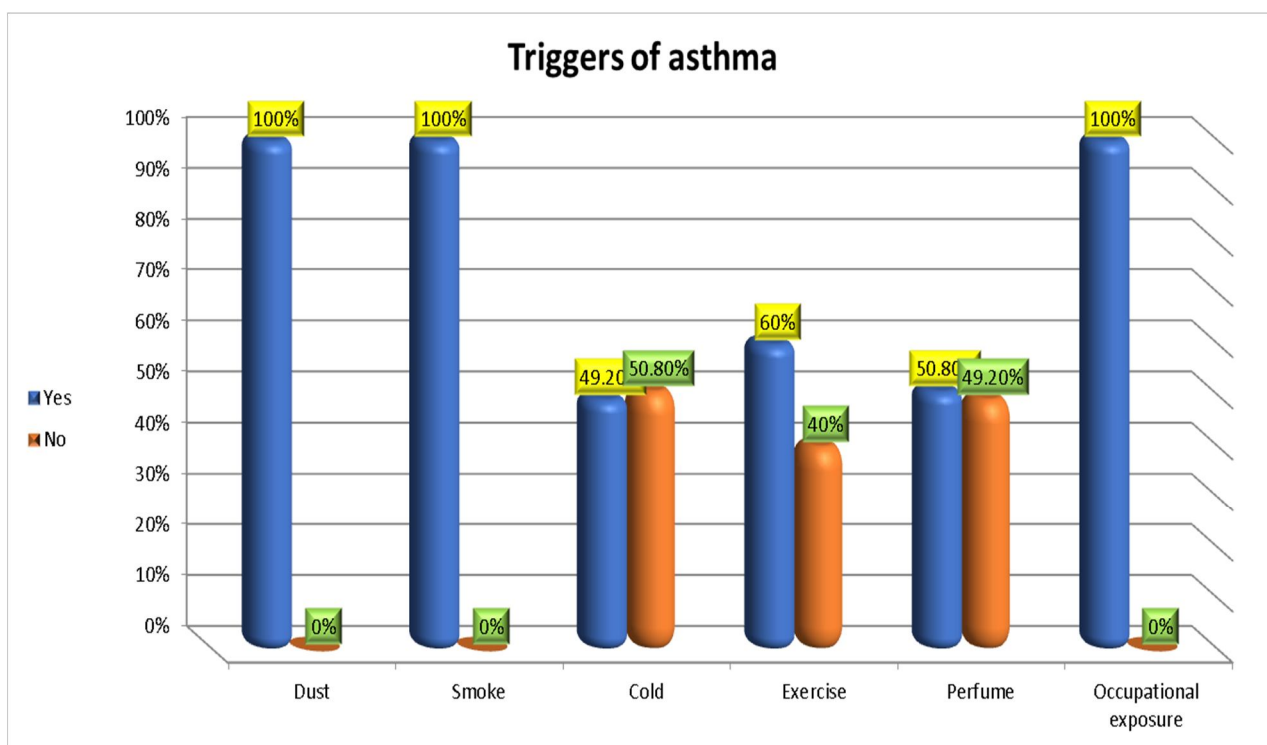

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Table 3: Distribution of the Study Patients Regarding their Past History (N=65).

Items	No	%
Smoking History		
• Active	13	20
• Passive	34	52.3
• Non-smoker	18	27.7
Years of Smoking (N=47)		
• 5-10 Years	14	29.8
• 11-20 Years	20	42.6
• >20 Years	13	27.6
Mean ± SD	16.234 ± 1.280	
Relatives Complaining of Asthma		
• First Degree	32	49.2
• Second Degree	12	18.5
• Not Present	21	32.3
Receiving Health Education About Quality of Life of Asthma		
• Yes	20	30.8
• No	45	69.2

Table 3 illustrated that more than half of the study patients (52.3%) were passive smokers, and the mean years of smoking were 16.234 ± 1.280. In respect to receiving health education, the results revealed that the majority of the study patients (69.2%) had not received any educational program previously
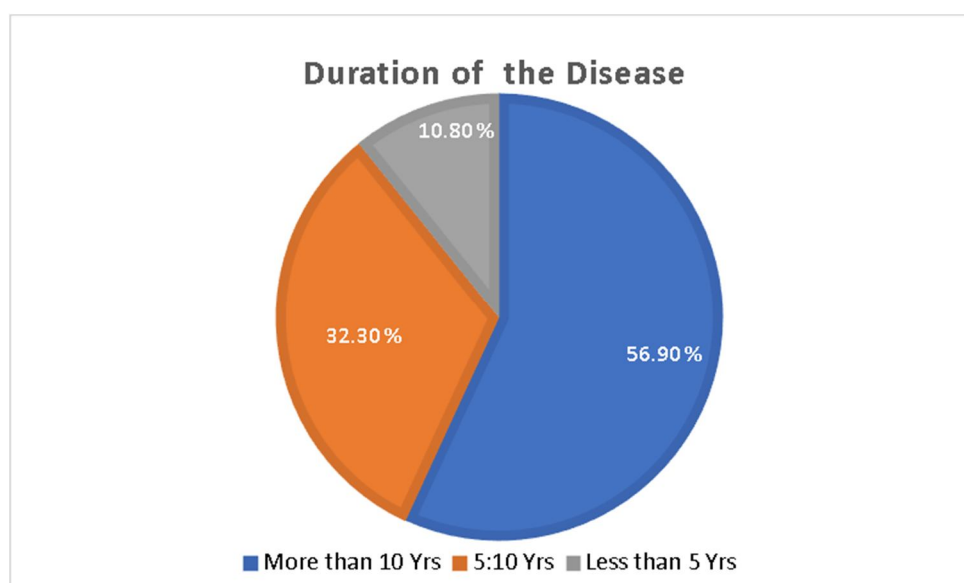

Figure 2: Distribution of the Study Patients Regarding Duration of Disease (N=65).

Figure 2 reflected that more than half of the study patients (56.9%) suffered from asthma more than 10 years ago
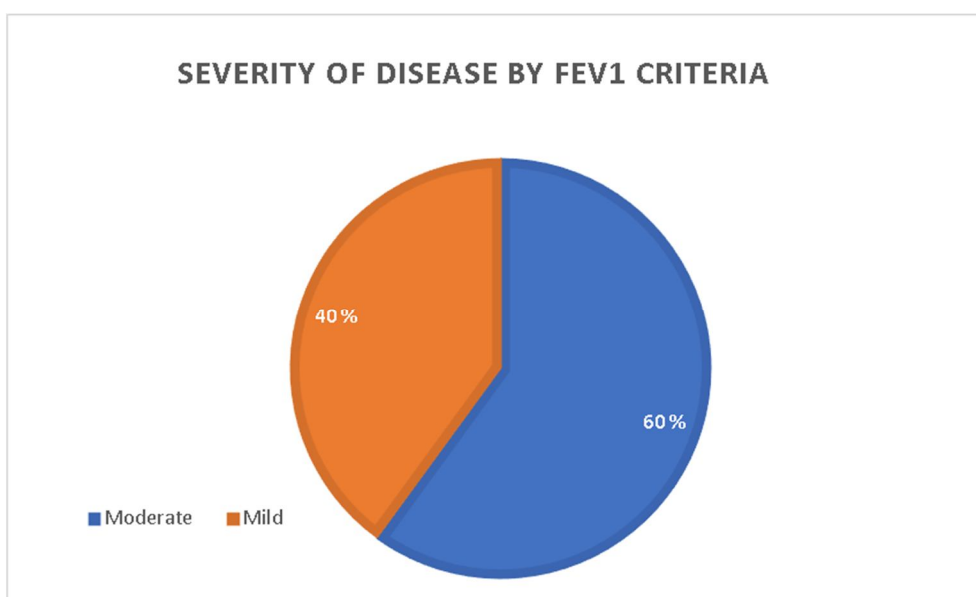

Figure 3: Distribution of the Study Patients Regarding Severity of Disease by FEV1 Criteria (N=65).

Figure 3 illustrated that less than two-thirds of the study patients (60%) had moderate disease severity.
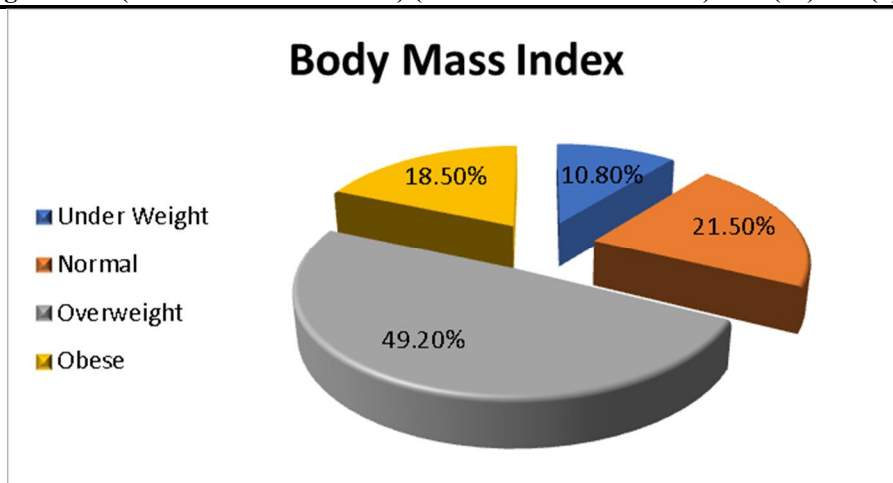
Body Mass Index

Figure 4: Distribution of the Study Patients Regarding their Body Mass Index (N=65).
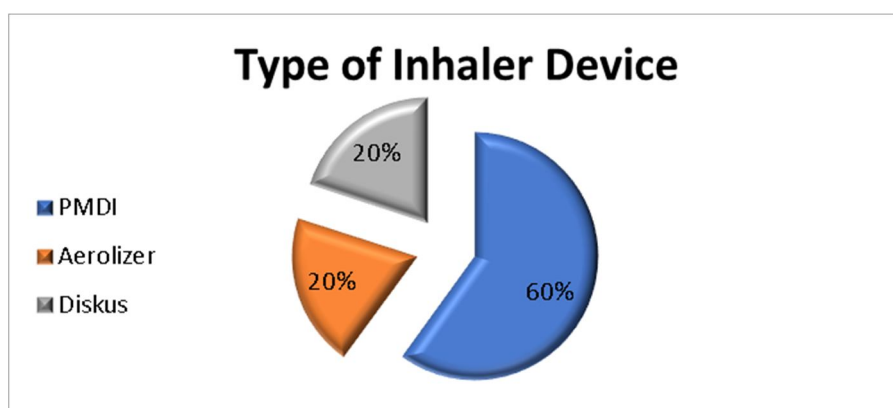**Figure 4** revealed that less than half of the study patients (49.2%) were overweight

Type of Inhaler Device

Figure 5: Distribution of the Study Patients Regarding Type of Inhaler Device (N=65).
Figure 5 mentioned that almost two-thirds of the study patients (60%) used PMDI inhaler devices
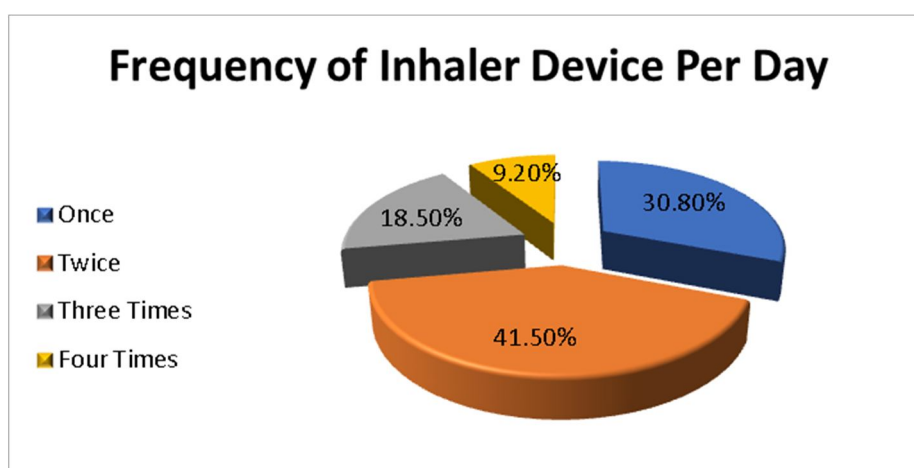
Frequency of Inhaler Device Per Day

Figure 6: Distribution of the Study Patients Regarding Frequency of Inhaler Device per Day (N=65).
Figure 6 demonstrated that less than half of the study patients (41.5%) used the inhaler device twice daily

Table 4: Frequency and Percentage Distribution of Study Patients According to Asthma Quality of Life Levels (N=65).

Levels	Pretest		Post1		Post2		Significance
	No	%	No	%	No	%	
Minimum Impairment (score ≥6.0)	0	0	12	18.5	6	9.2	$X^2= 50.400$, $p= 0.000**$
Mean (SD)	0		193.500(4.700)		194.833(0.408)		
Moderate Impairment (score 3.0– 5.9)	47	72.3	53	81.5	59	90.8	
Mean (SD)	131.553(16.418)		161.773(22.132)		159.305(18.431)		
Severe Impairment (score <3.0)	18	27.7	0	0	0	0	
Mean (SD)	92.333(0.566)		0		0		

X^2 refers to chi square test, X^2 refers to Friedman test, ** refers to highly significance if p less than 0.001

Table 4 & figure 7 showed that almost one third of the study patients (27.7%) had severe impairment of their asthma quality of life on Pretest while (18.5%) of the study patients had minimum impairment of their asthma quality of life on Post-test 1 and majority of the study patients (90.8%)had moderate impairment of their asthma quality of life on Post-test 2.The results revealed that there was a highly Statistical significant difference regarding asthma quality of life between Pretest, Post-test 1 and Post-test 2
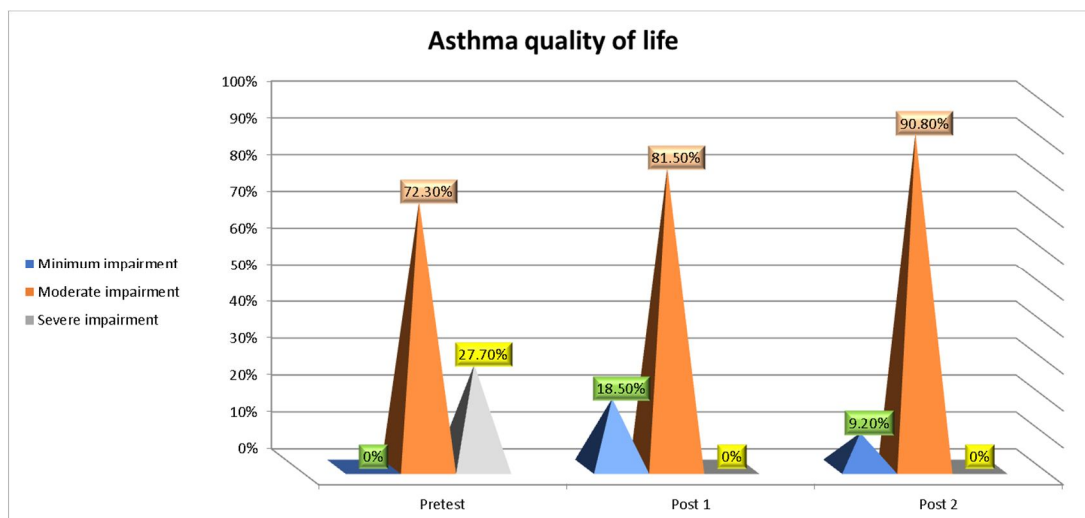

Figure 7: Frequency and Percentage Distribution of Study Patients According to Asthma Quality of Life Levels (N=65)

Table 5: Relation Between Asthma Quality of Life (AQLQ) and Age Group, Gender, Marital Status and Occupation of the Study Patients (N=65).

Items	Pretest		Post 1		Post 2	
	Moderate Impairment	Severe Impairment	Minimum Impairment	Moderate Impairment	Minimum Impairment	Moderate Impairment
	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)
Age group (Years)						
• 20:30	7(10.8)	0(0)	0(0)	7(10.8)	0(0)	7(10.8)
• 31:50	28(43.1)	0(0)	6(9.2)	22(33.8)	0(0)	28(43.1)
• 51:65	12(18.5)	18(27.7)	6(9.2)	24(36.9)	6(9.2)	24(36.9)
Significance	X² =29.043 , *p=0.000**		X² =1.796 , *p=0.407*		X² =7.712 , *p=0.021**	
Gender						
• Male	47(72.3)	0(0)	12(18.5)	35(53.8)	6(9.2)	41(63.1)
• Female	0(0)	18(27.7)	0(0)	18(27.7)	0(0)	18(27.7)
Significance	X² =65.00 , *p=0.000**		X² = 5.636 , *p=0.013**		X² =2.532 , *p=0.130*	
Marital Status						
• Married	40(61.5)	18(27.7)	12(18.5)	46(70.8)	6(9.2)	52(80)
• Not Married	7(10.8)	0(0)	0(0)	7(10.8)	0(0)	7(10.8)
Significance	X² =3.004 , *p=0.090*		X² =1.776 , *p=0.221*		X² = 0.798 , *p=0.490*	
Occupation						
• Hand craft	28(43.1)	0(0)	0(0)	28(43.1)	0(0)	28(43.1)
• Farmer	19(29.2)	0(0)	12(18.5)	7(10.8)	6(9.2)	13(20)
• Housewife	0(0)	18(27.7)	0(0)	18(27.7)	0(0)	18(27.7)
Significance	X² =65.00 , *p=0.000**		X² = 35.631 , *p=0.000**		X² =16.004 , *p=0.000**	

Table 5 revealed that there was a statistical significant relation between asthma quality of life and occupation of the study patients on pretest, post-test 1 and post-test 2. Regarding marital status, the results revealed that there was no statistical significant relation between asthma quality of life and marital status of the study patients on pretest, post-test 1 and post-test 2

Table 6: Relation Between Asthma Quality of Life (AQLQ) and Educational Level, Residence, and Income of the Study Patients (N=65).

Items	Pretest		Post 1		Post 2	
	Moderate Impairment	Severe Impairment	Minimum Impairment	Moderate Impairment	Minimum Impairment	Moderate Impairment
	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)
Educational Level						
• Illiterate	0(0)	6(9.2)	0(0)	6(9.2)	0(0)	6(9.2)
• Read& Write	0(0)	12(18.5)	0(0)	12(18.5)	0(0)	12(18.5)
• Secondary	26(40)	0(0)	12(18.5)	14(21.5)	6(9.2)	20(30.8)
• Higher Education	21(32.3)	0(0)	0(0)	21(32.3)	0(0)	21(32.3)
Significance	X² =65.00 , *p=0.000**		X² =22.075 , *p=0.000**		X² =9.915 , *p=0.019**	
Residence						
• Rural	27(41.5)	12(18.5)	12(18.5)	27(41.5)	6(9.2)	33(50.8)
• Urban	20(30.8)	6(9.2)	0(0)	26(40)	0(0)	26(40)
Significance	X² =0.461 , p=0.349		X² =9.811 , p=0.001*		X² =4.407 , *p=0.039**	
Income						
• Low	6(9.2)	18(27.7)	6(9.2)	18(27.7)	6(9.2)	18(27.7)
	41(63.1)	0(0)	6(9.2)	35(53.8)	0(0)	41(63.1)

Items	Pretest		Post 1		Post 2	
	Moderate Impairment	Severe Impairment	Minimum Impairment	Moderate Impairment	Minimum Impairment	Moderate Impairment
	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)
• Moderate						
Significance	X² =42.527 , *p=0.000***		X² =1.081 , *p=0.237*		X² =11.292 , *p=0.002**	

X² refers to chi square test,* refers to significance if *p* less than 0.05 & ** refers to highly significance if *p* less than 0.001

Table 6 revealed that there was a statistical significant relation between asthma quality of life and educational level of the study patients on pretest, post-test 1 and post-test 2. Regarding residence, the results revealed that there was a statistical significant relation between asthma quality of life and residence of the study patients on post-test 1 and post-test 2

Table 7: Relation between Asthma Quality of Life (AQLQ) and Duration of Disease, Smoking History, Body Mass Index, and Disease Severity of the Study Patients (N=65).

Items	Pretest		Post 1		Post 2	
	Moderate Impairment	Severe Impairment	Minimum Impairment	Moderate Impairment	Minimum Impairment	Moderate Impairment
	N(%)	N(%)	N(%)	N(%)	N(%)	N(%)
Duration of Disease (Years)						
• ‹ 5	7(10.8)	0(0)	0(0)	7(10.8)	0(0)	7(10.8)
• 6:10	21(32.3)	0(0)	0(0)	21(32.3)	0(0)	21(32.3)
• +10	19(29.2)	18(27.7)	12(18.5)	25(38.5)	6(9.2)	31(47.7)
Significance	X² = 18.838 , *p=0.000***		X² =11.137 , *p=0.004**		X² =5.002 , *p=0.082*	
Smoking History						
• Active	13(20)	0(0)	0(0)	13(20)	0(0)	13(20)
• Passive	34(52.3)	0(0)	12(18.5)	22(33.8)	6(9.2)	28(43.1)
• Non-smoker	0(0)	18(27.7)	0(0)	18(27.7)	0(0)	18(27.7)
Significance	X² =65.127 , *p=0.000***		X² = 13.418 , *p=0.001**		X² = 6.027 , *p=0.049**	
Years of Smoking (N=47)						
• 5-10	14(29.8)	0(0)	0(0)	14(29.8)	0(0)	14(29.8)
• 11-20	20(42.6)	0(0)	12(25.5)	8(17)	6(12.8)	14(29.8)
• +20	13(27.7)	0(0)	0(0)	13(27.7)	0(0)	13(27.7)
Significance	X² =--- , *p=----*		X² = 21.754 , *p=0.000***		X² =9.285 , *p=0.010**	
Body Mass Index						
• Under Weight	7(10.8)	0(0)	0(0)	7(10.8)	0(0)	7(10.8)
• Normal	14(21.5)	0(0)	0(0)	14(21.5)	0(0)	14(21.5)
• Overweight	26(40)	6(9.2)	12(18.5)	20(30.8)	6(9.2)	26(40)
• Obese	0(0)	12(18.5)	0(0)	12(18.5)	0(0)	12(18.5)
Significance	X² =40.654 , *p=0.000***		X² =15.177 , *p=0.002**		X² =6.817 , *p=0.078*	
Disease Severity						
• Mild	26(40)	0(0)	12(18.5)	14(21.5)	6(9.2)	20(30.8)
• Moderate	21(32.3)	18(27.7)	0(0)	39(60)	0(0)	39(60)
Significance	X² = 16.596 , *p=0.000***		X² =22.075 , *p=0.000***		X² =9.915 , *p=0.003**	

Table 7 revealed that there was a statistical significant relation between asthma quality of life and duration of disease, smoking history, body mass index, and disease severity of the study patients on pretest, post-test 1.

Discussion:

Regarding socio-demographic characteristics, past history, and current medical data of the study sample:

Based on the findings of the present study, it has been noticed that out of 65 total participants, nearly half of the study patients were in the age group (51-65 years). These findings were incongruent with (Abd El Hamid & Amer., 2023), who reported in their study that a minority of the study patients were in the same age group. From the researcher's point of view, the reason that most of the cases are from the age group (51-65 years) is because elderly asthmatic patients were the most affected people during the Corona virus pandemic. In addition, many patients at this age have a poor prognosis, with a faster decline in lung function and more severe persistent airflow limitation, which affects self-management outcomes.

Regarding gender, the present study illustrated that majority of the study patients were males. These results are in accordance with (Nadeem et al., 2022) who reported in their study that most of the study patients were males. In contrast, with (Ibrahim, Shahin & Abdelkadr., 2019) & (Ahmed et al., 2020) & (Abegaz et al., 2021) and (Mohammed & Abo Zaed., 2023) reported that most of the study patients were females. Scientifically, females after puberty are at high risk for developing bronchial asthma than males, as supported by (Hinkle et al., 2022).

The Researcher suggests that increase number of male patients than females in our study may be due to increased rate of smoking, work in industrial crafts, and exposure to asthma triggers in men in Upper Egypt. This is confirmed by (Stern et al., 2020) who reported that cigarette smoking is associated with an accelerated decline of lung functioning in a person with asthma, increases the severity of the disease, and reduces the chance of the asthma being controlled.

Concerning marital status and residence, the current study revealed that almost all patients were married and majority of patients come from rural regions. This result goes with the same line with (Kebede & Mamo and Molla., 2019) & (Abo El-Fadl & Sheta., 2019) who reported in their study that all patients were married and majority of patients came from rural regions.

The researcher's point of view, being the patient from rural areas, interferes with access to healthcare facilities. The researcher notes that many Governorates in Upper Egypt predominantly comprise villages with potentially limited healthcare resources. There was also the suggestion that low income and other socioeconomic factors were more prevalent in rural patients, so that they couldn't afford medical care. This

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finding generates questions into the accessibility and utilization of preventative, screening, and diagnostic services in less-populated rural areas. However, this contradicts (Talaat et al., 2023) research, which indicated that the majority of their examined patients resided in urban settings.

In light of the results of the current study, it is clear that nearly half of the study patients had completed secondary education. This aligns with (Eissa et al., 2020) findings, indicating in their study that nearly half of their participants had completed secondary education. From the researcher's point of view, in general, patients with lower socioeconomic status and less formal education tend to be having more advanced diseases. Egyptian rural culture in the past didn't allow individuals to attend or complete their educational level which contributed to a lack of familiarity with awareness of warning signs and risk factors of bronchial asthma. In contrast, (Kaewsing et al., 2021) reported that more than half of their participants had completed elementary education.

Based on the finding of the present study, it has been noticed that nearly half of the study patients were craft workers. These results were compatible with (Ibrahim & Ahmed and Ahmed., 2019), who cited on their study that nearly half of the study patients were craft workers. According to the researcher's opinion, this finding reflects that craft workers exposed to environmental air pollution (asthma triggers) at work place which increasing the risk of bronchial asthma. This result also may be due to the life style and attitude of manual worker as smoking, drug addict and lack of awareness about disease management. On the other hand, (Maulood et al., 2023) and (Kumar & Kamdar and Karnani., 2018) reported in their study that only quarter of the study patients were craft workers.

Regarding economic status, the current study showed that more than half of the study patients with moderate economic status. These results goes on the same line with (Kharaba et al., 2022) who reported in their study that nearly half of the study patients have moderate monthly income. These results contradict (Mohammod & Kunsongkeit and Masingboon., 2019) & (Abbas & Amen., 2019) who reported in their study that more than half of the study patients have low income.

In relation to smoking history, the present study revealed that nearly quarter of the study patients were active smokers. These results were on the same line with (Louis et al., 2021) who reported on their study that nearly quarter of the study patients were active smokers. Also, (Amin & Shafik and fouad., 2019) reported on their study that more than third of the study patients were active smokers. On the other hand, (Alzahrani et al., 2024) reported that almost all study patients were non smoker.

Considering family history of asthma, finding of the present study revealed that most of the study patients had positive family history of asthma. These results were in agreement with (Maulood et al., 2023) who reported in their study that more than half of the study patients had positive family history of asthma. Also, (Elbanna et al., 2017) reported that nearly half of the study patients had positive family history of bronchial asthma. These results were supported with (Stern et al., 2020) who mentioned that The Center for Disease Control (USA) said that having a parent with asthma increases a person's risk by three to six times to suffer from bronchial asthma. In contrast, (Jarab et al., 2023) reported in their study that nearly one third of the study patients had positive family history of asthma.

Regarding severity of disease, it was noticed that more than half of the study patients have moderate asthma. This result is in accordance with (Ahmed & Taha and Moghazy., 2022) who reported in his study that most of the study patients have moderate persistent asthma. On the other side (Zeru & Engidawork , and Berha., 2020) reported on their study that only quarter of the study patients have moderate persistent asthma. Also, (Pauline et al., 2021) & (Song et al., 2021) reported in their study that majority of the study patients have mild asthma.

In regard to asthma triggers, finding of the current study reflected that more than half of the study patients developed asthma symptoms if they practiced heavy exercise or exposed to cold weather. These results matching with (Belachew et al., 2022) who reported that more than half of the study patients developed asthma symptoms if they practiced heavy exercise and nearly half of the study subjects develop asthma symptoms if they exposed to cold weather. Furthermore, results of our study reflected that almost all study patients developed asthma symptoms when they exposed to any kind of smoke. These results is nearly close to (El Abed et al., 2023) who reported that majority of study patients suffered from asthma exacerbation (asthma attack) when they exposed to smoke for long period.

Concerning duration of disease, results revealed that more than half of the study patients have been suffering from bronchial asthma for more than ten years. These results are consistent with (Koh et al., 2021) & (Abbas & Amen., 2019) who reported on their study that more than half of the study patients have been suffering from bronchial asthma for more than ten years.

In relation to body mass index (BMI), our study results mentioned that less than half of the study patients were overweight. These results comes in accordance with (El Abed et al., 2023) & (Ilmarinen et al., 2023) who reported that less than half of the study patients were overweight with body mass index BMI ($\geq 25 - \leq 30$). In contrast, (Banjar et al., 2023) reported that less than half of the patients had normal body weight with BMI ($\geq 18 - \leq 25$) .

Concerning levels of asthma quality of life of the study subjects.

In relevancy to Quality of life of the study subjects, it was clear that most of the study patients had moderate impairment of their quality of life and only one quarter of the study patients had severe impairment of their quality of life before self care management program. These results are supported by (Alzahrani et al., 2024) & (Rask-Andersen et al., 2022) & (Georga et al., 2019) who reported that majority of the study patients had moderate impairment of their quality of life. In contrast, these results were incongruent with (Sanz‑Santiago et al., 2020) & (Ali et al., 2020) & (Kosse et al., 2019) who reported that most of the study patients had severe impairment of their health related quality of life.

According to the researcher's point of view, the reason for these results is that most of the study subjects are from rural areas, lower educational level and socioeconomic status, poor adherence to treatment plan because of the high prices of asthma medications (Inhalers), majority of patient didn't receive any health education program about their disease, and the lack of interest from health institutions in providing health education programs for patients with bronchial asthma.

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These assumptions were supported by (Khraba et al., 2022) who reported that patients of lower socioeconomic status often report poor health behaviors that may exacerbate asthma, including higher rates of current smoking, reduced consumption of fruits and vegetables, and obesity. Also, patients with lower educational level have lower socioeconomic status and may have higher exposures to indoor and outdoor allergens, and tend to be less complaint with medication, thus increasing risk for acute asthma exacerbations which impair their asthma control and quality of life.

Concerning comparison between quality of life levels before self care management program (Pre Test) and after self care management program by three months (Follow Up), our study results reflected that more than half of patients had moderate impairment of their quality of life. Findings also reflected that after application of self care management program by three months on follow up, majority of study patients had moderate impairment of their quality of life (Average QOL).

These results were near similar to (El Abed et al., 2023) who reported that more than half of patients had moderate impairment of their quality of life before self management program application and more than half of study subjects had moderate impairment of their quality of life (Average QOL) after application of self care management program by three months.

Our study results reflected that there was a highly statistical significant difference regarding asthma quality of life before and after (one month & three months) from self care management program. These results supported by (Shahid et al., 2024) & (Nadeem et al., 2022) & (Rodrigues et al., 2021) & (Yuci & Tasci., 2020) & (Diop et al., 2019) and (Bruton et al., 2018) Who reported that there was a highly significant difference regarding asthma quality of life before and after educational interventions. They also reported that quality of life of almost all cases improved after educational interventions.

Relation between asthma quality of life and socio-demographic characteristics of the study sample.

Gender and age may influence the quality of life in patients with asthma. In the present study, there was a Statistical significant relation between asthma quality of life and gender, age, educational level and income of the study subjects. Also, it was noticed that quality of life was higher in males than females. These results is consistent with (Kharaba et al., 2022) who reported that there was a Statistical significant relation between asthma quality of life and gender, educational level and socio economic status of the study patients.

Our study results also come in agreement with (Allam & AlKilani and Mogahed., 2017) & (Amin & Shafik and Fouad., 2019) who reported that there was a significant relation between quality of life and gender, age and educational level of the study patients. They also reported that total asthma quality of life questionnaire score (AQLQ) was higher in males than females.

From the researcher point of view, these results might be due to decrease number of females on the study sample and higher prevalence of anxiety and depression among women compared to men. For women with asthma, fluctuations in endogenous hormone levels are correlated with changes in their asthmatic condition, women have major role

to play both in the society and at home thus the morbid disease like asthma has an additive role in an impairment of health related quality of life (HRQOL) (Nalina & Khandra., 2015). On the other hand, (Albataineh et al., 2020) & (Al Shahrani et al., 2017) reported there was no significant relation between quality of life and gender and age of the study subjects.

In relation to quality of life and current medical data of the study subjects, results revealed that there was a Statistical significant relation between Asthma Quality of Life and duration of disease, smoking history, body mass index, and disease severity of the study subjects. These findings supported by (louis et al., 2021) who reported that there was a significant relation between asthma quality of Life and duration of disease, smoking history, body mass index. On the other side, (Albataineh et al., 2020) reported that there were no significant differences regarding asthmatic patients' quality of life (QOL) according to their duration of disease, smoking history, and body mass index.

Conclusion:

Based on the study findings, it can be concluded that almost one third of the study patients had severe impairment of their asthma QOL before application of self care management program while nearly quarter of the study patients had minimum impairment of their asthma QOL after one month from the application of self care management program and almost all study patients had moderate impairment of their asthma QOL on follow up after three months.

Recommendations:
1. **Nurses:**
   - Designing educational training programs to upgrade nurses' knowledge and practice regarding control asthma to improve patient's quality of life.
   - Designing simplified booklet including basic information about improving quality of life of patients with asthma.
2. **Patients:**
   - Continues self-management programs for asthmatic patients focusing on management behaviors especially asthmatic triggers prevention, and asthma attack management.
3. **Further Research:**
   - Replication of the current study on a larger sample size for various geographical areas to generalize the findings.
4. **Hospital:**
   - Assess the cost-effectiveness of implementing self care management program for asthmatic patients and explore potential strategies for resource allocation to support their implementation.

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