

Assessment of Health-Related Quality of Life for Saudi Patients with Bronchial Asthma in 2024

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Abstract:

Background: A serious illness that affects people of all ages, asthma is a global health concern.

The aim of the study: Was to assess health related quality of life for Saudi patients with bronchial asthma.

Research design: A descriptive exploratory design was utilized.

Setting: The study was conducted at chest outpatients' clinic of Saudi university hospital.

Sample: A convenient sample composed of (50) adult patients with bronchial asthma.

Tools: Three tools were used.

First tool: Structured interviewing questionnaire for patients with bronchial asthma was used, including two parts:

Part (I) Socio-demographic characteristics of patients,

part (II) Knowledge assessment sheet for patients with bronchial asthma.

Second tool: Asthma Control Questionnaire (ACQ).

Third tool: Asthma Quality of Life Questionnaire (AQLQ).

Results: Slightly less than three quarters of the studied patients had uncontrolled level over their disease. There was a significant statistical positive correlation between total level of knowledge and total level of quality of life at P-value =0.036 and there was a significant statistical positive correlation between total level of quality of life and total level of asthma control at P-value =0.040 among the studied patients.

Conclusion: The majority of the studied patients had unsatisfactory total knowledge related to bronchial asthma disease. While regarding total level of health related quality of life, more than two fifths of them had a poor level, less than one third of them had average level, and more than one quarter of them had a good level.

Recommendations: raising patient awareness through campaigns, the media, and social media on the significance of preserving the health-related quality of life of those with bronchial asthma disease. To generalize the findings in Saudi Arabia, more research including bigger samples of bronchial asthma patients from various regions is needed.

Keywords: Bronchial asthma, Quality of Life (QoL)

Introduction:

A serious illness that affects people of all ages, asthma is a global health concern. The airways that transport air into and out of the lungs are affected by this chronic illness. Because these airways are irritated in asthmatics, they are extremely sensitive and frequently react to allergens or irritants. Although asthma cannot be cured, its symptoms can be managed with the right diagnosis, treatment, and medication (Shaker et al., 2022).

The prevalence is constantly changing, both within and between nations, and it has been rising in conjunction with allergies. This trend is expected to continue over the next 20 years as more people adopt modern lifestyles and communities become more urbanized. Climate, socioeconomic status, air pollution, lifestyle, exposure to respiratory diseases, and fluctuations in allergen levels can all have an impact on the prevalence of asthma in different nations (Yousef et al., 2021).

In Saudi Arabia, asthma affects 2 million people, approximately 6% of the population. The prevalence of asthma has increased significantly since the 1970s. As of 2011, 235-300 million people were affected globally, including about 250,000 deaths. According to the World Health Organization, there were more than 262 million patients with asthma worldwide in 2019 (Abdalla., 2027; Dairi., 2022; Alsadoun et al., 2023). The Centers for Disease Control and Prevention reported that the prevalence of asthma in the UK was around 7.9% in 2019. In addition, a study conducted in the Aseer region reported that more than 10% of school students have asthma, making it the most common chronic medical condition that educators deal with (Fardan et al., 2021; Katayifçi et al., 2022; Alharbi et al., 2020).

Since it captures the effect of the illness as perceived by the patient, quality of life (QoL) is an important endpoint. The Quality of Life (QoL) can be significantly impacted by improper asthma care, which can affect a patient's physical, emotional, vocational, and social well-being. Patients' view of their place in life in relation to their goals, expectations, worries, and standards is known as quality of life, or QoL. The benchmark clinical outcome for evaluating quality of life and preventing morbidity from uncontrolled disease is the patient's well-being (Kharaba et al., 2022).

Nursing interventions are effective in reducing asthma related emergencies, the frequency of acute asthma attacks, hospital admission, and improving quality of life among asthma patients (Tao et al., 2023). Nurse can support asthmatic patients from the beginning of diagnosis for teaching them coping strategies and increasing their self-efficacy (Karaarslan & Başbakkal, 2023).

Significance of the study:

The most prevalent chronic condition among adults is asthma. It significantly affects lifestyle and causes millions of missed individuals annually. Among young persons with asthma, 30% are not very active. Over the past ten years, asthma morbidity has increased despite gains in our understanding of the condition. Assessment for asthma and exercise-induced asthma is a prominent reason for referral to pulmonary function laboratories, as the prevalence of these conditions is rising globally (Zepeda & Camara, 2021). Asthma is a public health concern in all nations that is not primarily connected to the country's degree of development. Asthma is putting a growing strain on governments, healthcare systems, families, and patients all across the world (Yousef et al, 2021).

Aim of the study:

-This study aimed to assess health related quality of for patients with bronchial asthma through the following-:

- 1- Assessing knowledge of patients with bronchial asthma.
- 2- Assessing quality of life for patients with bronchial asthma.

Hypothesis/Research Question:

1. What is level of patients' knowledge with bronchial asthma?
2. What is level of health-related quality of life for patients with bronchial asthma?
3. Is there correlation between knowledge and health-related quality of life for patients with bronchial asthma?

Research design

A descriptive exploratory design was utilized to achieve the aim of this study.

Setting:

This study was conducted at chest outpatients' clinic of Saudi university Hospital

The study Subject:

A convenient sample composed of (50) adult patients with bronchial asthma. Who visited the outpatient clinic through consecutive six months from the beginning of January (2024) until the end of June (2024) and accepted to participate in the study.

Sample size calculation:

Based on power analysis; Type I error (α)

=0.05 with confidence level $(1-\alpha) = 0.95$ and Type II error (β) = 0.20, by power test $(1-\beta)$

=0.80, the sample size was determined by using the Steven Thompson formula that has been adopted from (*Gupta et al, 2016*)

Data collecting tools:

-Three tools were used for data collection

First tool: Patient's interviewing questionnaire It is divided into two parts:

Part I: Patient socio-demographic characteristics:

It was developed by the investigator in a simple Arabic language based on extensive review of relevant and recent literatures (*Scibor et al.,2021*) and (*Lage et al.,2021*) as age, gender, residence, marital status, educational level, occupation , effect of the disease on regular work , monthly income , number of family members ,number of rooms , home ventilation ,and crowding index .

Part II: Knowledge assessment questionnaire for patients with bronchial asthma.

This tool was designed by the investigator and written in simple Arabic language to assess the patients' knowledge about bronchial asthma after reviewing related current and recent literatures. It included 42 close ended questions categorized under the following nine domains:

- Definition of bronchial asthma "Seven questions."
- Causes of bronchial asthma "Four questions."
- Clinical manifestation of bronchial asthma "Four questions."
- Complications of bronchial asthma "Four questions."
- Treatment of bronchial asthma "Seven questions"
- Prevention of bronchial asthma "Four questions."
- Nutrition for bronchial asthma "Six questions."
- Life style "Four questions."
- Home hygiene instructions "Two questions".

Scoring system

Knowledge obtained from the studied patients was compared to a model key answer and graded as following-:

- Zero was given for each incorrect or don't know answer.
- One was given for each correct answer.

The total scores of knowledge were summed up and converted into a percentage score. It ranged from 0–42 degree which equal 100% and categorized as following-:

- Satisfactory knowledge if total score $\geq 75\%$.
- Unsatisfactory knowledge if total score from $< 75\%$

Second tool: Asthma Control Questionnaire (ACQ).

This tool was adopted from (*Juniper, 1998 & Khusial et al., 2020*) to assess asthma control. It is a five point likert scale consisting of six items related to asthma during the night, asthma symptoms in the morning, activity limitation, and shortness of breath, usage of bronchodilator and asthma control rate.

❖ Scoring system

The total scores of asthma control were summed up and ranged from degrees 0–24 degrees. It was categorized as following-:

- Controlled if total score ≥ 20 degree.
- Uncontrolled if total score from < 20 degree.

Third tool: Asthma Quality of Life Questionnaire (AQLQ).

This validated tool was adopted from (*Juniper, 1999 & Schatz et al., 2006*). It was concerned with assessment of quality of life for patients with bronchial asthma. This tool consisted of three point likert scale and included thirty two statements divided into four sub scales as follows:

- Symptoms (Twelve items)
- Environment (Four items)
- Emotion (Five items)
- Activities (Eleven items)

❖ Scoring system

Responses of each statement was scored as follows: Rarely = 3, Sometimes= 2 and Always = 1. The total scores of quality of life were summed up and converted into a percentage score. It ranged from 0–96 degree which equal 100% and was categorized as following-:

- Poor QOL if total score $\leq 50\%$.
- Average QOL if total score from 50% - 75%
- Good QOL if total score $\geq 75\%$

Content validity

The tools of data collection in this study.it was tested for appropriateness, relevance, correction, and clearance through a jury of (7) experts,

Content reliability

Testing reliability of the proposed tools was done statistically by **Cronbach's alpha** test. The coefficient alpha for knowledge questionnaire =0.86.

Pilot study

A pilot study was carried out on 10% of the sample (5 patients) to test clarity and applicability of the data collection tools. The subjects who were included in the pilot study were

included in the study sample because no modification was done after conducting the pilot study done, so the sample of pilot study included in the study.

Field Work

A written informed consent was obtained from each participant prior to the data collection after explaining the aim of the study. Data collection started and was completed within six months from the beginning of January (2024) until the end of June (2024).

Ethical considerations:

Written approval to conduct the study was obtained. The investigator explained and clarified the aim of the study and how it will be conducted on the subjects before obtaining the consent of participation. The investigator assured maintaining anonymity and confidentiality of data of subjects included in the study. The participants were informed about their right to withdraw from the study at any time without giving any reason.

Statistical Design

The collected data were organized, categorized, tabulated and statistically analyzed using the statistical package for social science (SPSS) version 24 and Microsoft Excel version 2010. Quantitative data were presented as mean and standard deviation (SD) while qualitative data were expressed as frequency and percentage. Chi- square test was used as a test of significance to test the relations between quantitative variables as the variables were not normally distributed.

Significance of the results:

- P-value > 0.05 Not significant (NS).
- P-value ≤ 0.05 Significant (S).
- P-value ≤ 0.01 Highly Significant (HS).

Results:

Table (1): Shows that, 52.0% of the studied patients were in age group 41-50 years old with mean ± SD age 41.87 ± 8.36 and 68.0% of them were males. Regarding residence, 74.0% of them were from rural areas, but in regards to their marital status, 78.0% of them were married. 46.0% of them were secondary education and 64.0% of them were employed. Moreover, 52.0% of them reported that the disease affects their regular work and 82.0% of them reported insufficient monthly income. Regarding the number of family member, 52.0% of the studied patients had more than 5 members in the family and 74.0% of them had 3 rooms. In addition, 62.0 % of them reported good home ventilation. 74.0% of the studied patients stated living in un-crowded houses while 18.0% of them reported living in crowded houses and only 8.0% of them mentioned living in overcrowded houses.

Demographic characteristics	N	%
Age (in years)		
20-30	7	14.0
31-40	11	22.0
41-50	26	52.0
>50	6	12.0
Mean ± SD 41.87± 8.36		
Gender		
-Male	34	68.0
-Female	16	32.0
Residence		
-Rural	37	74.0
-Urban	13	26.0
Marital status		
-Married	39	78.0
- Single	11	22.0
Educational level		
-Illiterate	3	6.0
-Elementary	8	16.0
-Secondary	23	46.0
-University	16	32.0
Occupation		
-Manual work	19	38.0
-Office work	13	26.0
-Un employed	18	36.0
Effect of disease on regular work		
-Yes	26	52.0
-No	24	48.0
Monthly income		
-Sufficient	9	18.0
-Insufficient	41	82.0
Number of family member		
1-2	6	12.0
3-5	18	36.0
>5	26	52.0
Mean ± SD 5.26 ± 2.3		
Number of rooms		
- One	5	10.0
- Two	8	16.0
- Three	37	74.0
Home ventilation		
- Good	31	62.0
- Average	12	24.0
- Poor	7	14.0
Crowding index		
- Over crowded	4	8.0
- Crowded	9	18.0
- Uncrowded	37	74.0

Figure (1): Explains that, 18.0% of the studied patients had satisfactory total level of knowledge while 82.0% of them had unsatisfactory total level of knowledge about bronchial asthma.

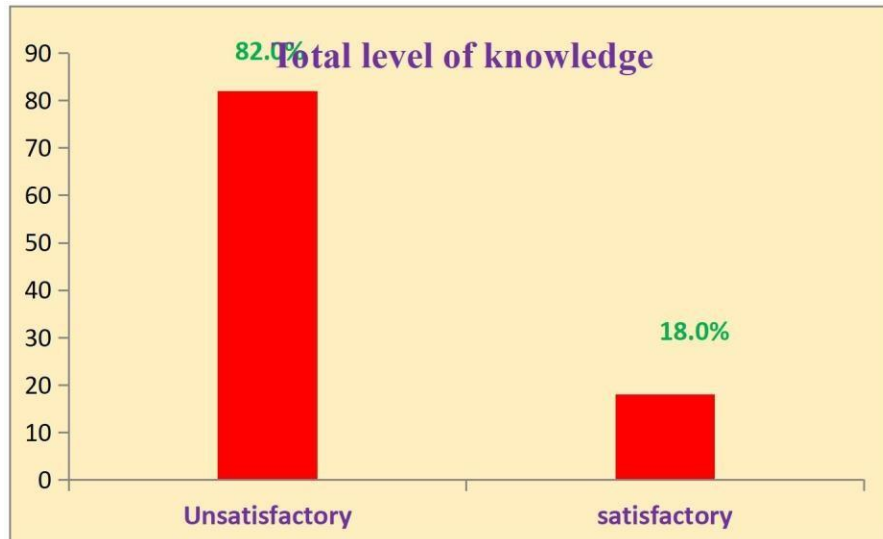


Figure (2): Represents that, 74.0% of the studied patients had uncontrolled level of bronchial asthma while 26.0% of them had controlled level of bronchial asthma.

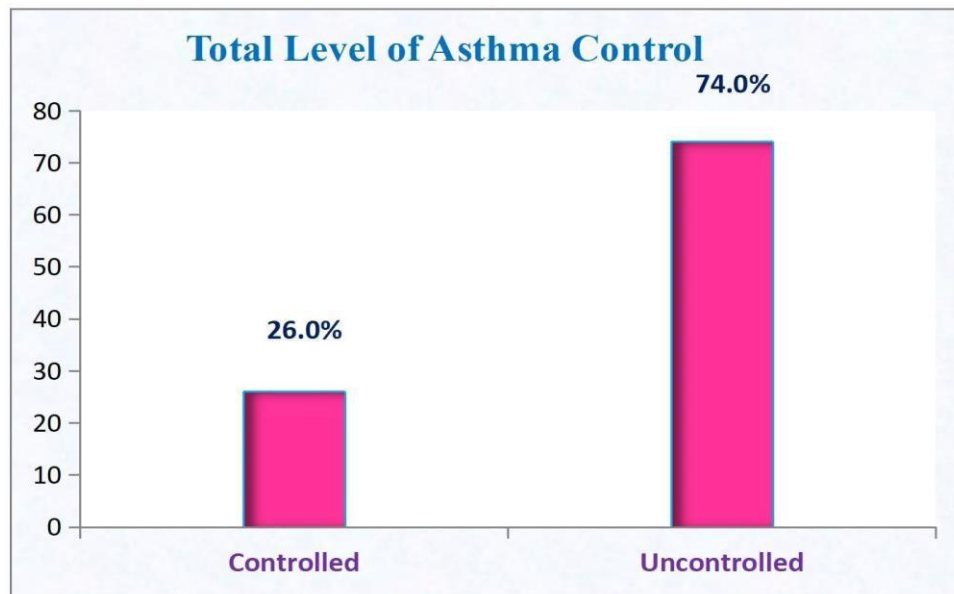


Figure (3): Illustrates that, 42.0% of the studied patients had poor level of quality of life and 32.0% of them had average level. While, 26.0% of the studied patients had good quality of life.

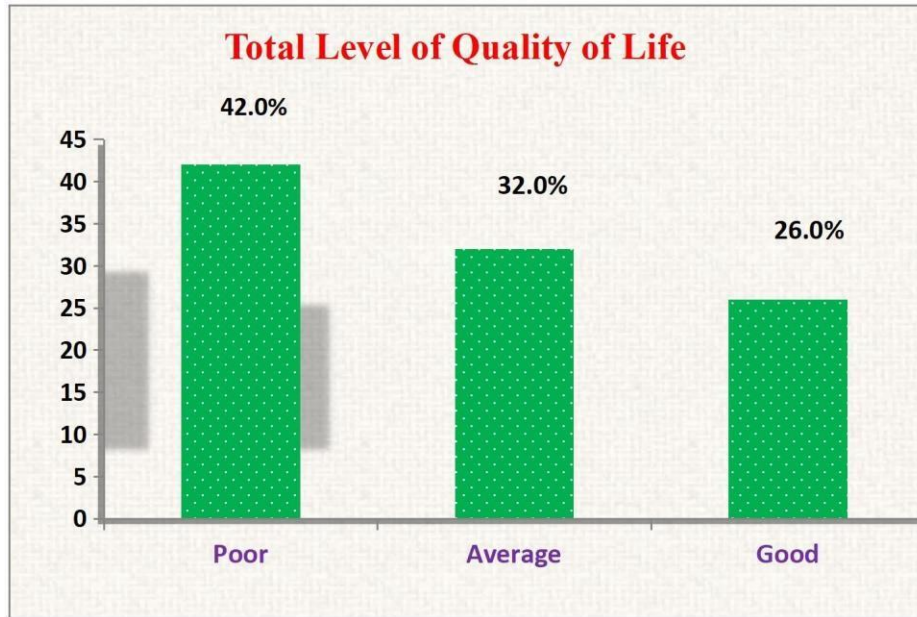


Table (2): Demonstrates that, there was a significant statistical positive correlation between total level of knowledge and level of quality of life among the studied patients at P-value =0.036. Additionally, there was a significant statistical positive correlation between total level of quality of life and total level of asthma control among the studied patients at P-value =0.040.

Variables	Total level of quality of life	
	r	P-value
Total level of knowledge	0.631	0.036* (S)
Total level of asthma control	0.691	0.040* (S)

Discussion:

The results of the current study revealed that slightly more than half of the studied patients are aged 41-50 years with mean age 41.87 SD ± 8.36, almost two thirds were male, also slightly less than three quarters of them were from rural areas, more than three quarters were married, less than half of them were secondary education. While more than half of them the disease affected their regular work, more than one third of them had manual work, most of them had insufficient monthly income, beside more than half of them had more than five family members, slightly less than three quarters of them had three rooms in their house, and less than two thirds of them were living in good ventilated places .

These results comply with the study conducted by *Ścibor et al., (2020)* who concluding that more than half of the studied sample were male and more than two fifths were educated. In addition, it also matched with the results of the study conducted by *Yousef et al., (2021)* which found that, more than two thirds of the studied sample were from rural areas and More than three quarters of them belonged to middle and low socioeconomic classes. These results disagreed with the study conducted by *Adachi et al., (2019)* which found that less than two thirds of the studied patient were female with mean age 59.7 ± 14.5 years.

These results also disagreed with the results of the study carried out by *Kontopoulou et al., (2023)* who deducing that, more than two thirds of the studied patients were female aged 57 years. On the other hand it is in agreement with the results of the current study as less than two thirds of them were married.

The results of the present study illustrated that, slightly less than three quarters of the studied sample were living in uncrowded homes. This result is supported by the study carried out by *Lubna et al., (2021)* and inferring that, most of the studied samples were living in non - crowded homes .

This result as well is in accordance with the results of the study carried out by **Abdel- Hameed et al., (2021)** and reported that, slightly more than three quarters of the studied patients were living in un- crowded home. It also matches with the results of the current study as well in which more than half of the studied patients were male and almost two thirds of them were from rural areas.

Regarding patients' total level of knowledge regarding bronchial asthma, the present study explained that, the majority of the patients had unsatisfactory knowledge related to bronchial asthma.

This result in agreement with the result of the study conducted by *Shamkuwar et al., (2016)* entitled and reported that, the majority of the studied patients had un satisfactory knowledge related to bronchial asthma. As well, this result in accordance with the results of the study conducted by *Mohamed & Mohamed, (2023)* which concluded that, less than three quarters of the studied patients had poor knowledge about bronchial asthma .

This result in contrary with the result of the study conducted by *Gare et al., (2020)* which demonstrated that, slightly more than one third of the study sample had unsatisfactory total knowledge about bronchial asthma .

Also, this result in congruent with the study of *Asmare et al., (2021)* who reported that less than one third of the studied patients had poor total knowledge regarding asthma.

According to patients' total control level about bronchial asthma, the results of present study demonstrated that, slightly less than three quarters of the studied patients had uncontrolled total level of bronchial asthma and more than one fifth of them had controlled total level of bronchial asthma.

This result in the same direction with the study conducted by *Elbanna et al., (2017)* who found that, more than half of patients had uncontrolled total level of bronchial asthma . Also, this result

congruent with the results of the study carried out by *Nguyen et al., (2018)* who reported that, the majority of patients had asthma poor control level . This result inconsistent with the results of the study conducted by *Eissa et al., (2020)* who found that, more than one third of patients had uncontrolled total level of bronchial asthma.

In relation to total quality of life of patient with bronchial asthma, the present study illustrated that, more than two fifths had poor quality of life.

This result is supported by the results of the study carried out by *Belachew et al., (2023)* who reported that, slightly more than two fifths of the studied patients had poor quality of life This result contradict with the result of the study conducted by *Ali et al., (2020)* who concluded that, less than three quarters of the studied sample had poor quality of life .This result as well contradict with the study of *Garina et al., (2020)* and found that , the minority of the studied sample had poor quality of life. This result also disagreed with the results of the study carried out by *Kharaba et al., (2022)* which reported that, the most of the studied sample had poor quality of life.

Regarding correlation between total knowledge, total of asthma control, and total quality of life among the studied sample, the current study demonstrated that, there were a statistical significant positive correlation between patients' total quality of life and their total level of knowledge and between patients' total quality of life and their total asthma control.

These results are similar to the results of the study of *Zeru et al., (2020)* who stated that, there was a highly statistical significant positive correlation between patients' total quality of life and their total asthma control. In addition, these results supported by the study carried out by *Cai et al., (2023)* and found that , statistical significant positive correlation between patients' total quality of life and their total asthma control level .

These results as well in agreement with the results of the study of *Hamad et al., (2022)* who found that, statistical significant positive correlation between patients' total quality of life and their total knowledge.

Conclusion:

Based on the research questions and the study findings it was concluded that:

The majority of the studied patients had unsatisfactory total knowledge and less than one fifth of them had satisfactory total knowledge concerning bronchial asthma disease. While regarding total level of health related quality of life, more than two fifths of them had a poor level, less than one third of them had average level, and more than one quarter of them had a good level.

Recommendations:

In the light of the findings of the current study the following recommendations can be suggested:

1. Increasing the awareness of the patients about the importance of maintaining health related quality of life of patients with bronchial asthma disease through campaigns, mass media and social networks.
2. Conducting educational programs periodically and regularly for patients to improve their knowledge regarding bronchial asthma disease at chest outpatients' clinics by nurses that will enhance their control over bronchial asthma disease.

3. Availability of relevant written and visual information about bronchial asthma disease at chest out patient's clinic to facilitate the education of patients about their disease such as educational booklets and brochures.
4. Further studies including larger sample size of patients with bronchial asthma from different geographical areas to generalize the results in Saudi Arabia.

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