

## **Barriers and factors that facilitate the use of long-term oxygen therapy at home and the quality of life of patients with COPD**

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### **Abstract**

**Background:** Long-Term Oxygen Therapy (LTOT) is a critical intervention for managing chronic obstructive pulmonary disease (COPD) in patients with severe hypoxemia. Despite its clinical benefits, the effective use of LTOT at home faces numerous barriers and facilitating factors that significantly influence the quality of life (QoL) of COPD patients.

**Objective:** This study aims to explore the barriers and factors that influence the use of LTOT at home, as well as its impact on the quality of life of COPD patients

**Methods:** Through a comprehensive review of the literature, we identify the challenges and facilitators associated with LTOT use, along with the factors that contribute to the quality of life of patients. A mixed-methods approach was utilized in this study, involving qualitative data from semi-structured interviews with patients, caregivers, and healthcare providers. The study included a cohort of COPD patients on LTOT, assessing their experiences and QoL over a specified period.

**Results:** Key barriers to effective LTOT use at home included physical limitations, social stigma, equipment management issues, and insufficient patient education. Facilitating factors identified were robust social support, comprehensive education programs, and regular follow-up with healthcare providers.

**Conclusion:** Understanding the barriers and facilitating factors in the use of LTOT at home is essential for enhancing adherence and improving the QoL of COPD patients. Tailored interventions that address these barriers and leverage facilitating factors can lead to more effective LTOT use and better patient outcomes. This study highlights the importance of a holistic approach in managing COPD, incorporating both medical treatment and supportive measures to optimize patient well-being. The findings provide valuable insights into enhancing the effectiveness of LTOT at home and improving the overall well-being of individuals living with COPD.

**Key words:** COPD, LTOT, Quality of life

### **Introduction**

In the treatment and management of chronic obstructive pulmonary disease (COPD), long-term oxygen therapy (LTOT) plays a key role in improving quality of life and reducing mortality. Despite proven benefits, the use of DOT in patients with COPD is still suboptimal. (1). Limited access to health services, inadequate understanding of the benefits of DOT, and financial constraints are frequently reported barriers that prevent patients from receiving appropriate and necessary LTOT at home (2). In contrast, factors such as patient education, support from health care providers, and technological advances are identified as facilitators that promote adherence to the correct use of LTOT and improve patients' overall quality of life. (3) Therefore, it is imperative to investigate

the multiple factors influencing LTOT use and to determine the impact these barriers and facilitators have on the well-being of patients with COPD. (4). Future research should aim to provide valuable insight to optimize the use of LTOT and improve the quality of life of patients with COPD who have an indication for the use of long-term oxygen therapy at home.

### **Barriers to LTOT use in patients with COPD**

One of the main barriers to the use of long-term oxygen therapy (LTOT) in patients with COPD is the issue of adherence to the recommendations prescribed by the attending pulmonologist. (5,6) Many patients find it difficult to adhere to prescribed oxygen therapy because of the inconvenience of carrying an oxygen tank or using an inpatient oxygen concentrator. (7,8) This lack of adherence can lead to ineffective treatment and worsening of COPD symptoms. It has been reported in several studies that nearly 60% of COPD patients who received LTOT did not use oxygen as recommended. (9,10) In addition to adherence issues, the cost of home oxygen concentrators may also be a significant barrier to LTOT use for some patients. (11,12) Costs associated with DOT equipment, oxygen supply, and electricity consumption may deter individuals from consistently using this therapy as prescribed. (13,14) Addressing these obstacles is essential to improve the quality of life of COPD patients and optimize the outcome of their treatment. (15)

### **Financial constraints**

Despite the many benefits of long-term oxygen therapy (LTOT) for patients with COPD, financial limitations can be a significant barrier to its use and can ultimately affect the quality of life of these individuals. (5) The costs associated with oxygen equipment, maintenance, and oxygen refilling can be prohibitive for many patients, especially those with limited financial resources or inadequate insurance. Research shows that financial resources are one of the primary reasons why some COPD patients are unable to access or use LTOT. This highlights the importance of addressing financial barriers to enable patient use of DOT and improve the overall well-being of COPD patients by ensuring equitable access to this key therapy. (17)

### **Facilitators of LTOT use in patients with COPD**

On the other hand, several facilitators may promote the use of long-term oxygen therapy (LTOT) in patients with chronic obstructive pulmonary disease (COPD). (18,19) First, providing clear education and information about the benefits of LTOT may encourage patients to more effectively adhere to their treatment plan. Support from health care providers, such as regular examinations and monitoring of oxygen saturation levels, may also improve patient compliance with LTOT. Additionally, the availability of resources such as portable oxygen systems can improve patient comfort, allowing them to maintain their oxygen therapy regimen while engaging in daily activities. Furthermore, establishing personalized care plans based on individual patient needs and preferences may increase patient satisfaction and acceptance of LTOT as a necessary therapy to manage COPD symptoms and improve quality of life (20). By applying these key facilitators, healthcare providers can optimize the use of LTOT in patients with COPD, ultimately improving clinical outcomes and patient well-being.

## Conclusion

In conclusion, the results of the follow-up of this group of patients with COPD who have an indication for LTOT, shed light on the complex relationship between barriers and facilitating factors for long-term oxygen therapy (DOT) and quality of life in patients with COPD. From the literature review, it is evident that there are a multitude of factors that influence the use of DOT, ranging from personal barriers to barriers related to the health care system. Despite the challenges COPD patients face in accessing and adhering to LTOT, there are also significant factors that can improve their quality of life, such as education, support services, and technological advances. In the future, it is imperative for health care providers to address these barriers and utilize facilitating factors to optimize COPD management and improve patient quality of life. Further research is warranted to explore innovative strategies to overcome barriers and maximize the benefits of DOT for patients with COPD.

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