



## FACTORS AFFECTING THE QUALITY OF LIFE OF COPD PATIENTS: A LITERATURE REVIEW

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### ABSTRACT

**Background:** Chronic obstructive pulmonary disease (COPD) is one of the leading causes of morbidity and mortality worldwide. COPD causes various physical disorders, including dyspnea, physical weakness, and psychological disturbances that can impact the quality of life. This study aims to identify patients' quality of life and the factors influencing it. **Methods:** The method of this study is a systematic review using the PRISMA JBI Critical Appraisal Tool. The literature search used an electronic database of 3 electronic databases, namely Google Scholar, PubMed, and Scopus. The inclusion criteria include research on the quality of life of patients with COPD and articles published in English from 2018 – 2023. Data were analyzed using meta-synthesis. **Results:** The results of the study found 12 eligible articles. The analysis results show that the dominant factors affecting the quality of life of COPD patients are smoking status, degree of COPD, and depression. Active smoking status, severe COPD, and depression can worsen the quality of life. Family support, self-care management education, and medication adherence can improve quality of life. Family support is central because it can improve compliance and self-care management. **Conclusion:** Nurses' efforts to improve the quality of life of COPD patients, apart from being curative, can be carried out through preventive and promotive actions, including smoking cessation programs, increasing medication adherence, and improving self-care management through efforts to increase family social support.

**Keywords:** Chronic Obstructive Pulmonary Disease, Factors, Quality of Life

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### INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a non-communicable disease with persistent respiratory symptoms and airflow limitation caused by airway and alveolar abnormalities, usually caused by exposure to harmful particles or gases. Chronic obstructive pulmonary disease (COPD) has become a world health problem along with the development of the impact of environmental pollution and lifestyle. Data from the World Health

Organization (WHO) show that COPD resulted in more than 3 million people dying in 2012, or 6% of the total deaths in the world that year. The incidence of COPD in the world is so high that by 2020 COPD is expected to rank fifth as a disease that will be suffered worldwide (Global Initiative for Chronic Obstructive Lung Disease, 2020)

Chronic obstructive pulmonary disease (COPD) is one of the leading causes of morbidity and mortality worldwide; the



international prevalence of Global Initiative For Chronic Obstructive Lung Disease (GOLD) stage II and higher is estimated at around 10%, where this figure continues to increase gradually. COPD has the potential to cause insufficient oxygen in sufferers. COPD is a chronic disease characterized by airflow limitation in the respiratory tract. COPD can disrupt the process of oxygenation of the entire body due to alveolar damage and changes in respiratory physiology. These damages and changes can cause inflammation of the bronchi and result in damage to the terminal bronchiolar walls as well as cause obstruction or early closure of the expiratory phase resulting in airway limitation that is not fully reversible, which is related to the inflammatory response (Asyropy et al., 2021).

COPD can cause a decrease in the quality of life of sufferers. Various studies have reported poor quality of life of COPD patients related to dyspnea, physical disturbances, depression and anxiety, poor prognosis, and even death. COPD exacerbations also result in a decline in health status. By conducting a Health Utility analysis, namely evaluating the quality of life of COPD patients against the health services received, which aims to assess the outcomes obtained on the health status and quality of life of COPD patients (Hasniah & Erlianti, 2020)

Activity limitation is a significant complaint affecting COPD sufferers' quality of life. Systemic inflammation, weight loss, increased risk of cardiovascular disease, osteoporosis, and depression are systemic manifestations of COPD sufferers. Shortness of breath and shortness of breath patterns that are not aligned will cause COPD sufferers to panic often, worry and eventually become frustrated. All of these impacts are the main reason why people with COPD reduce their physical activity to avoid shortness of breath (Oemiati, 2013)

Efforts to prevent and reduce the symptoms that arise in COPD patients can be made through pharmacological treatment, where the treatment is long-term. In addition to pharmacological treatment, there are non-pharmacological treatments that can be carried out by health workers and also by the patient himself, where the treatment is obtained from education and training that has been taught by health professionals, one of which is a nurse (Asyropy et al., 2021). This study aimed to identify the quality of life of COPD patients and the factors that affect the quality of life of COPD patients.

## METHODS

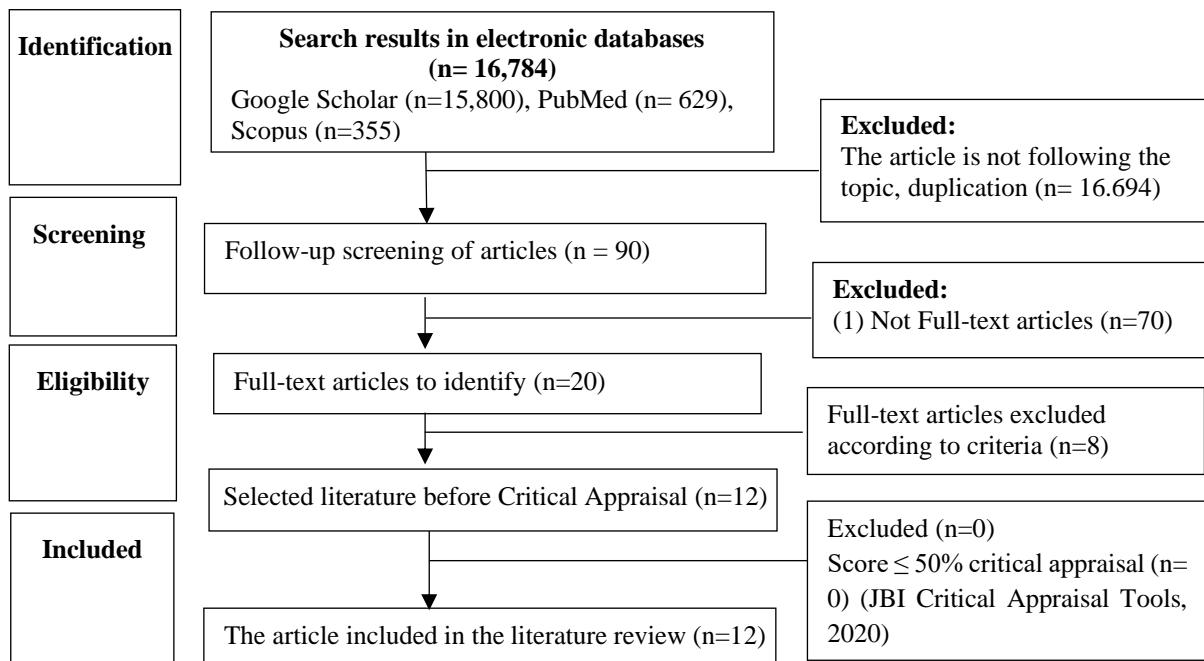
The method used is a systematic literature review. Literature search and study selection used the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) strategy. The articles were selected based on inclusion criteria based on PICO analysis (population, intervention, comparison, outcomes). P: Population is patients receiving care and treatment at the hospital. I: Intervention is an intervention by providing patient-centered services; C: Comparison is an intervention given to patients in a hospital; and O: Outcomes are the results or effects of interventions, namely obtaining self-care management education in chronic conditions to improve their quality of life.

Inclusion criteria in the literature search included articles reviewed which were research articles in international journals, published at least in the last five years, available in full text. The exclusion criteria were articles that were the result of a literature review. Appropriate literature was then selected based on chronic obstructive pulmonary disease (COPD) topics. **In the first stage (identification)**, the authors searched for literature in various databases such as Google Scholar,

PubMed, and Scopus with predetermined keywords, namely "Factors" AND "Quality of Life" AND "Chronic Obstructive Pulmonary Disease" OR "COPD" found a total of 16,784 journals published in English from 2018 – 2023. **In the second stage (screening)**, the researcher screened the articles obtained based on the title's relevance to the topic and issued duplicate reports; at this stage, there were 90 articles recorded.

Furthermore, in the **third stage (eligibility)**, research articles that are considered to have relevant titles are reviewed based on the abstract. From

filtration based on abstract review and full text, 20 reports were recorded, which will then be filtered based on full text. From the previous total of 20 articles, at the article quality review stage, 12 journals were obtained, while the rest were excluded because they did not meet the inclusion criteria. **In the fourth stage (included)**, articles that have been filtered and meet the inclusion criteria will be screened again to determine the quality of the journal (checked with the JBI Critical Appraisal Tool). Articles that have been assessed for quality will then be analyzed, namely as many as 12 articles.



**Figure 1.** Study Selection based on the PRISMA flow chart

## RESULTS

The selected articles are summarized and presented in Table 1. Based on the results of a review conducted of the 12 articles it is explained in the attached table below. The dominant factors affecting the quality of life of COPD patients are smoking status, COPD degree, and depression. Active smoking status, severe COPD, and depression can worsen

the quality of life. Family support, self-care management education, and medication adherence can improve quality of life. Family support is central because it can improve compliance and self-care management.

**Table 1. Research on quality of life in patients with COPD**

No.	Author (s) (Year) Purposes of the study	Methods (Design, Subject, Variable, Instruments, and Analysis)	Main Finding
1	D'Amore et al., (2022)  To examine potential determinants of participation frequency and limitations in people with Chronic Obstructive Pulmonary Disease (COPD).	D: A cross-sectional study (secondary analysis) S: 96 respondents V: Factors related to participation in life situations I: Late Life Disability Instrument A: multiple linear regression	Factors related to functional status are activity, body function, personal factors, and environment. Participation in life situations in people with COPD is associated with multiple ICF components. Psychological distress (i.e., anxiety and depression symptoms) and mobility were significant participation frequency and limitations determinants. It is essential to consider more than just physical impairments when understanding participation in life situations among people with COPD. Prospective studies are warranted to confirm the impact of psychological health and functional exercise capacity on involvement in people with COPD.
2	Esquinas, C. (2020)  To determine health utilities in COPD patients and identify the variables with the most significant impact.	D: Cross-sectional study S: 6198 respondents V: COPD assessment test (CAT), anxiety, and depression I : 5 Dimensional EuroQoL questionnaire (EQ-5D) A: Generalized linear models	This study showed that patients reporting lower utility scores have more breathlessness and comorbidities on long-term oxygen therapy, with previous hospitalizations for COPD exacerbations and higher (worse) CAT scores. Conclusion: HRQoL measurements such as the EQ-5D can help clinicians to understand the impact of respiratory disease on COPD patients
3	Esteban et al., (2020)  To identify variables associated with HRQoL and whether they continue to influence in the medium term during follow-up.	D: Prospective observational longitudinal study. S: 543 respondents V: Health-Related Quality of Life: Overview, influencing factors, and their impact I: modified Medical Research Council (m-MRC) dyspnoea scale; Charlson comorbidity index; Spanish version of the Saint George's Respiratory Questionnaire; and 6-min walk tests (6MWTs) A: Generalized linear mixed models with a logistic link function	The following variables were related over time to SGRQ components: age, inhaled medication, smoking habit, forced expiratory volume in one second, handgrip strength, 6MWT distance, body mass index, residual volume, diffusing capacity of the lung for carbon monoxide, PA (depending on level, 13 to 35% better HRQoL, in activity and impacts components), and hospitalizations (5 to 45% poorer HRQoL, depending on the element). Among COPD patients, HRQoL was associated with the same variables throughout the study period (5-year follow-up), and the variables with the most substantial influence were PA and hospitalizations.
4	Farag et al. (2018)  To assess the quality of life in COPD patients and its relationship to disease severity	D: A cross-sectional observational multicentre study S: 200 respondent V : Kualitas hidup pasien PPOK dan hubungannya dengan keparahan penyakit. I: Arabic version of St George's Respiratory Questionnaire (HRQoL); and 6-min walk tests (6MWTs); Spirometry A: Multivariate linear regression	COPD patients who had significantly reduced HRQoL. Age, frequency of exacerbations per year, comorbidity, particularly hypertension and ischemic heart disease, dyspnea scale, BODE index, GOLD spirometric staging, and New GOLD stage showed a significant positive correlation with St George's Respiratory Questionnaire. Lower spirometric parameters, 6-min walk tests, and SpO <sub>2</sub> were correlated with impaired HRQoL.  Patients with COPD had reduced HRQoL.



No.	Author (s) (Year) Purposes of the study	Methods (Design, Subject, Variable, Instruments, and Analysis)	Main Finding
			Frequent exacerbations, advanced airway obstruction, and dyspnea severity hurt HRQoL
5	Gaude & Desai, (2018)  To assess health-related quality of life and its determinants in patients with COPD	D : Cross-sectional study S : 44 respondents V : Quality of life I : St. Kuesioner pernapasan George (SGRQ) A : ANOVA	This study shows a poor quality of life in COPD patients. Quality of life was impaired in all the domains. However, the activity domain was the most affected. In contrast, the impact domain was least affected: age, sex, smoking, BMI, socioeconomic status, and occupation did not impact the quality of life in a significant manner. As COPD is a slowly progressing disease with no specific cure, we should focus more on treatable aspects of quality of life.
6	Horner et al. (2020)  To characterize the impact of disease on overall health, daily life, and perceived well-being in COPD outpatients.	D: Cross-sectional study S: 1,175 respondents V: Quality of life I: St. George Respiratory Questionnaire for COPD patients (SGRQ-C) A: R Analysis	This study explains that the disease burden in outpatient COPD patients tends to be underestimated in patients with mild airway obstruction and mild exacerbations and overestimated in patients with more severe airway obstruction and frequent exacerbations. The research findings suggest that a validated assessment of global health status can reduce these differences in perceptions.
7	Irianti et al., 2018  to focus on factors related to the quality of life of patients with COPD	D: Cross-sectional study S: 160 respondent V: Quality of life, quality of sleep, comorbidity and severity of COPD, smoking status, and sociodemographic Status I: Pittsburgh quality of sleep index (PSQI); The St. George's Respiratory Questionnaire (SGRQ). A: A multivariate analysis	The results showed that most respondents had a poor quality of life. Factors related to the quality of life were the severity of COPD, comorbidities, and sleep quality. Multivariate analysis showed that patients with comorbidities were 2.716 times at risk of poor quality of life. COPD severity, comorbidities, and sleep quality are associated with poor quality of life. COPD sufferers should be diagnosed early in severity and change their lifestyle not to worsen quality.
8	Kharbanda† & Anand (2021)  To measure the health-related quality of life (HRQOL) in COPD patients and relate the severity of disease and other factors with the degree of impairment of HRQOL.	D: a cross-sectional study S: 100 respondents V: Health-related quality of life (HRQOL) in COPD patients and linking disease severity and other factors to the degree of decline in HRQOL I : SGRQ-C questionnaire A: multivariable linear regression analysis (Bonferroni correction)	This study demonstrates that HRQOL is impaired in COPD patients and worsens with increasing disease severity. COPD onset at a younger age has a much more significant reduction in HRQOL due to the earlier onset of symptoms and complications. These findings call for better early treatment and integrating of pulmonary rehabilitation programs into current health policies.
9	Lindh et al. (2019)  to investigate the prevalence of subjective swallowing symptoms in a large cohort of patients with stable COPD and to identify	D: Cross-sectional study S: 571 respondents V: subjective swallowing symptoms I: modified Medical Research Council (m-MRC), and COPD Assessment Test (CAT) A: unpaired t-test or Mann–Whitney U-test, Chi-squared test	Subjective swallowing symptoms appear to be a common problem in stable COPD patients. This problem is seen at all stages of the disease but is more common in symptomatic patients and patients with reduced physical capacity. The most common comorbidity in this study was chronic bronchitis, followed by asthma and heart disease. No significant association was found between swallowing



No.	Author (s) (Year) Purposes of the study	Methods (Design, Subject, Variable, Instruments, and Analysis)	Main Finding
	potentially related risk factors.		symptoms and gender, age, exacerbations, or comorbidities.
10	Noonil et al. (2019) Health-Related Quality of Life and Related Factors in Thais with Stable COPD	D: Cross-sectional study S: 126 respondent V: Health-related quality of life (HRQL) and related factors I: Personal information questionnaire, St. George's Respiratory Questionnaire (SGRQ; Medical Research Council (MRC) dyspnea scale, Six min walk distance (6MWD), Patient Health Questionnaire with nine items (PHQ-9) A: multivariate linear regression	The HRQL indicated mild impairment. The regression analysis showed that HRQL was significantly associated with exercise capacity, depression, and MRC dyspnea, respectively ( $R^2 = 0.492$ , $p < 0.01$ ). Therefore, stable COPD patients should be assessed and motivated to pulmonary rehabilitation to promote clinical outcomes and improve their HRQL.
11	Sharifi et al. (2021) to assess health-related quality of life (HRQL) in a large sample of participants with and without COPD	D: Cross-sectional study S: 1062 respondents V: health-related quality of life I: Short Form 12 (SF-12) Health Survey Questionnaire A: The Chi-square test	The mean scores of PCS and MCS were significantly lower in COPD patients than those without COPD ( $P < 0.001$ ). The findings of this study indicate that COPD, female gender, and age over 40 years affect HRQL, especially the physical dimensions.
12	Ying, 2022 To assess the level of good QOL and determine the factors associated with good QOL among COPD patients living in Zhejiang Province, China.	D: Cross-sectional study S: 420 respondents V: QOL level and factors related to QOL in COPD patients I: The Mandarin Chinese version of SGRQ A: e chi-square test and Fisher's exact test, binary logistic regression	The overall good QOL among COPD patients was 25.7%. In the multivariable logistic regression, six variables were associated with good QOL; airflow limitation severity, duration of illness, number of hospitalizations within the past three months, annual treatment expenses, educational level, and type of medical insurance. Good QOL among COPD patients is strongly related to the stage of COPD and the financial burden on treatment. Early detection and treatment, including exacerbation strategies, are crucial to improving COPD patients' QOL.

## DISCUSSION

Based on studies found in COPD patients, signs and symptoms and exacerbations are the dominant factors influencing the quality of life of stable COPD patients. Shortness of breath and a high CAT score has a negative relationship with reported lower quality of life (Esquinas, C., 2020), which results in restrictions on daily activities (Noonil et al., 2019). However, in contrast to other studies, common signs and symptoms had a low quality of life because assessing symptoms during the early stages of the

disease was based at home. Other symptoms that also affect the low quality of life in the form of symptoms of dysphagia which has a sensation of food getting stuck in the throat or chest or on the back of the sternum, coughing while eating, eating or drinking wrong while eating is a common problem in COPD patients (Lindh et al., 2019). Chronic cough and sputum production are known to impact the quality of life, especially assessing cough seven days before more accurately identifying the reduced quality of life in COPD patients



than chronic bronchitis (Dardouri & Mallouli, 2021).

High exacerbations are associated with reduced quality of life (Dardouri & Mallouli, 2021); patients who have been hospitalized more than or twice tend to have a lower quality of life; this is related to the severity of the disease and the patient's health status. (Noonil et al., 2019). The patient's symptoms, followed by more exacerbations, will have a worse quality of life (Horner et al., 2020). It is essential to prevent high exacerbations to improve the quality of life and reduce treatment costs (Farag et al., 2018).

Decreased quality of life can occur due to functional capacity, influenced by body composition, muscle and fat, or low social support and high challenges, resulting in less exercise. (Noonil et al., 2019). Increased physical activity has a positive relationship with high quality of life, so it has an essential role in everyday life (Esquinas, C., 2020). Psychological factors consisting of depression and anxiety are closely related to the quality of life in COPD patients. Psychology in the form of high stress and depression reduces the quality of life. This psychological side has the potential to result in a decrease in lung function, perception of the patient's experience of the disease he is suffering from (Esquinas, C., 2020), involve psychology in respiratory disease disorders so that health workers must be able to assess the psychology of COPD patients (Noonil et al., 2019).

Sociodemographic factors still have various controversies in influencing the quality of life of COPD patients. Smoking status has a negative relationship; non-smokers have a better quality of life than smokers or former smokers. Smokers and ex-smokers are triggers for the low quality of life, which ends in COPD exacerbation symptoms. A positive relationship was also found in high body mass index or obesity, which has a better quality of life (Sharifi et al., 2021); however, the contrast is that those with a high body mass index have a

low rate of energy. Meanwhile, old age has increased the quality of life because young people feel less able to deal with the disease, and older people who have suffered from COPD for a long time feel they can adapt to their lives. Low socioeconomic also has an impact on the low quality of life. However, the contrast side of gender differences does not affect the quality of life of COPD patients. Stable COPD patients are also prone to heart failure, comorbidity due to inflammation.

## CONCLUSION

The quality of life of COPD patients is influenced by disease conditions, physical conditions, and the patient's psychological conditions. Unhealthy lifestyle behaviors, such as smoking, and emotional states, such as depression, can worsen the quality of life. Efforts to improve the quality of life of COPD patients, aside from being carried out through curative programs, can also be carried out through preventive and promotive actions, including smoking cessation programs, increasing medication adherence, and improving self-care management to increase family social support.

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