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(RESEARCH ARTICLE)

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A prospective study to assess the quality of life in COPD patients: In a tertiary care centre

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Abstract

Background, aims and objectives: COPD is one of the leading cause of mortality and morbidity worldwide. It shows a decline in the lung function followed by impairment of physical functions. Quality of life is an important factor for measuring the impact of COPD in the patient from socializing and enjoying their hobbies.This study aimed at assessing the health related improvement in the quality of life of COPD patients.

Materials and methods: A hospital-based prospective study was conducted in a tertiary care hospital, Kerala, India to assess the quality of life in 100 COPD patients for a period of 6 months by using St. George respiratory Questionnaire(SGRQ). Demographic details, therapy related factors and smoking status were collected.

Result: In our analysis of 100 COPD patients, at the baseline assessment, the average SGRQ score was 59.92, with a standard deviation of 16.77. Conversely, during the follow-up period, there was a decrease in the mean score to 36.17, with a standard deviation of 14.23, indicating a decline in the SGRQ score over time. Lower SGRQ scores indicated better respiratory health and fewer symptoms.

Conclusion: The results from our study revealed an improved quality of life among COPD patients significantly over time. The change in the mean SGRQ (St. George's Respiratory Questionnaire) score from 59.92 to 36.17 indicates an improvement in respiratory health or quality of life among the population being studied. When individuals adhere more closely to their medication regimens, they are more likely to manage their condition effectively, leading to better health outcomes and an enhanced quality of life.

Keywords: COPD; SGRQ; Quality of life; Patients

1. Introduction

Chronic obstructive pulmonary disease (COPD) is a disease state characterized by airflow limitation that is not fully reversible.[1] The airflow limitation is usually both progressive and associated with an abnormal inflammatory response of the lungs to noxious particles or gases. COPD is a general term that covers a variety of other disease including **chronic** bronchitis and emphysema[2]

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1.1. Signs and symptoms

Patients commonly exhibit a mix of signs and symptoms associated with chronic bronchitis, emphysema and reactive airway disease.[2]

1.1.1. The symptoms include

- Cough is a prevalent symptom, typically more pronounced in the mornings, accompanied by the production of a small amount of colourless sputum.
- Breathlessness is the most significant symptom, but it typically does not manifest until the sixth decade of life
- Wheezing may manifest in certain patients, especially during exertion and exacerbations.

1.2. Quality of life

- Quality of life (QOL) is an important domain for measuring the impact of chronic disease. Both general and disease-specific instruments have been used to measure QOL in patients with COPD. [2]
- Among the disease-specific questionnaires frequently used to evaluate the QOL of pulmonary patients is St. George's Respiratory Questionnaire (SGRQ).[3] A new version of the SGRQ, the SGRQ-C specific only to COPD, is now available. COPD impairs quality of life, by preventing people with the condition from socializing and enjoying their hobbies.[1] It also makes many feel frustrated and angry about not being able to do the things they want to.
- The Global Initiative for Chronic Obstructive Lung Disease (GOLD) guidelines have outlined the treatment goals for patients with COPD.[4] These encompass the patient's aspirations for improved exercise tolerance and emotional well-being (health-related quality of life), along with crucial clinical goals such as preventing disease progression and minimizing symptoms.[4]

1.3. Aim

To analyze the improvement in the quality of life among COPD patients.

Objectives

One of the main objective is to acess the quality of life in COPD patients.

2. Materials and methods

The study was a prospective, conducted at a tertiary care hospital on 100 COPD patients for a period of six months. The inclusion criteria are patients with COPD in OPD, above 18 years of age. Patients with other co morbid conditions, polypharmacy, and patients of all gender were included in the study. Patients admitted with acute exacerbation of COPD or respiratory failure, patients who are bedridden and pregnant women were excluded.

Quality of life (QoL) in COPD patients is significantly impacted by symptoms like breathlessness, fatigue, and reduced mobility, leading to social isolation and mental health issues. Key factors affecting QoL include disease severity, frequent exacerbations, physical limitations, and comorbidities. Improving QoL involves pulmonary rehabilitation, medication adherence, smoking cessation, oxygen therapy (if needed), nutritional support, and psychological care. Tools like the St. George's Respiratory Questionnaire (SGRQ) help assess QoL. Effective management can enhance daily functioning and well-being in COPD patients.

The data were entered into Microsoft Excel Spreadsheet and Statistical analysis was performed by IBM SPSS 22.0. After obtaining permission from the IEC, study began with data collection. Case records were retrospectively and prospectively reviewed for demographic data, clinical presentations, investigations, management and prognosis.

3. Results and discussion

Table 1 Frequency and percentage distribution of sample according to age in years (N=100)

Age (in years)	Frequency	Percentage (%)
30-40	1	1
41-50	7	7
51-60	15	15

61-70	39	39
71-80	27	27
>80	11	11

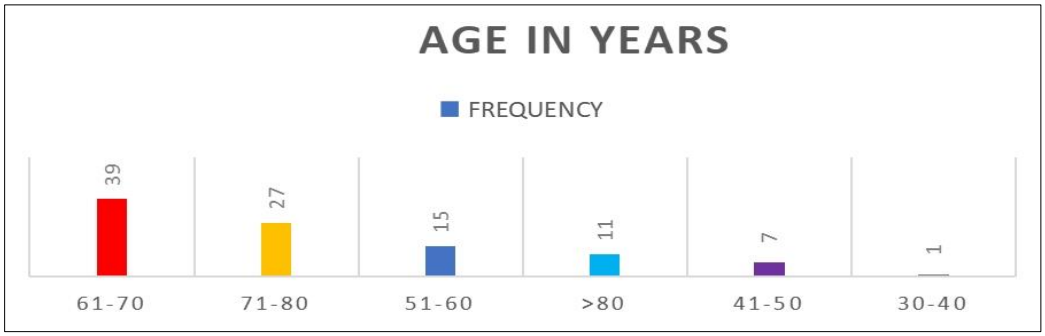

Figure 1 Age wise distribution of the study population

Inference The study reveals that COPD predominantly affects older individuals, with the highest prevalence observed in the 61–70-year age group

Table 2 Frequency and percentage distribution of samples according to gender

Gender	Frequency (n=100)	Percentage (%)
Male	52	52
Female	48	48

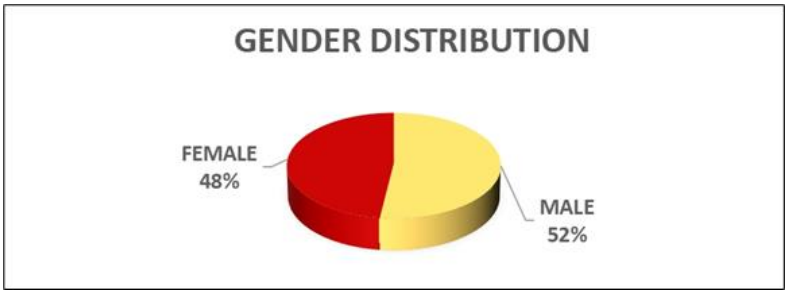

Figure 2 Gender distribution

INFERENCE The data shows that COPD is more common in men, with 52% of patients being male. This suggests that men are at a higher risk for COPD when compared to womens

Table 3 Frequency and percentage distribution of sample according to smoking history [N=100]

Patients	Frequency(n=100)	Percentage (%)
Non-smokers	77	77
Ex-smokers	13	13
Smokers	10	10

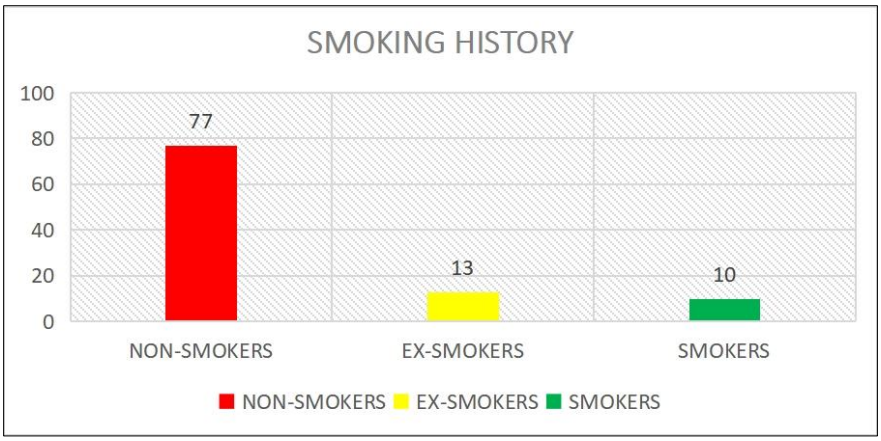

Figure 3 Prevalence of COPD among smokers, ex-smoker and non-smokers

Inference: The data highlights that the majority of COPD patients are non-smokers (77%), with all 48 females and 29 males falling into this category

Table 4 Frequency and percentage distribution of sample according to symptom on admission [N=100]

Symptom on admission	Frequency(n=205)	Percentage (%)
Shortness of breath	91	44.39
Cough	62	30.24
Sputum	19	9.26
Fever	12	5.85
Wheezing	8	3.90
Chest pain	4	1.95
Body pain	3	1.46
Headache	2	0.97
Sputum with blood	2	0.97
Throat pain	1	0.48
Low appetite	1	0.48

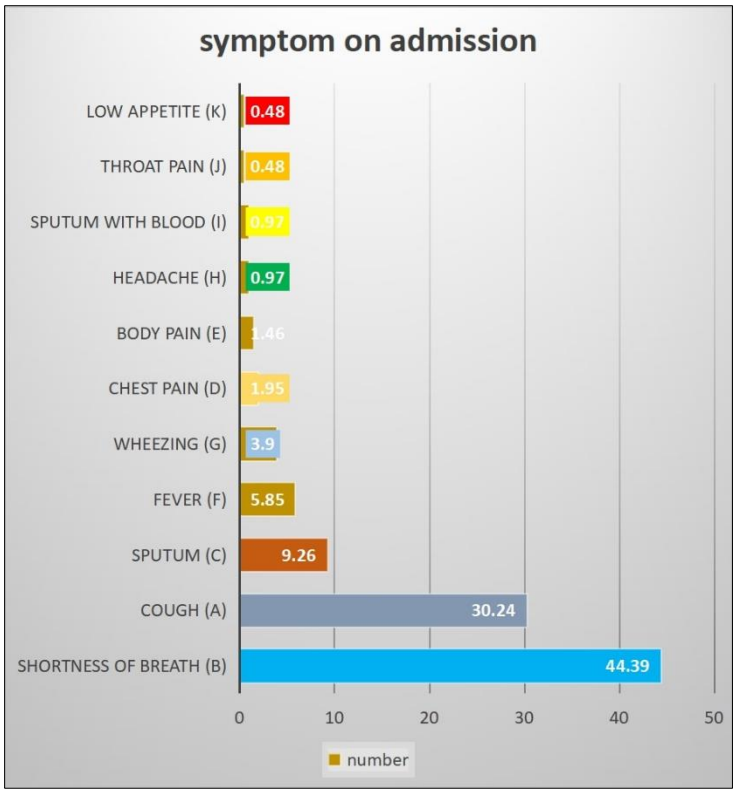

Figure 4 Bar graph representing symptom on admission of the study population

Our study reveals that the most common symptom on admission among COPD patients are shortness of breath, cough, sputum production and fever. These symptoms are indicative of respiratory distress and infection. Conversely, less prevalent symptoms include wheezing, chest pain, body pain, headache, blood with sputum, throat pain and low appetite. Understanding these symptom patterns is crucial for timely diagnosis and appropriate management of COPD, ensuring that patients receive the necessary care tailored to their specific symptoms and needs

Table 5 Frequency and percentage distribution of sample according to allergy [N=100]

Allergy	Frequency(n=100)	Percentage(%)
Present	62	62
Absent	38	38

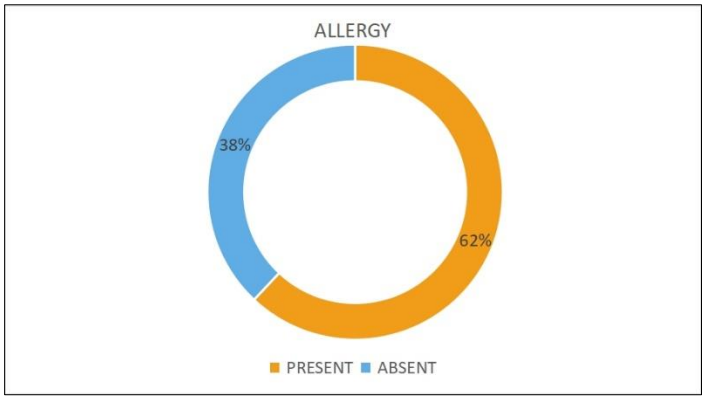

Figure 4 Distribution of sample according to allergy

INFERENCE: The chart indicates that COPD patients show a higher susceptibility to allergies. This finding underscores the importance of considering allergic factors in the management and treatment of COPD patients, as allergic reactions could potentially exacerbate respiratory symptoms and contribute to disease progression.

Table 6 Frequency and percentage distribution of sample according to types of allergies [N=62]

Types of allergies	Frequency(n=73)	Percentage (%)
Dust	59	80.82
Smoke	6	8.21
Chalk powder	4	5.47
Pungent smell	2	2.73
Cold	1	1.36
Milk	1	1.36

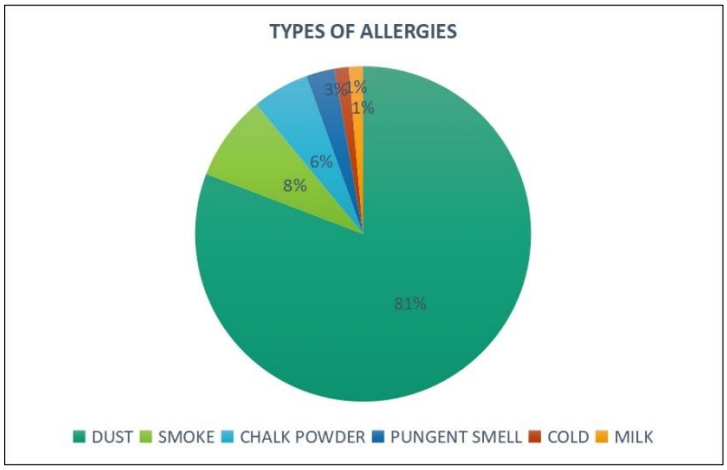

Figure 5 The prevalence among COPD patients to different type of allergies

INFERENCE: Our study highlights the substantial impact of allergens, particularly dust and smoke, on COPD patients. These allergens significantly affect the majority of individuals in our study

Table 7 Frequency and percentage distribution of sample according to comorbidity of patients [n=100]

Comorbidity of patients	Frequency(n=143)	Percentage (%)
Hypertension	47	32.86
Diabetes mellitus	37	25.87
Dyslipidaemia	20	13.98
Coronary artery disease	17	11.88
Hypothyroidism	7	4.89
Chronic kidney disease	3	2.09
Tuberculosis	2	1.39
Benign prostate hyperplasia	2	1.39
Transient ischemic attack	1	0.699
Non-hodgkin's lymphoma	1	0.699

Parkinson's disease	1	0.699
Addison's disease	1	0.699
Tachycardia	1	0.699
Migraine	1	0.699
Stroke	1	0.699
Fatty liver	1	0.699

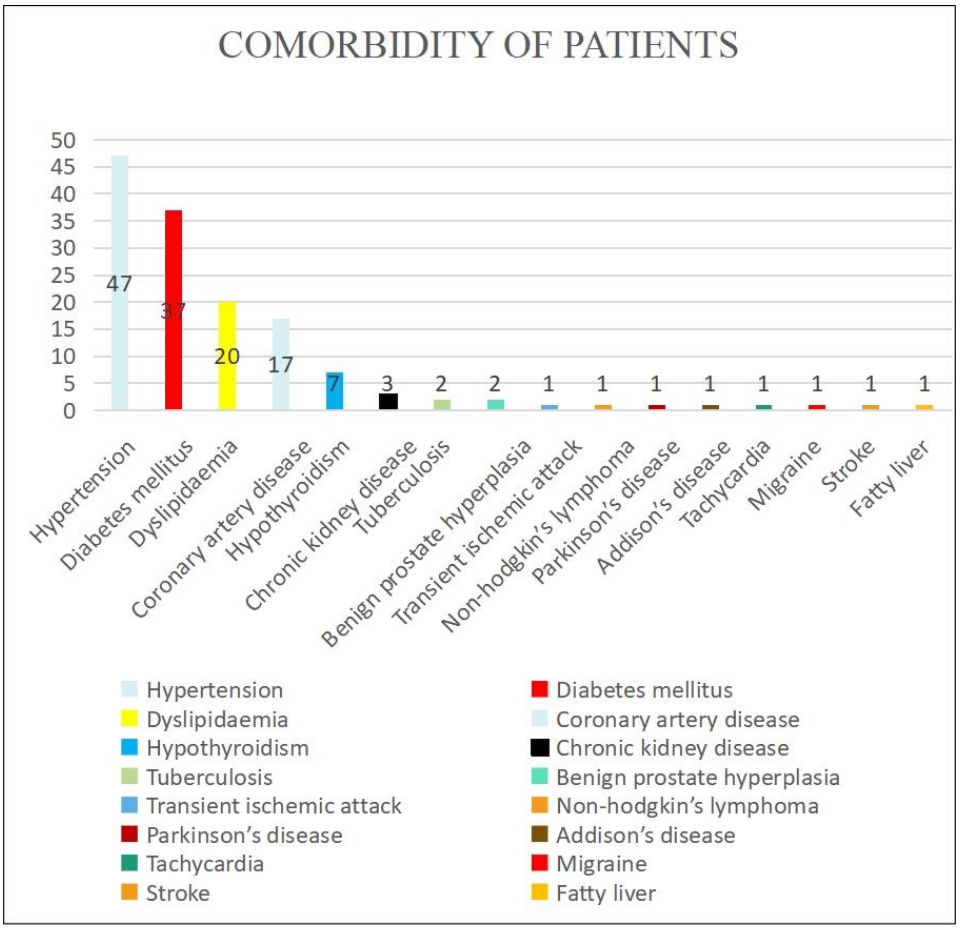

Figure 6 The distribution of sample according to comorbidities of patient

INFERENCE: Our study highlights hypertension (32.86%), diabetes mellitus (25.87%), and dyslipidemia (13.98%) as prevalent comorbidities among COPD patients, potentially impacting their quality of life. These conditions can exacerbate respiratory symptoms, worsen disease progression and increase the risk of complications. Addressing these comorbidities alongside COPD management is crucial for improving patient outcomes and enhancing overall quality of life

Table 8 Frequency and percentage distribution of sample according to occupational exposure [n=100]

Occupational exposure	Frequency(n=100)	Percentage (%)
Present	80	80
Absent	20	20

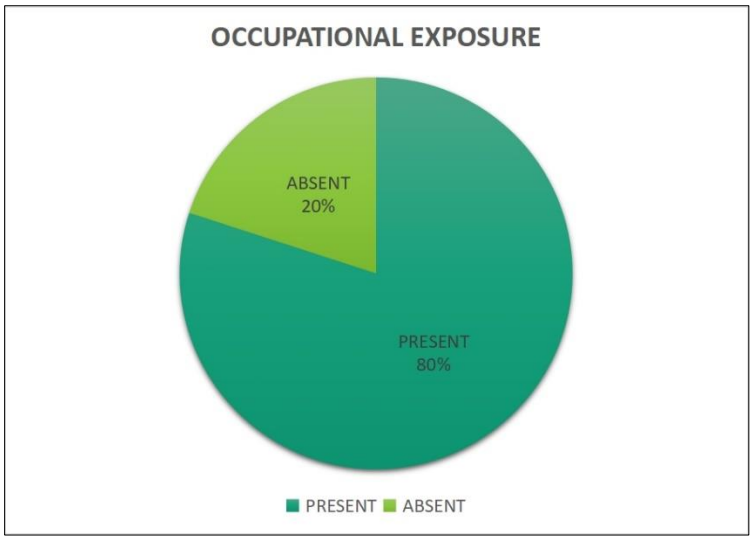

Figure 7 The distribution of sample according to occupational exposure

INFERENCE: The chart illustrates that a majority of patients in our study, specifically 80 out of 100, have occupational exposure.

Table 9 mean, standard deviation, mean difference, t value and p value of sgrq score during baseline and follow-up **[N=100]**

Time	Mean	Standard deviation	Mean difference	t value (paired t test)	p value
Baseline	59.92	16.77	23.75	14.568	<0.001***
Follow-up	36.17	14.23			

*** Significant at 0.001 level

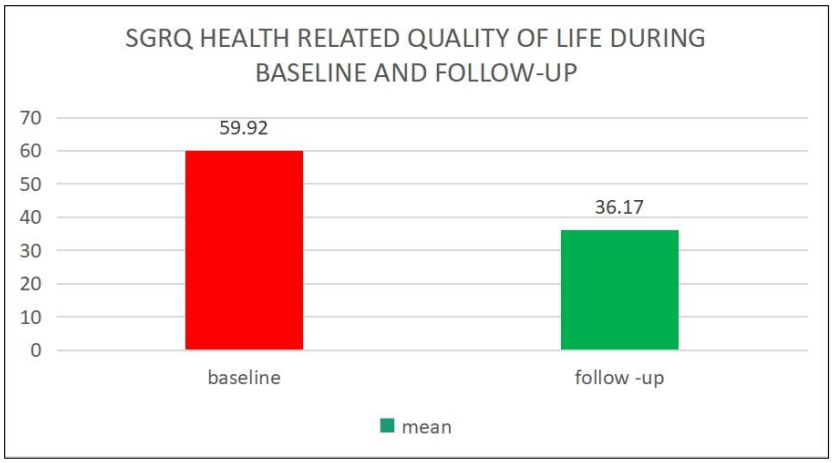

Figure 8 The mean, standard deviation, mean difference, t value and p value of MMAS score during baseline and follow-up

In the baseline assessment, the mean value of the SQRQ score was 59.92, indicating a relatively higher level of symptom severity, quality of life impairment, and patient perception of control over their respiratory condition. However, during the follow-up period, after intervention the mean value decreased significantly to 36.17. This reduction suggests an improvement in symptom severity, quality of life, and perceived control over the respiratory condition among COPD patients. These findings highlight the effectiveness of interventions and treatment strategies in alleviating symptoms and enhancing the overall well-being of individuals with COPD.

4. Conclusion

The results from our study revealed improved quality of life among COPD patients. The change in the mean SGRQ (St. George's Respiratory Questionnaire) score from 59.92 to 36.17 indicates an improvement in respiratory health or quality of life among the population being studied. When individuals adhere more closely to their medication regimens, they are more likely to manage their condition effectively, leading to better health outcomes and an enhanced quality of life. Therefore, in this study, an improved health-related quality of life was observed in COPD patients.

Compliance with ethical standards

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Disclosure of conflict of interest

No conflict of interest to be disclosed

Statement of ethical approval

The study was approved by the Institutional Ethics Committee.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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