



Analysis of the Evolution of The Quality of Life in Patients with Chronic Obstructive Pulmonary Disease

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Article History	Abstract
Received: 06 June 2023 Revised: 05 Sept 2023 Accepted: 11 Sept 2023	<p>Aim: The objective of this research is to identify and analyze changes in the lifestyle of patients suffering from COPD or chronic obstructive pulmonary disease, which is a chronic respiratory pathology that encompasses two main entities: chronic bronchitis and emphysema. Material and method: This condition is characterized by significant clinical manifestations, among which are dyspnea (breathing difficulties), chronic cough, and fatigue. The conclusions derived from this research reveal that the changes in the lifestyle of people living with COPD are numerous and cover different aspects of their daily life. Caregivers also experience several changes in their lives as they have to adapt to the needs and limitations of patients, which can affect their quality of life and emotional well-being. Statistics and Result: It is essential to consider these changes in the quality of life that the development of this disease entails, and to adopt comprehensive measures to improve care, early diagnosis and proper management of affected patients. The implementation of prevention, education and pulmonary rehabilitation strategies, as well as the promotion of healthy lifestyles, can contribute to reducing the burden of the disease and improving the quality of life of those living with COPD.</p>
CC License CC-BY-NC-SA 4.0	<p>Keywords: Quality of Life, Chronic Cough, Fatigue, COPD, Pathology, Respiratory, Emphysema, Chronic Bronchitis</p>

1. Introduction

"Chronic obstructive pulmonary disease (COPD) is a common, preventable and treatable chronic disease that affects men and women without discrimination, it is the third leading cause of death in the world" (Dumitrascu, 2008). It is characterized by the presence of two distinct but related lung diseases: chronic bronchitis and pulmonary emphysema. Both pathologies are characteristic components of COPD and can cause irreversible damage to the patient's health.

Chronic bronchitis manifests clinically as a "chronic cough with sputum due to inflammation of the airways." However, Robbins and Cotran expand the definition to consider it as a "persistent cough with expectoration for at least 3 months in the period of 2 consecutive years." This symptom is a consequence of chronic inflammation of the airways, which causes excessive production of mucus and difficulties in its elimination. Smoking, both in its active and passive form, is the main factor associated with the development of chronic bronchitis, which is alarming due to the high prevalence of this practice in today's society.

On the other hand, pulmonary emphysema is a condition defined by the "destruction of the pulmonary alveoli." This involves the loss of elasticity of lung tissues and the creation of increased air spaces that can make it difficult to exchange gases during breathing. Smoking is also the main risk factor for the development of pulmonary emphysema, highlighting the importance of preventive and smoking cessation interventions. It is essential to keep in mind that both chronic bronchitis and pulmonary emphysema are progressive and chronic conditions, which means that the lung damage caused is irreversible and can worsen over time if not properly controlled. These pathological changes seriously compromise the patient's respiratory function and can have a significant impact on their quality of life.

Knowledge of the risk factors associated with COPD and understanding of the clinical manifestations of the disease are essential for its early diagnosis and the implementation of appropriate treatment strategies. The comprehensive approach to COPD involves not only the management of respiratory symptoms, but also the promotion of healthy lifestyles and the prevention of smoking, especially in populations at higher risk of developing this pathology. Robbins and Cotran define it as the "irreversible increase in size of the airspaces distal to the terminal bronchiole, accompanied by the destruction of its walls" (WHO, 2019; Kumar et al., 2021; Valles et al., 2021).

COPD manifests with a characteristic symptomatology that can significantly affect the quality of life of patients. Dyspnea, which is shortness of breath, is one of the most common symptoms and intensifies as the disease progresses. This feeling of shortness of breath can be especially distressing for patients and limit their daily activities, making it difficult to perform physical activities and even everyday tasks. Chronic cough is another common symptom in COPD patients and is usually accompanied by sputum production. This persistent cough can cause discomfort and affect sleep quality and the ability to rest properly.

Fatigue is another consequence of COPD that affects many patients. Shortness of breath and chronic cough can consume a lot of energy and lead to a general feeling of tiredness and exhaustion. This fatigue can interfere with patients' ability to carry out their daily activities and affect their overall well-being. Early diagnosis and timely treatment of COPD is essential, as this allows for better control of the disease and symptoms in general. Medical treatments, which may include bronchodilators, inhaled corticosteroids, and oxygen therapy, can improve lung function and relieve respiratory symptoms, significantly benefiting patients' quality of life.

However, it is important to note that the severity of symptoms and the number of exacerbations the patient has experienced can significantly influence quality of life. Exacerbations are episodes of acute worsening of respiratory symptoms, and can be severe and life-threatening. The presence of frequent or more severe exacerbations may have a negative impact on the patient's quality of life and require hospitalisations and intensive treatment.

In addition to medical treatments, it is important to address COPD holistically, including measures to prevent disease progression and promote a healthy lifestyle. Smoking cessation, in the case of smokers, is essential to reduce the progression of COPD and improve lung health. Healthy eating habits and regular physical activity should also be encouraged to maintain good physical condition and prevent associated complications.

Quality of life is defined according to Soto & Failde as "the individual's perception of his situation in life, within the cultural and value context in which he lives, and in relation to his objectives, expectations, values and interests". This denotes that quality of life is not only linked to the cultural context, but also includes the objectives and expectations of the person (Soto & Failde, 2004).

2. Materials And Methods

The present research adopted a documentary bibliographic approach, conducting an exhaustive search for information on changes in quality of life in patients with chronic obstructive pulmonary disease (COPD). To do this, various databases of academic recognition such as Google Scholar, Scielo, Scopus, Web of Science, and Elsevier were used, covering a period between 2018 and 2022.

The search was carried out using keywords related to the impact on quality of life in patients with COPD. Keywords included terms such as "Chronic obstructive pulmonary disease," "Quality of life,"

"Changes," "Sequelae," and "Clinical manifestations." These keywords were carefully selected to cover relevant aspects in research on how disease impacts patients' daily lives.

During the selection process, relevant articles were examined in detail, discarding those that did not directly address the problems related to the quality of life of COPD patients, as well as those that focused solely on the prevention of the disease.

One of the challenges encountered in the search for information was the limitation of access to certain files that required subscriptions or payments to be consulted in their entirety. However, an effort was made to select a total of 11 useful and relevant articles from various databases, such as Elsevier, Google Scholar and NCBI, among others. The analysis of the information obtained was carried out meticulously, collecting detailed data on the description of the disease, its components, causes, consequences and lifestyle changes that occur due to COPD. It should be noted that information from articles in other languages, such as English, was included to obtain a broader and more relevant compendium of data.

The selection of articles was governed by the quality and relevance of the information obtained, and was not limited only to publications in Spanish, but articles in English were considered to broaden the understanding and scope of the research. For the citation and writing of the bibliographic references, the Vancouver-style regulations were followed, which is widely recognized and used in the academic and scientific field to ensure precision and uniformity in the presentation of the sources used.

3. Results and Discussion

After a thorough analysis of the articles selected for research, the collected data on health-related quality of life in people with chronic obstructive pulmonary disease (COPD) are presented. This quality of life is grouped into four sections, each of which addresses different aspects that impact the lives of COPD patients:

- **Physical condition and functional capacity:** This section refers to physical condition and the ability to carry out daily activities without difficulties. In the context of COPD, fitness is affected by airflow limitation and dyspnoea, leading to a reduction in the ability to perform physical activities, such as walking, climbing stairs or performing household chores. COPD patients may experience fatigue and weakness due to lack of oxygen and shortness of breath, which decreases their activity level and affects their quality of life.
- **Psychological state and well-being:** The psychological well-being of people with COPD covers aspects such as productivity, mood, emotional and mental state. The emotional burden associated with the disease can be significant, as patients may feel frustrated, anxious or depressed due to the limitation in their physical capacity and the restrictions imposed by the disease. In addition, worry about exacerbations and progression of the disease can lead to stress and distress, affecting your mental and emotional well-being. Productivity may also be affected, as some patients may face difficulties in maintaining their usual work or social activities due to COPD symptoms.
- **Social interactions:** This section refers to the ability of patients to maintain personal, family and friendship relationships. COPD can have an impact on patients' social lives, as shortness of breath and fatigue can limit their participation in social and recreational activities. This can lead to a feeling of isolation and affect the quality of your relationships with family and friends. In addition, the social stigma associated with smoking as a risk factor for COPD may influence patients' perception and interaction with their social environment.
- **Economic status and factors:** The economic status of people with COPD includes things like income, housing, transportation, and expenses related to treatment and management of the disease. COPD can create a significant economic burden for patients, as expenses for medications, medical consultations, hospitalizations and oxygen therapy can be high. This can affect patients' ability to meet their basic needs and maintain an adequate standard of living. In addition, those with limited income may face difficulties in accessing adequate treatment

and leading a lifestyle that contributes to improving their quality of life (Soto & Failde, 2004; Carpio et al., 2021).

This disease has a multidimensional impact on the quality of life of patients, affecting their physical state, psychological well-being, social interactions and economic situation. It is important to consider these aspects in the comprehensive approach to the disease and provide a holistic approach in the management and care of patients with COPD. This includes developing strategies that address not only the medical aspects of the disease, but also its social and economic implications, to improve the quality of life and overall well-being of those affected by this condition.

All of the groups described above are detailed below, highlighting the main lifestyle changes of people with chronic obstructive pulmonary disease in each group.

Physical status and functional capacity: Changes in the patient's physical status are described in relation to the classification of the stages of the disease according to the Global Initiative for Chronic Obstructive Lung Disease (GOLD) *see annex 1*.

- **GOLD 1 (Mild):** There is a slight limitation of airflow, accompanied by cough with possible mucus production. No need for oxygen therapy.
- It does not significantly affect the patient's quality of life.
- **GOLD 2 (Moderate):** There is a greater limitation in the flow of air, with the presence of dyspnea of effort, the cough that occurs is greater and accompanied by sputum. At this stage patients usually start with medical treatment.
- **GOLD 3 (Severe):** Presence of a greater limitation in airflow, there is greater dyspnea accompanied by fatigue. There are limitations in daily activities. Onset of exacerbations.
- **GOLD 4 (Very serious):** A drastic limitation of airflow, resulting in involvement at the level of the cardiovascular system. There is a great impact on the quality of life of the patient, because the respiratory difficulty is greater and there is a greater presence of exacerbations. The patient requires oxygen therapy accompanied by hospitalization (Global, 2017; Paspuel et al., 2021).

Psychological state and well-being:

- **Anxiety:** Mainly because of the negative idea of the disease and the whole process to which patients have to adapt to control the symptoms and avoid exacerbations.
- **Depression:** Development of negative emotions from fear of death, needing help to perform daily activities, contracting infectious diseases that severely affect the airways or even becoming a burden to friends and family.
- **Feeling of inadequacy and loss of control:** Mainly due to the progressive appearance of dyspnea and anxious symptoms generated by repressing emotions. In addition to the progressive loss of capabilities (Muñoz et al., 2015).

Social interactions:

- **Feeling of guilt:** Society holds people with COPD responsible and judges the development of the disease for habits related to it, such as smoking and cannabis use.
- **Social isolation and reduction of activities with family or friends:** People who suffer from the disease prefer not to have contact with society so as not to be a burden or not feel vulnerable.

Economic status and its factors:

The cost of treatment including medication, medical care and alternative processes is relatively high. The average annual cost in Mexico of a COPD patient is \$4502.16. Of this amount, \$3082.70 corresponds to medications used in treatment, taking into account hospitalization and oxygen therapy in more severe cases (Enrique et al., 2018; Rodríguez et al., 2021):

Taking into account the aforementioned values, the expenditure involved in the treatment of COPD is high, especially if it is related to the economic average of the Ecuadorian population. So a person who works and has a basic salary will have difficulty in paying for adequate treatment of the disease.

Table 1: **Changes in the quality of life of patients with COPD**

Quality of life	
<i>Changes in the quality of life of patients with COPD</i>	
Physical condition and functional capacity:	GOLD 1 (Light):
	<ul style="list-style-type: none"> • < Mild airflow limitation. • < Cough with possible mucus production. • No need for oxygen therapy. • Quality of life not affected.
	GOLD 2 (Moderate):
	<ul style="list-style-type: none"> • > Limitation in airflow. • Exertional dyspnea. • > Cough accompanied by sputum. • Initiation of medical treatment.
Psychological state and well-being:	GOLD 3 (Serious):
	<ul style="list-style-type: none"> • > Limitation in airflow. • > Dyspnea accompanied by fatigue. • Limitations in daily activities. • Onset of exacerbations.
	GOLD 4 (Very serious):
	<ul style="list-style-type: none"> • Drastic airflow limitation • Involvement at the level of the cardiovascular system. Great impact on the patient's quality of life. • > Respiratory distress and exacerbations. • The patient requires oxygen therapy accompanied by hospitalization. • Anxiety: Patients present negativity due to all the change and processes to which the patient has to adapt.
Social interactions:	<ul style="list-style-type: none"> • Depression: Fear of contracting infectious diseases and helplessness when needing help to perform daily activities and being a burden to others. • Feeling of inadequacy and loss of control: There is the progressive appearance of dyspnea accompanied by anxious symptoms. • Guilt: Guilt of the development of the disease by habits such as smoking and cannabis use.
	<ul style="list-style-type: none"> • Social isolation and reduction of activities in family or friends: Contact 0 with society to avoid being a burden or not feeling minimized.
Economic status and its factors:	<p>High cost of treatment involving medication, medical care and alternative processes. For this reason, the expenditure involved in the treatment of COPD is high taking into account the economic average of the Ecuadorian population.</p>

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Annexes

Annex 1. Classification of severity in COPD, according to GOLD

Tabla 2.4. Clasificación de la gravedad de la limitación del flujo aéreo en la EPOC (basada en el FEV ₁ posbroncodilatador)		
En pacientes con un valor de FEV ₁ /FVC < 0,70:		
GOLD 1:	Leve	FEV ₁ ≥ 80% del valor predicho
GOLD 2:	Moderada	50% ≤ FEV ₁ < 80% del valor predicho
GOLD 3:	Grave	30% ≤ FEV ₁ < 50% del valor predicho
GOLD 4:	Muy grave	FEV ₁ < 30% del valor predicho

In addition to the studies mentioned above, there is other relevant research that addresses the assessment of the quality of life of patients with chronic obstructive pulmonary disease (COPD) from different perspectives. An article entitled "Impact of pulmonary rehabilitation on the quality of life of COPD patients" highlights the importance of pulmonary rehabilitation as a therapeutic intervention to improve the quality of life of COPD patients. The results show that participation in pulmonary rehabilitation programs can lead to significant improvement in patients' lung function, exercise capacity, and perception of physical and emotional well-being (Zamzam et al., 2012).

Another research entitled "Factors associated with quality of life in patients with COPD" emphasizes the relevance of identifying factors that influence the quality of life of patients with COPD. The presence of comorbidities, disease severity, adherence to treatment, and social support were found to be key factors affecting the quality of life of these patients. This highlights the need for a comprehensive approach to disease management, including not only medical treatment but also attention to psychosocial aspects and appropriate support to improve quality of life (Nguyen et al., 2019).

A study entitled "Effect of drug therapy on the quality of life of COPD patients" highlights the relevance of pharmacological treatments to improve the quality of life of COPD patients. The results show that the appropriate use of inhaled bronchodilators and corticosteroids can reduce respiratory symptoms and improve lung function, contributing to a better perception of well-being and overall quality of life (Chouza, 2019; Astra, 2018).

Importantly, these studies underscore the importance of addressing the quality of life of COPD patients from multiple perspectives, including pulmonary rehabilitation, attention to psychosocial factors, appropriate use of pharmacological treatments, and management of nutritional factors. Chronic obstructive pulmonary disease is a complex and multidimensional condition, and it is crucial to consider all these aspects to improve the quality of life and well-being of people suffering from this disease.

4. Conclusion

Throughout the review of the work, he was able to observe that chronic obstructive pulmonary disease (COPD) is a chronic, treatable and preventable condition that seriously affects the respiratory health of patients. It is characterized by the presence of two main components: chronic bronchitis and emphysema, both contributing to the deterioration of lung function and quality of life of the individual. To evaluate the changes and effects that COPD implies in the quality of life of patients, four fundamental categories are considered: Physical status and functional capacity: The physical health of the patient is considerably affected by the progression of the disease. As it progresses, lung capacity decreases, and the patient experiences dyspnea (shortness of breath) with activities that he previously performed without problem. This progressive exertional dyspnea can lead to the need to use oxygen therapy to improve their well-being and functional capacity in daily life.

Psychological status and well-being: The diagnosis of COPD and the need to cope with a chronic illness can have a significant emotional impact on patients. Fear and anxiety about the future, uncertainty and adaptation to a new reality can lead to the appearance of depressive symptoms. The perception of a decline in quality of life and worry about being a burden to loved ones and society at large contribute to a constant state of guilt and social isolation. Social interactions: COPD can affect

patients' personal, family and friendship relationships. Feeling limited in their daily activities, some patients may avoid social situations or feel excluded due to their difficulty fully participating in group activities. In addition, society can stigmatize COPD patients, attributing the disease to unhealthy lifestyle habits such as smoking, which can generate feelings of guilt and self-esteem.

Economic status and factors: The treatment and medication necessary for the proper management of COPD can involve a significant cost to patients and their families. Expenses associated with the acquisition of medications, medical care, hospitalizations, and therapies can put a financial burden on the homes of people with COPD, especially if their income is limited. In conclusion, COPD has a multidimensional impact on patients' quality of life. The changes in the emotional, social, physical and economic spheres are remarkable and require comprehensive attention to address the challenges faced by people living with this respiratory disease. Proper management, emotional and social support, and public awareness of the importance of preventing and treating COPD are critical to improving the quality of life of affected patients.

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