QUALITY OF LIFE OF PARTICIPANTS WITH CHRONIC RESPIRATORY DISEASE

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Abstract: There are a number of curable and incurable chronic respiratory diseases which have the potential to leave the morbid individuals having compromised quality of life. In order to understand the impact of such chronic respiratory diseases, gaining a sound knowledge of the perceived quality of life of these morbid individuals is crucial, especially from the population of Pakistan. Using the SF-36 questionnaire to denote their quality of life through a quantified value, this research studied the chronic diseases, asthma, chronic obstructive pulmonary disease, pulmonary tuberculosis, interstitial lung disease, and lung cancer.

Objective: To assess the quality of life after chronic respiratory diseases among the general population in Gujranwala, Pakistan.

Methodology: A quantitative survey was conducted, and data was collected from individuals between the ages of 18 and 72 years diagnosed with a chronic respiratory disease. SF-36 questionnaire was used to identify the perceived quality of life.

Results: The average score from all 9 elements of the SF-36 questionnaire was found to be 60.96. COPD was found to have the highest perceived quality of life with a score of 65.94, among the measured chronic respiratory diseases, while Lung Cancer was found to have the lowest score of the measured chronic respiratory diseases, with a score of 36.58. Individuals with Asthma had an average score of 65.45, participants with ILD had an average score of 60.94, with Unilateral TB with 59.13, while Bilateral TB had 53.46.

Conclusion: The results indicate that the average perceived quality of life was found to be moderately good. COPD was found to have the highest perceived quality of life, while Lung Cancer was found to have the lowest score.

Keywords**:** *Chronic Respiratory Diseases; Quality of Life; Epidemiology; Physical Health; SF-36 Questionnaire; Physical Therapy*

INTRODUCTION

The term chronic respiratory diseases can be elaborated such that the word chronic is indicative in medical sciences and such that it refers to any medical condition that begun in a distant past and has covered a certain amount of time, specifically beyond the duration of 1 year for certain medical conditions. Similarly, the term respiratory diseases alludes to certain medical conditions which originate from or directly affect the lungs e.g., asthma, bronchitis and other obstructive or restrictive lung diseases [1].

Chronic Respiratory Diseases (CRD) are responsible for a number of deaths in the current times. Besides contributing to the mortality rate, CRD also play a major role in leading individuals into disability and making their Activity of Daily Living (ADLs) very tough to perform. In low and middle income countries around the globe, especially South Asian and Sub-Saharan African regions, CRDs cover up a high prevalence value in cigarette smokers alone [2].

A research conducted in the city of Berlin, New Hampshire, following a specific questionnaire for such purposes. This paper signifies the connection between smoking and Chronic Respiratory Diseases after examination of how much the rate of disease is increased in smoker as compared to non-smokers. Also explains us how the increased smoking cigarette is linked with increase in CRDs and its life time effect. In last, result shows that there is high number of persons with CRDs who smoke cigarette [3].

Individuals who smoke cigarette may have a high prevalence air flow related diseases mainly obstructive one. Chronic Obstructive Pulmonary Diseases (COPD) is very much in relation low forced vital capacity and is found associated with poverty. Getting into asthma is not that much common as compared to COPD but if found very much common in poor areas [1].

Household Air Pollution (HAP) is directly related to a number of CRDs including COPD. COPD and other respiratory disorder pose a considerable

amount of burden at socio-economic perspective of low and middle income regions of world [4].

Figures copied after obtaining from Worlds Health Organization (WHO) is that South Asian region, from 44.5 million to 75.1 million in between year 1990 to 2010 [5]. Mortality figures associated with HAP is more than 4 million a year. In a study, conducted in America mortality rate of COPD rose up from 29.4 to 67.0 on every 100,000 person between year 1968 and 1999. Then in 2011, this counting declined to 63.7 per 100,000 individuals. Mortality rate in males were at peak in 1999 but on the other hand it was on peak in females in 2008 [6].

COPD was moved from fourth to third most common reason for death around the world between 1990 and 2010. As data collected from a study tells us that there were around 2.8 million deaths in 1990 but in 2010 the number risen up to 5.2 million keeping age and sex related mortality rate to constant. Changes in smoking plan add up little years to life of a person if we keep age and sex-specific mortality rates to constant and also by varying income [7].

From 2016, COPD is third leading cause of mortality in the world and have varying country wise numbers. Data collected from high income countries (HICs) are demonstrating that values of mortality rate from 1990 among such countries is in a graph down manner [8].

Study conducted in 2018 demonstrates us that patients have mild and moderate COPD have involvement of terminal bronchioles, respiratory transitional bronchioles to 41% and 57% respectively in competition to similar age smoking person with average lung function [9].

Higher levels of anxiety and depression are directly related to smoking and reduced physical activity among person with and without COPD. This study is also an evidence of anxiety and depression having more correlations with impaired quality of life in patient with COPD as compared to persons with lung function conditions [10].

From the above paragraph it is clear that mortality rate of COPD is low in HICs but CRDs in fact are at higher in number of low and middle-income countries (LMICs) and are posing great effect at local, national and global level [11].

Asthma, being a top ranking cause of morbidity and providing impairment to body by pushing quality of life of a person to poor level. Asthma is one of the leading causes of morbidity in children and young adults and it start up before the age of 40 [12].

Due to chronic inflammation in CRDs, the air flow while inspirations and expiration gets limited as the disease progresses upward. It might be due to constant chronic inflammation at pulmonary level which contribute to narrowing of air passage way and putting your pulmonary system in front to constant noxious stimulus [10].

There is a body shape change due to accumulation of fats arounds the ribs and pulmonary system in old Chinese individuals which give rise to restrictions, on a higher note to respiratory function and contribute directly in making pulmonary system and ventilation mechanism worse [13]. A huge number of individuals living in community with CRDs have treatment burden. Healthcare professionals must seek to young individuals and advising them methods for control on such things [14].

Study conducted in Thailand shows that poor quality of is directly responsible for chest tightness and sleep disturbance. Chest tightness also contributes towards decreased lung function in functional air volumes. Also it is stated that increasing air pollution is causing decrements in lung air volumes [15].

Lowering the amount of smoking cigarette or quitting it minimizes COPD and related mortality and symptoms. In long term care of such persons we have to give them more oxygen to deal out with the state of hypoxia created with smoking and pollution [16].

COPD is now a common condition that comes to happen in elderly people. Elderly people experience oxygen deprivation for longer periods of time mostly during the time of performing physical activity and in activities where they need to exacerbate themselves, increases the disease and disturbs the sleep in such persons. Cerebral white matter lesions and lacunar infarcts are much common in such persons and are clearly observed on Magnetic Resonance Image (MRI). Not only decreased oxygen perfusion is responsible for this, hypoxemia is responsible for equal contribution to building up the etiology of periventricular white matter lesions [17].

Cardiopulmonary Physical Therapy (CPPT) and other pulmonary rehabilitation procedures gives us best result by reducing symptoms and condition's status and improving a person life and health in physiological, psychosocial and in economical ways. Pharmacotherapy, continual oxygen as a source of supplement and non-invasive techniques for improving an individual ventilation may put positive effects in patients with CRDs. [18] This purpose of the study is to assess the quality of life after cardiorespiratory disease among the general population in Gujranwala. Free workshop should also be organized to increase the knowledge of people regarding the profession.

METHODOLOGY

Subjects who meet the inclusion and exclusion criteria were selected. Demographic data such as their name, age, and gender were obtained at baseline assessment. People with age 18 and above, with intact cognition, patients having history of Asthma, COPD, ILD, Pulmonary Tuberculosis, or Lung Cancer were included in this study by using non-probability convenient sampling technique. Details about consent forms were explained to the participants prior to filling the forms. Participants filled the SF-36 questionnaire. A consent form was also filled out prior to questioning.

Research was approved by Institutional review board (IRB), University of Lahore, Punjab, Pakistan.

RESULTS

There were a total of 385 participants included in the study; 245 (63.6%) of the participants were male, 114 (29.6%) participants were female, whereas 26 (6.8%) participants were intergender individuals (Table 1) .

Minimum age was 18 years and maximum age was 72 years with 41.94 being the mean age, with a Standard Deviation of ±17.087 (Table 2).

91 participants fell into the age group 18-25 constituting 23.6% of the total sample, 33 participants fell into the category of 26-30 years constituting of 8.6% of the sample, 47 participants fell into the 31-35 age group (12.2%), 34 participants fell into 36-40 age group (12.2%), 21 participants fell into 41-45 age group (5.5%), 14 participants fell into the category of 46-50 years (3.6%), 28 participants fell into the category of 51-55 years (7.3%), 40 participants fell into the 56-60 age group (10.4%), 43 participants fell into the 61-65 age group (11.2%), while 26 participants fell into the 66-70 age group constituting of 6.8% of the total sample, and 8 fell into the 71-72 age group making the remaining 2.1% of the sample (Table 3).

225 participants from the sample size of 385 were married, constituting to 58.44% of the sample, while 160 participants were unmarried constituting to 41.56% of the total sample size (Table 4) (Figure 3).

Of the 385 participants of this study, 82 individuals were diagnosed with Asthma (21.3%), 111 individuals were diagnosed with COPD (28.8%), 71 individuals were diagnosed with ILD (18.4%), 51 individuals were diagnosed with Unilateral Tuberculosis (13.2%), 52 had Bilateral Tuberculosis (13.5%), while 18 had Lung Cancer, constituting to 4.7% of the sample population (Table 5).

The SF-36 questionnaire consists of 9 elements that are used to assess the perceived quality of life. The first element is of Physical Function in which a higher score indicates better quality of life. The second element is of Physical Limitations, in which a higher score indicates poorer quality of life. A higher score in this element indicates poorer quality of life. The eighth element is of General Health. A higher score indicates better quality of life. The ninth and final element of the SF-36 questionnaire is of Health Change which assesses the perceived health related changes of the individual in which a higher score indicates better quality of life.

In summary, five elements being Physical Function, Emotional Well-being, Social Functioning, General Health, and lastly Health Change, all represent better quality of life when scored higher. The remaining 4 being Physical Limitations, Emotional Limitations, Energy Fatigue, and Pain all indicate poorer quality of life with higher scores.

An average score was calculated as an average value of all 9 elements from the questionnaire in which the lowest score found was 17.22 while the highest score was found to be 80.44, with a Mean of 60.96 and a Standard Deviation of ±12.47 (Table 6).

When analyzing the selected chronic respiratory diseases individually, individuals with Asthma scored an average of all elements such that the lowest score was 44.56 and highest score was 80.33, with a Mean of 65.45 and a Standard Deviation of ±7.67 (Table 7).

Individuals with COPD scored an average of all elements such that the lowest score was 28.89 and highest score was 80.33, with a Mean of 65.94 and a Standard Deviation of ±10.02 (Table 8).

Individuals with ILD scored an average of all elements such that the lowest score was 34.78 and highest score was 78.22, with a Mean of 60.94 and a Standard Deviation of ±9.24 (Table 9).

Individuals with Unilateral TB scored an average of all elements such that the lowest score was 37.44 and highest score was 80.44, with a Mean of 59.13 and a Standard Deviation of ±11.05 (Table 10).

Individuals with Bilateral TB scored an average of all elements such that the lowest score was 36.44 and highest score was 77.89, with a Mean of 53.46 and a Standard Deviation of ±10.93 (Table 11).

Individuals with Lung Cancer scored an average of all elements such that the lowest score was 17.22 and highest score was 78.89, with a Mean of 36.58 and a Standard Deviation of ±21.09 (Table 12).

A Spearman's rank-order correlation was run to determine the relationship between the Ages of the participants and average scores from all the elements. There was found to be a weak, negative correlation between both variables which was statistically significant (r_s (222) = -.290, p = .001) (Table 13).

Table 1: Gender Distribution

Gender	Frequency	Percentage
Male	245	63.6%
Female	114	29.6%
Intergender	26	6.8%

Table 2: Mean Age

Mean Age	Std. Deviation
41.98	±17.087

Table 3: Age Group Distribution

Age Group	Frequency	Percentage
18-25	91	23.6%
26-30	33	8.6%
31-35	47	12.2%
36-40	34	8.8%
41-45	21	5.5%
46-50	14	3.6%
51-55	28	7.3%
56-60	40	10.4%
61-65	43	11.2%
66-70	26	6.8%
71-72	8	2.1%

Table 4: Marital Status Distribution

Marital Status	Frequency	Percentage
Married	225	58.44%
Unmarried	160	41.56%

Table 5: Chronic Respiratory Disease Distribution

Chronic Respiratory Disease	Frequency	Percentage
Asthma	82	21.3%
COPD	111	28.8%
ILD	71	18.4%
Unilateral TB	51	13.2%
Bilateral TB	52	13.5%
Lung Cancer	18	4.7%

Table 6: Average SF-36 Score Collective

Highest Score	Lowest Score	Mean	St. Deviation
80.44	17.22	60.96	±12.47

Table 7: Average SF-36 Score Asthma

Highest Score	Lowest Score	Mean	St. Deviation
80.33	44.56	65.45	±7.67

Table 8: Average SF-36 Score COPD

Highest Score	Lowest Score	Mean	St. Deviation
80.33	28.89	65.94	±10.02

Table 9: Average SF-36 Score ILD

Highest Score	Lowest Score	Mean	St. Deviation
78.22	34.78	60.94	±9.24

Table 10: Average SF-36 Score Unilateral TB

Highest Score	Lowest Score	Mean	St. Deviation
80.44	37.44	59.13	±11.05

Table 11: Average SF-36 Score Bilateral TB

Highest Score	Lowest Score	Mean	St. Deviation
77.89	36.44	53.46	±10.93

Table 12: Average SF-36 Score Lung Cancer

Highest Score	Lowest Score	Mean	St. Deviation
78.89	17.22	36.58	±21.09

Table 13: Correlation Average SF-36 Score and Age

Variables	*R*-value	*P*-value
Average SF-36 Score * Age	-0.290	<0.001

DISCUSSION

The purpose of this research was to denote a quantified value to, whilst determining the perceived quality of life of individuals above the ages of 18 whom have been diagnosed with a chronic respiratory disease from the study setting of Gujranwala, Punjab, Pakistan. The data was collected from all three genders, males, females, and intergender individuals, from 4 medical institutions, namely District Head Quarter Hospital, Gondal Complex Hospital, Al-Araee Hospital, and Jinnah Hospital in the city of Gujranwala, Punjab, Pakistan. The SF-36 questionnaire consists of 9 elements that are used to assess the perceived quality of life by measuring the findings from a set group of questions. Some elements consist of 3 questions while others consist of more questions. Each element is then calculated into an individual score of 100 each [19].

The first element is of Physical Function in which a higher score indicates better quality of life. The second element is of Physical Limitations, in which

a higher score indicates poorer quality of life. The third element is of Emotional Limitations, in which a higher score also indicates poorer quality of life. The fourth element is of Energy Fatigue, in which a higher score also indicates poorer quality of life. The fifth element is of Emotional Well-being, which a higher score is indicative of better quality of life. The sixth element is of Social Functioning in which a higher score is indicative of better quality of life. The seventh element of the SF-36 questionnaire is of Pain. A higher score in this element indicates poorer quality of life. The eighth element is of General Health. A higher score indicates better quality of life. The ninth and final element of the SF-36 questionnaire is of Health Change which assesses the perceived health related changes of the individual in which a higher score indicates better quality of life [20].

In summary, five elements being Physical Function, Emotional Well-being, Social Functioning, General Health, and lastly Health Change, all represent better quality of life when scored higher. The remaining 4 being Physical Limitations, Emotional Limitations, Energy Fatigue, and Pain all indicate poorer quality of life with higher scores [21].

After collecting all 9 portions and calculating their individual scores, an average of each individual participant was calculated to signify the overall quality of life represented by one single.

The significant findings of this research exhibited that the mean score out of a 100 was 60.96. This indicates that the quality of life of an average participant was moderately good.

The mean score for individuals with Asthma was found to be 65.45, meaning people with Asthma had a slightly better quality of life compared to the rest of the sample size but higher compared to the quality of life in people living in France and the United States [22].

The mean score for individuals with COPD was found to be 65.94. This means individuals with COPD had a better perceived quality of life as opposed to individuals with Asthma and compared to the rest of the sample size.

Individuals with ILD had a mean score of 60.94 which seems to be almost identical to the average of the entire sample size, whilst having poorer quality of life compared to both individuals having Asthma and COPD.

Individuals with Unilateral TB had a mean score of 59.13 which indicates a lower score compared to the mean of the entire population and a slightly poorer perceived quality of life as compared to individuals with Asthma, COPD and ILD.

Participants with Bilateral TB scored a mean of 53.46 which is significantly less than the mean score from all of the sample size, with significant lower perceived quality of life than individuals with Asthma, COPD, ILD, and Unilateral TB.

Participants with Lung Cancer scored to least mean score from all the chronic respiratory disorders such that their mean score was 36.58, indicating a poor quality of life perceived by the individual. This score, when compared to the rest of the sample size is significantly lower and is also lower than the other chronic respiratory lung diseases.

Finally, a Spearman Correlation was taken to measure the correlation between the ages of the participants, and their average score of perceived quality of life. The correlation showed a weak, negative correlation being -.290. This value is indicating that an increase in age has a weak but inversely proportional affect on the quality of life, and that the quality if life deteriorates with the advancement of age. [23]

Limitations: There are a few limitations with this study were that there are a vast number of chronic respiratory diseases which could not be a part of this study, the constraint of geographical location also served as a limitation. The complete transparency of the participants acts as a limitation and the interference of other factors that could not be taken into consideration at the time of this research.

Recommendations: This same quantification of perceived quality of life should be carried out among other cities and areas of Pakistan to at the end, calculate a national average. Another extension of this research might be in comparing the perceived quality of life with other co-morbidities such as bronchitis, emphysema etc.

CONCLUSION

This indicates that the average perceived quality of life was found to be moderately good. COPD was found to have the highest perceived quality of life among the measured chronic respiratory diseases, while Lung Cancer was found to have the lowest score of the measured chronic respiratory disease.

Conflict of Interest

There was no conflict of interest.

Financial Statement

No fundings were given by any authorities; it was a project thesis of doctor of physical therapy.

Data availability

Data will be provided on the demand by corresponding author.

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