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Evaluation of Health-Related Quality of Life Among Patients with Respiratory Diseases in a Tertiary Care Teaching Hospital

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ABSTRACT

Background: Respiratory diseases have been considered as an important factor of morbidity and mortality globally and have considerable implications for the physical, psychological, and social well-being of the patients. There is scant literature on the HRQoL of respiratory disease patients in Pakistan.

Objective: To determine HRQoL of the patients with respiratory diseases in Tertiary Care Hospital.

Methodology: The present study was of cross-sectional design conducted at Department of Medicine, Ziauddin University Hospital, Karachi. The sample size consisted of 180 patients aged 18 years and older suffering from pulmonary diseases like COPD, asthma, tuberculosis, pneumonia, bronchiectasis, and interstitial lung diseases by non-probability consecutive sampling technique. Information was gathered by employing a well-structured questionnaire involving sociodemographic and clinical factors along with the assessment of HRQoL by utilizing EuroQol EQ-5D.

Results: In this study, 58.3% were male, 80.5% were married individuals, and 55.6% were those from lower socioeconomic status. The aspect of pain or discomfort was identified as the most affected HRQoL domain among 52.2% respondents, whereas 18.8% experienced serious problems. The association between HRQoL and age ($p=0.001$), smoking ($p=0.002$), and disease type ($p=0.001$). It is important to note that in general, 62% of participants have poor HRQoL while only 38% have good HRQoL.

Conclusion: Respiratory diseases lower the quality of life especially among elderly people, smokers, and those with chronic respiratory diseases. A comprehensive approach to managing respiratory diseases should be adopted, and it includes early detection, quitting smoking, pulmonary rehabilitation, and psychological counseling.

Keywords: Health-Related Quality of Life; Respiratory Diseases; COPD; Tuberculosis; Asthma; Smoking

Introduction

Respiratory disorders constitute a significant public health problem globally, being some of the primary sources of morbidity, mortality, and disability-adjusted life years. Acute and chronic respiratory disorders have a significant impact on the health of affected individuals and put pressure on health care facilities, especially in less developed countries.¹ According to WHO, chronic respiratory disorders, such as chronic obstructive pulmonary disease, asthma, occupational lung disorders, pulmonary fibrosis, and lung cancer, are responsible for millions of deaths every year, and the burden of infectious respiratory diseases like pneumonia and tuberculosis remains high in developing countries.² Respiratory disorders typically feature repeated manifestations, require long-term treatment, frequent hospitalization, and functional deterioration, all of which could negatively impact the health of patients. In Pakistan, the impact of respiratory diseases is especially significant because of reasons such as rising air pollution, tobacco abuse, exposure to biomass fuel indoors, poor socio-economic status, overcrowding, and a high incidence of infectious diseases such as TB. It must be noted that Pakistan still stands as one of those nations where the burden of TB cases is high.³ Moreover, chronic respiratory diseases including asthma and COPD have been observed to become more common and lead to increased utilization of healthcare resources.⁴ In tertiary teaching hospitals, patients who present at later stages of the disease, with difficult-to-treat infections, and complicated lung diseases are common.

Health-related quality of life (HRQoL) can be defined as how well a person functions physically, mentally, emotionally, and socially as affected by his/her health status.⁵ In the recent past, HRQoL has become a valued outcome measure in medical care because it encompasses the impact that is associated with diseases beyond the regular clinical measures such as spirometry, imaging, and laboratory investigations. Unlike the traditional clinical measures, which are concerned with the severity of disease, HRQoL enables the clinician to know how respiratory illnesses impact a person's life. Individuals affected by respiratory disorders usually have associated problems like a persistent cough, difficulty breathing, chest pains, fatigue, poor sleeping habits, decreased tolerance for physical activity, and exacerbations.⁶ They could also become dependent on other people, have low productivity levels at work, have to pay unnecessarily high costs, and remain socially isolated because of their illness. In addition, medications, reliance on oxygen supplies, constant trips to the hospital, and reactions to prescribed treatments could affect their mental well-being as they become more stressed, anxious, and depressed. Those with tuberculosis infections would also be subjected to stigmatization and

complications, while those with lung cancers and interstitial lung disorders encounter severe emotional distress.⁷

A variety of measures can be used to assess HRQoL among patients who suffer from respiratory problems. Examples of such measures include the EuroQol Group EQ-5D tool, the Short Form-36 (SF-36) test by RAND Corporation, as well as SGRQ – a questionnaire created at St. George's University of London for use with patients with diseases of the respiratory system. These measures allow quantifying the effect of the diseases on mobility, self-care, daily activities, pain, emotional well-being, and social interactions. HRQoL is generally lower in patients with chronic respiratory problems in various parts of the world.⁸

While the burden of respiratory diseases is relatively high in Pakistan, little information is available about the quality of life of patients seeking treatment at tertiary care hospitals. The majority of current literature deals with the prevalence of respiratory diseases, outcomes of treatments, or complications, but little attention has been paid to the psychosocial impact of respiratory diseases. The study of HRQoL in such patients will enable researchers to identify vulnerable patients, enhance their quality of life, develop rehabilitation strategies, and inform policies to improve patients' quality of life.

For these reasons, the present study aims to investigate the health-related quality of life among patients of respiratory diseases who seek treatment at a tertiary care teaching hospital and factors responsible for poor quality of life.

Objective

To evaluate the health-related quality of life among patients with respiratory diseases attending a tertiary care teaching hospital.

Methodology

The study design used for the current investigation is a cross-sectional survey carried out at the Department of Medicine, Ziauddin University Hospital, Karachi, over a period of six months, that is, from June 2024 to June 2025, with prior approval from the institutional ethical review board. A total of 180 patients were recruited through the non-probability consecutive sampling method. Patients aged 18 years and above, suffering from respiratory diseases including COPD, asthma, tuberculosis, pneumonia, bronchiectasis, interstitial lung disease, and other chronic respiratory diseases, were considered for inclusion. Those who were critically ill, failed to communicate adequately, had serious mental disorders, or refused consent were excluded. Data were gathered using a questionnaire that was divided into two parts. The first part contained

demographic and clinical variables such as age, sex, marital status, education level, economic status, tobacco smoking habits, type of respiratory disease, disease duration, and treatment experience. The second part contained a measure for health-related quality of life in terms of the EuroQol Group EQ-5D questionnaire. This measure tested various aspects including physical mobility, emotional state, social capability, pain, and activity restrictions.

The data were collected and analyzed by utilizing the SPSS Statistics version 26.0 software. Frequencies, percentages, means, and standard deviations were used to calculate descriptive statistics related to the demographic and clinical factors. Chi-square test, independent t-test, and ANOVA were employed to evaluate the relationships between health-related quality

of life and relevant variables. Statistical significance was declared at $p < 0.05$. All subjects gave their written consent before data gathering. The confidentiality of the patients' information was preserved throughout the study period.

Results

The majority of participants were middle-aged at 39.4%, followed by older age at 35.5%, while young age was 25.0% among the study subjects. Male respondents were predominant among the participants, representing 58.3%, while female respondents were less at 41.6%. The majority of participants were married at 80.5%, while those who were unmarried were 19.4%. In relation to educational status, the majority of patients had low

Table 1. Socio-demographic Characteristics of Study Participants (n=180)

Variable	Frequency (n)	Percentage (%)
Age Group (years)		
Young Adults (18–35 years)	45	25.0
Middle-Aged Adults (36–55 years)	71	39.4
Older Adults (>55 years)	64	35.5
Gender		
Male	105	58.3
Female	75	41.6
Marital Status		
Married	145	80.5
Unmarried	35	19.4
Education Status		
Low Education (Illiterate / Primary / Secondary)	109	60.5
Higher Education (Intermediate and Above)	71	39.4
Socioeconomic Status		
Low	100	55.6
Middle	59	32.7
High	21	11.6

Table 2. Clinical Characteristics of Patients (n=180)

Variable	Frequency (n)	Percentage (%)
Type of Respiratory Disease		
COPD	52	28.8
Tuberculosis	38	21.1
Asthma	32	17.7
Pneumonia	24	13.3
Bronchiectasis	14	7.7
Interstitial Lung Disease	11	6.1
Others	9	5.0
Duration of Disease		
<6 months	47	26.1
6 months–1 year	51	28.3
>1 year	82	45.5
Smoking Status		
Current Smoker	56	31.1
Former Smoker	36	20.0
Non-Smoker	88	48.8
Hospital Admission History		
Yes	94	52.2
No	86	47.7

education at 60.5%, while 39.4% had a higher level of education. Among socioeconomic status, most of the participants belonged to the low socioeconomic status at 55.6%, followed by the middle status at 32.7%, while 11.6% were in the high socioeconomic status group (Table 1).

COPD was the most prevalent form of respiratory disease, contributing 28.8% to the total number of respiratory diseases, while Tuberculosis contributed 21.1% and Asthma contributed 17.7%. Pneumonia comprised 13.3% of the sample size of respiratory

diseases, bronchiectasis and interstitial lung disease being 7.7% and 6.1% respectively. Other respiratory diseases made up 5.0% of the sample group. As for disease duration, 45.5% of participants had had respiratory diseases for more than a year, 28.3% had suffered for six months to one year, while 26.1% had developed the illness within six months. About smoking status, 48.8% of the participants did not smoke, 31.1% currently smoked, and 20.0% were past smokers. About hospital admission, 52.2% of the subjects were previously admitted to hospitals, while 47.7% did not

Table 3. Distribution of Health-Related Quality of Life According to EQ-5D Dimensions Among Study Participants (n=180)

EQ-5D Domain	No Problems	Moderate Problems	Severe Problems
Mobility	72 (40.0%)	81 (45.0%)	27 (15.0%)
Self-Care	99 (55.0%)	61 (33.8%)	20 (11.1%)
Usual Activities	66 (36.6%)	83 (46.1%)	31 (17.2%)
Pain/Discomfort	52 (28.8%)	94 (52.2%)	34 (18.8%)
Anxiety/Depression	72 (42.0%)	79 (43.8%)	29 (16.1%)

have any history of hospital admission (Table 2).

Mobility problems were observed in 40.0% of individuals with no mobility issues, and in 45.0% and 15.0% of participants experiencing moderate and severe issues with mobility, respectively. The self-care problems were faced by 55.0% of the individuals who reported no problems, and 33.8% and 11.1% of patients experiencing moderate and severe self-care problems. The limitations in usual activities were reported by 36.6% of participants without limitations, and by 46.1% and 17.2% with moderate and severe limitations, respectively. The problems associated with pain/discomfort were the most significant among all others, as the individuals who faced no problems were only 28.8%. As to the problems with anxiety/depression, 42.0% of participants did not report any problems, 43.8% of participants faced moderate anxiety/depression, and 16.1% of participants faced severe problems (Table 3).

A correlation was noted between age group and HRQoL ($p=0.001$). The highest mean HRQoL was observed among young adults with a value of 74.4 ± 10.3 , followed by middle-aged adults (61.4 ± 12.6), while older adults exhibited the lowest mean score of 55.5 ± 14.2 , which means that quality of life deteriorated in accordance with increasing age. A statistically significant relation was established between smoking status and HRQoL ($p=0.002$). The mean HRQoL of non-smokers was noted to be higher (70.5 ± 11.6) than that of smokers (57.8 ± 13.1), showing a poor quality of life among smokers. The type of respiratory disease was also correlated to the HRQoL ($p=0.001$). The highest mean HRQoL was noted among those suffering from asthma (71.3 ± 9.7), followed by patients with pneumonia (69.1 ± 10.6) and tuberculosis (66.6 ± 11.6). Lower values were noted among patients with COPD (54.7 ± 13.5), bronchiectasis (52.2 ± 12.8), and interstitial lung disease (50.8 ± 14.3), showing that poor quality of life was noted among patients suffering from chronic diseases (Table 4).

Figure 1 shows the distribution of quality of life of the study subjects. Among all the study subjects, 111 people

(62%) have poor HRQoL, and 69 people (38%) have good HRQoL. From the above observation, it is clear that there are more subjects who have poor quality of life than those who are doing well. It means that most people are affected by limitations in the activities of daily living because of respiratory disease.

Discussion

The current study assessed the health-related quality of life in patients with different types of respiratory disorders at a tertiary care teaching hospital and proved that respiratory disorders greatly affect the well-being of the patients. The key observation made by this study is that a large percentage (62%) of the patients had poor HRQoL, whereas only 38% had good HRQoL. This observation shows that there is much distress for the patients suffering from respiratory diseases, which can be attributed to the chronicity of the disorder. Respiratory disorders cause prolonged symptoms, frequent visits to hospitals, costs, and difficulty performing everyday tasks. Similarly, in a review of respiratory diseases by Musalli et al. (2022), it was suggested that respiratory diseases remain a major health concern throughout the world due to their high burden of illness and impact on daily activities of life.⁹

The socio-demographic characteristics of the study indicated that most of the participants were middle-aged and elderly adults, with HRQoL showing a significant decline as age advanced. The mean score of HRQoL was higher for young adults than for elderly patients. This could be attributed to the decreased physiological reserve, increased comorbidities, and increased severity of illness in the elderly population. Older patients exhibit lower mobility, dependence on caregivers, and many health problems, all of which contribute to lower HRQoL. Previous research on chronic respiratory diseases showed similar results, indicating that older age had negative effects on functional status and health condition. As shown in one study by Krawczyk-Suszek et al. (2022),

Table 4. Mean HRQoL Score According to Selected Variables

Variable	Mean HRQoL $\pm$ SD	p-value
Age Group		0.001
Young Adults	74.4 $\pm$ 10.3	
Middle-Aged	61.4 $\pm$ 12.6	
Older Adults	55.5 $\pm$ 14.2	
Smoking Status		0.002
Smokers	57.8 $\pm$ 13.1	
Non-Smokers	70.5 $\pm$ 11.6	
Disease Type		0.001
Asthma	71.3 $\pm$ 9.7	
Tuberculosis	66.6 $\pm$ 11.6	
COPD	54.7 $\pm$ 13.5	
Pneumonia	69.1 $\pm$ 10.6	
Bronchiectasis	52.2 $\pm$ 12.8	
ILD	50.8 $\pm$ 14.3	

the factors affecting HRQoL among healthy adults aged above 65 included age, gender, education level, occupation, smoking, physical exercise, and residential location.¹⁰ Another study by Noto (2023) also suggested that ageing is associated with health issues leading to decreased physical and psychological abilities in older adults.¹¹

In this study, more male participants than females were included, possibly due to the greater tendency of seeking healthcare services amongst males suffering from severe respiratory ailments and greater exposure to occupational risks and cigarette smoking. The reason being, as stated by Behrens et al. (2023), occupation-based exposure to hexavalent chromium and nickel was found to be strongly associated with lung cancer, particularly in men. It was also evident in this study that people with a higher degree of exposure were at a greater risk, along with smokers.¹² Numerous participants came from a low socio-economic background and had lower educational qualifications. People having poor socio-economic status can affect their health through delayed access to healthcare facilities, malnutrition, poor living standards,

and poor awareness related to disease treatment. All these factors have an indirect effect on the disease outcomes and HRQoL. For example, Aidoo et al. (2023) proposed that poverty, homelessness, and poor educational achievement are some of the social determinants that affect the lack of health care and poor health outcomes.¹³

COPD was the leading cause of respiratory disease, followed by tuberculosis and asthma. This result can be explained considering the rising trends of respiratory diseases and infectious pulmonary disorders in Pakistan. The increased incidence of COPD may be attributed to smoking, air pollution, occupational exposure, and biomass fuel utilisation. According to Al Wachami et al. (2024), COPD is common around the globe; however, its occurrence is more prominent among older patients and people who smoke.¹⁴ Tuberculosis is highly prevalent owing to poverty, poor socioeconomic status, and late detection of the disorder. In this study, the existence of both types of respiratory disorders is observed, which highlights the burden on developing country healthcare facilities. As Hamada et al. (2022) reported, people

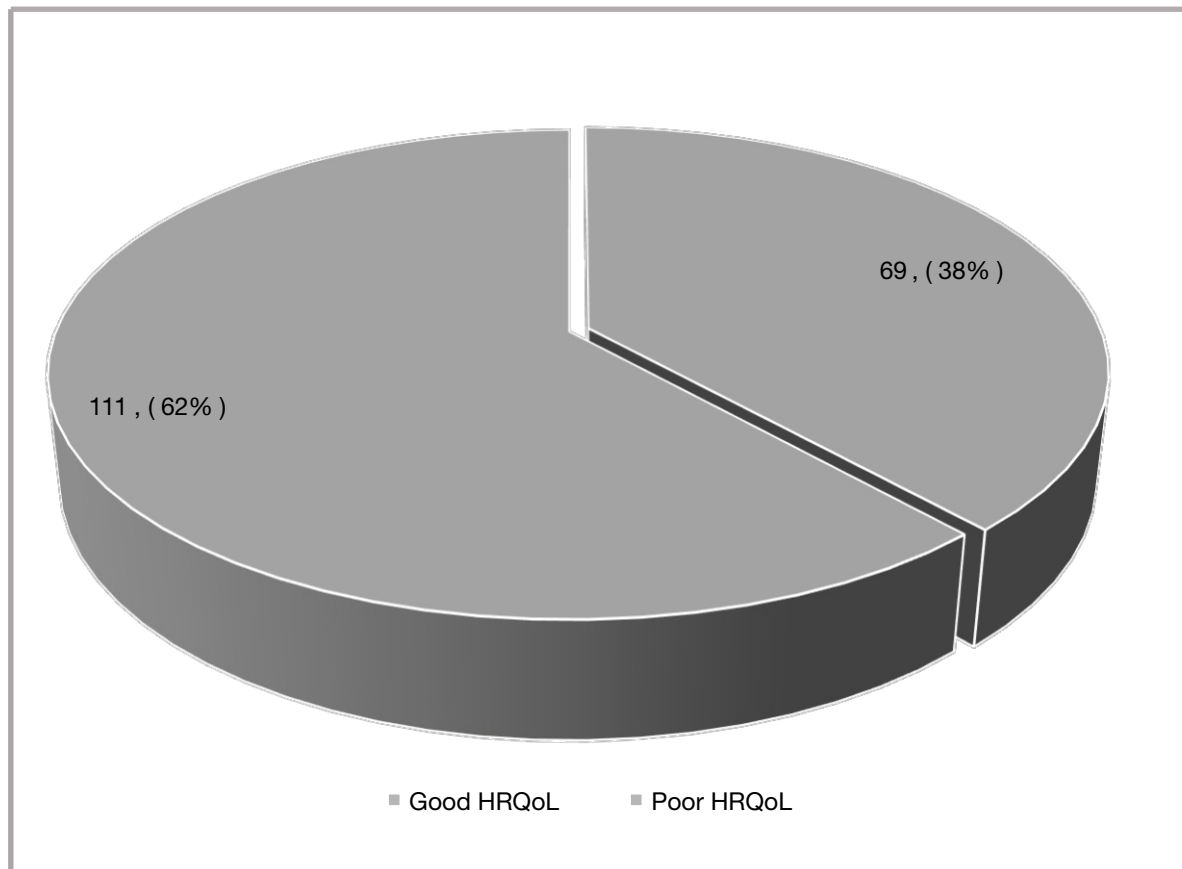


Figure 1. Overall Quality of Life Status Among Participants

suffering from COPD are more prone to tuberculosis.¹⁵

It was observed that nearly half of the study participants had suffered from respiratory diseases for over a year, implying that the nature of such diseases is chronic. Chronicity of diseases usually results in exacerbations, long-term medications, psychological problems, and low functional independence. Furthermore, over half of the patients had a history of hospitalization, which suggests that their disease conditions were advanced and had recurrent complications. Hospitalization has also been found to have a negative impact on quality of life by causing physical disabilities, emotional disturbances, and high healthcare costs.

According to the results of the EQ-5D domain analysis, it can be stated that the pain/discomfort domain is affected to the greatest extent among all other dimensions. It has been found that more than 50% of patients have moderate problems with pain, while almost 20% of them suffer from severe issues. These results might be explained by the presence of such persistent conditions as chest pain, breathlessness, tiredness, and coughing. It should be noted that limitations in performing usual activities are quite widespread, which means that

respiratory illnesses substantially hinder work productivity, household work, and social activity. Moreover, many patients experience difficulties in terms of moving around because of poor exercise capacity and breathlessness. A significant proportion of patients suffer from anxiety and depression associated with the diagnosis. Such symptoms can be caused by various factors, including fear of worsening symptoms, social isolation, financial strain, and uncertain prognosis. A research study done by Abdelwahab et al. (2024) indicated that COPD has a major impact on work and daily life, since the majority of people diagnosed with COPD stop working because of this medical condition. The more severe the illness was and the more symptoms it had, the more difficult it became for patients to work and be productive in their activities.¹⁶ Moreover, an investigation carried out by Sánchez Castillo et al. (2023) has proven that elderly people with chronic respiratory diseases have limitations during their daily activities.¹⁷

Smoking was found to have a statistically significant relationship with HRQoL, whereby smokers had lower mean HRQoL scores than non-smokers. Smokers have been found to have increased morbidity due to

deterioration of lung functioning; hence, smoking is one of the main modifiable risk factors in respiratory disease progression and management. This is mainly because smokers have an increased likelihood of having respiratory symptoms, increased episodes of respiratory exacerbation, increased risk of treatment failure, and hence poor quality of life. This is according to a study by Nolzco et al. (2024), who found that current and former smokers among cancer survivors were found to have poorer HRQoL than never smokers.¹⁸ In the same way, results from another study conducted by Cheng et al. (2022) showed that smoking leads to a decrease in health-related quality of life among Chinese people aged 40 years and above.¹⁹ These findings emphasize the importance of smoking cessation interventions in respiratory care programs.

Specific analysis based on the disease revealed that patients with asthma and pneumonia had comparatively better HRQoL scores than those with COPD, bronchiectasis, and interstitial lung disease. This could be because asthma and pneumonia are relatively easily managed with proper treatment, while COPD, bronchiectasis, and ILD are chronic diseases involving permanent damage to the lungs. Those patients having interstitial lung disease had the worst HRQoL scores, most probably because of breathlessness and inability to perform physical activity. In particular, it is essential to note that since 62% of the sample suffered from poor HRQoL, there is an acute need for interventions other than standard medical care. Medical specialists need to provide patients with pulmonary rehabilitation sessions, smoking cessation, psychological assistance, health education, and social support. The early identification and appropriate management of such conditions as chronic respiratory disorders can help decrease the load caused by the illness and improve people's well-being. In addition, according to Agusti et al. (2022), it needs to be noted that respiratory disorders are still one of the critical issues worldwide, resulting in millions of annual deaths and causing disability, especially in poorer nations.²⁰

The health-related quality of life is greatly affected by respiratory diseases, especially in older people, those who smoke and those who have respiratory conditions like COPD, bronchiectasis, and interstitial lung disease. The importance of dealing with the medical and psychological components in treating such diseases should be recognized.

Conclusion

In conclusion, this study shows that respiratory ailments negatively affect the quality of life of patients admitted to a tertiary care teaching hospital, with 62% of individuals reporting poor HRQoL. The risk factors identified as causing poor quality of life included advanced age, tobacco smoking, long duration of disease, and various

respiratory disorders such as COPD, bronchiectasis, and interstitial lung diseases. Pain and discomfort, disability in usual activities, and psychological disturbances are key factors leading to low HRQoL among patients with respiratory ailments.

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