



The Impact of Self-Management on the Quality of Life Among COPD Patients

Scholastica Fina Aryu Puspasari, Margaretha Kurniastuti, Margareta Hesti Rahayu

Department of Nursing, Institute of Health Science Panti Rapih Yogyakarta, Sleman, Indonesia

Abstract

Background: Chronic obstructive pulmonary disease (COPD) patients report progressive, persistent shortness of breath that worsens with activity. Progressive shortness of breath affects the quality of life of patients with COPD. Patients with good self-management are expected to have greater independence, which will impact their quality of life. This study aimed to examine the relationship between self-management and quality of life among patients with COPD at a respiratory referral hospital in Yogyakarta.

Methods: This study used descriptive correlational research with a cross-sectional design to examine the impact of self-management on quality of life among COPD patients. The sample comprised 100 COPD patients at the respiratory referral hospital polyclinic. The sampling technique was a non-random accidental technique, with sampling continued until the quota was fulfilled. The questionnaires used in this research were the Self-Management Scale (CSMS) to measure self-management and the St. George's Respiratory Questionnaire (SGRQ) to measure quality of life. Both have been tested for validity and reliability in their Indonesian versions. Spearman's rho was used to examine the impact of self-management on the quality of life among COPD patients.

Results: The majority of the respondents were female (56%), aged 55–65 years (54%), had a low level of education (70%), had suffered from COPD for 1–5 years (61%), were passive smokers (34%), took bronchodilators regularly (97%), and had no comorbidities (71%). In the Spearman test, self-management had a significant correlation ($P=0.01$) with quality of life, with a correlation coefficient of 0.613 and a positive direction of relationship.

Conclusion: Self-management has a significant and strong correlation with quality of life, and good self-management means better quality of life.

Keywords: COPD, QoL, self-management

Corresponding Author:

Scholastica Fina Aryu Puspasari | Department of Nursing, Institute of Health Science Panti Rapih Yogyakarta, Sleman, Indonesia | scholastica_fina@stikespantirapih.ac.id

Submitted: December 9th, 2025

Accepted: July 28th, 2026

Published: July 31st, 2026

J Respir Indones. 2026

Vol. 46 No. 3: 147–53

<https://doi.org/10.36497/jri.v46i3.1120>



Creative Commons
Attribution-ShareAlike 4.0
International License

INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a respiratory disease characterized by chronic, progressive, and irreversible symptoms. Data from the World Health Organization (WHO) indicate that COPD is the fourth leading cause of death worldwide, causing 3.5 million deaths in 2021, approximately 5% of all global deaths.¹ The WHO in 2024 reported that mortality in 90% of COPD sufferers under 70 years of age is increasing in Low- and Middle-Income Countries (LMIC).³

In 2024, COPD affected 4% of the world's population and is projected to approach 600 million cases by 2050, representing a 23% relative growth compared to 2020.² The Global Initiative for Chronic Obstructive Lung Disease (GOLD) projects that COPD prevalence will continue to increase due to

smoking and occupational exposures. In the Asia-Pacific region, the prevalence of moderate-to-severe COPD is estimated at 6.3%, higher than the global average of 4%. In Indonesia, COPD is a leading cause of morbidity and is projected to become the seventh leading contributor to the global disease burden by 2030.⁴

Chronic obstructive pulmonary disease is characterized by persistent and progressive dyspnea caused by airflow limitation, reflected by reduced Forced Expiratory Volume in 1 second (FEV₁) and a decreased ratio of Forced Expiratory Volume in 1 second to Forced Vital Capacity (FEV₁/FVC).⁵ Dyspnea worsens with physical activity, limits daily functioning, and substantially reduces patients' quality of life.⁶

Previous research has identified smoking status, COPD severity, and depression as the main

factors associated with poorer quality of life in COPD patients.⁶ These factors can be improved through good self-management. Patients with good self-management are expected to have greater independence, which will impact their quality of life.⁷

Self-management includes understanding the disease, selecting appropriate treatment, minimizing the occurrence of infections, recognizing worsening COPD symptoms, and collaborating with other healthcare providers.⁷ Poor self-management in COPD patients negatively impacts the healing process due to decreased ability to perform daily routines. These include increased fatigue, decreased lung function, a lack of independence in self-management, leading to dependence on others, uncontrolled emotional changes, and a decline in social functioning.⁸

This is supported by Cravo et al, who found that self-management contributes to optimizing and preserving physical health, reducing symptoms and functional impairments in daily life, improving emotional well-being, social well-being, and quality of life; and establishing effective alliances with healthcare providers, family, friends, and the community.⁸

Based on the above, the researchers conducted a study aimed at examining the relationship between self-management and quality of life among patients with COPD at a respiratory referral hospital in Yogyakarta.

METHODS

The method used in this study was descriptive correlational research with a cross-sectional approach to examine the impact of self-management on the quality of life among patients with COPD at a respiratory referral hospital in Yogyakarta from January 2025 to February 2025. This research received ethical approval under Ethical Clearance number 037/KEPK/XII/2024 and obtained a research permit under reply letter number 400.14.4.4/1187.

The study population comprised COPD patients at the respiratory referral hospital polyclinic. A sample of 100 respondents was calculated using

the Slovin formula, with a sampling technique that was a non-random accidental technique, with sampling continued until the quota was fulfilled. The researchers specified that the sample criteria were no memory or mental disorders, and no other accompanying illnesses that could affect self-management.

Diagnosis of COPD was established by pulmonologists according to the hospital's routine clinical practice following the GOLD criteria, including confirmation by post-bronchodilator spirometry. Only patients with an established diagnosis of stable COPD were eligible for inclusion. Spirometry parameters and GOLD stage were not analyzed as study variables because the study focused on the relationship between self-management and quality of life.

The variables of this study were self-management and quality of life. The instrument used by the researchers to measure quality of life was the St. George's Respiratory Questionnaire (SGRQ). The SGRQ has been tested for validity and reliability, with a construct validity test result (CVI) of 0.575 and a Cronbach's alpha coefficient (Cronbach's α) of 0.919. Self-management was assessed using the Indonesian version of the COPD Self-Management Scale (CSMS), which has demonstrated good validity (CVI=0.90; item validity coefficients up to 0.87) and excellent internal consistency (Cronbach's α =0.92).

On the other hand, there are other variables from the patient demographic data, such as educational attainment, which were categorized into three levels: primary education ($\leq$ junior high school), secondary education (senior high school), and tertiary education (college or university); drug consumption was defined as the regular use of prescribed COPD medications—including inhaled bronchodilators, inhaled corticosteroids, combination inhalers, methylxanthines, or other maintenance pharmacological therapies documented in the patients' medical records—categorized as "Yes" if the patient was receiving any prescribed COPD medication and "No" otherwise.

This study used a confidence level of 95% with $\alpha < 0.05$. The principal analysis stage included univariate analysis to obtain descriptive statistics for

each variable and a non-parametric independent difference test using Spearman's rho to examine the impact of self-management on the quality of life among patients with COPD.

RESULTS

Table 1 shows that the ratio of male and female respondents was almost equal, but the number of female respondents was slightly larger, at 56%. Based on age group, more than half (54%) of respondents were in the 55–65-year age range, and only 3% of respondents were under 45 years. The majority (70%) of respondents had a low level of education, i.e., elementary and junior high school graduates.

Table 1. Demographic Data (n=100)

Variables	n	%
Gender		
Male	44	44
Female	56	56
Ages (years)		
<45	3	3
45–54	14	14
55–65	54	54
66–74	15	15
75–84	11	11
>84	3	3
Education Level		
Primary	70	70
Secondary	19	19
Tertiary	11	11
Illness Duration, years		
1–5	61	61
6–10	22	22
11–15	5	5
16–20	6	6
20–25	2	2
>25	4	4
Smoking History		
Active Smokers	19	19
Passive Smokers	34	34
Ex-Smokers	10	10
Non-Smokers	37	37
Drug Consumption		
Yes	97	97
No	3	3
Comorbidities		
Yes	29	29
No	71	71

Almost all respondents had suffered from

COPD for less than 11 years, with 1–5 years (61%) and 6–10 years (22%). Based on smoking history, 63% of respondents smoked cigarettes, either actively (19%), passively (34%), or as ex-smokers (10%). Almost all (97%) of the respondents took bronchodilator medication regularly, and less than half (29%) of the respondents had comorbidities. Table 2 shows that more than half (70%) of the respondents had moderate self-management and a moderate quality of life (71%).

Table 2. Self-management and quality of life (n=100)

Variables	n	%
Self-Management		
Very Bad	1	1
Poor	14	14
Moderate	70	70
Good	15	15
Quality of life		
Low	9	9
Moderate	71	71
High	20	20

Bivariate tests were conducted to examine the impact of self-management on the quality of life among patients with COPD. Table 3 shows that, statistically, self-management had a significant correlation ($P=0.01$) with quality of life, with a strong relationship (correlation coefficient=0.613) and a positive direction of relationship, meaning that the better the self-management, the higher the quality of life.

Table 3. The impact of self-management on the quality of life

P	Coefficient	Direction
0.01*	0.613	Positive

Note: *significant with $P<0.05$

DISCUSSION

The ratio of male and female respondents was almost equal, but the number of female respondents was slightly larger, at 56%. There are differences in the demographic patterns of COPD patients. Before 2010, there was a preponderance of males. Currently, the ratio of male to female COPD sufferers is almost equal and is projected to be higher in females. The projected increase in COPD prevalence in women by 2025 is estimated at 47.1% and in men at 9.4%.⁹ The increase in COPD prevalence in

women is due to the increase in the number of smokers in women, and women are more susceptible to the dangers of smoking than men.¹⁰ This means that although women and men have the same smoking index, the effects of smoking are greater in women.

In the present study, most respondents were women (56%), and 37% had never smoked. These findings reflect the changing epidemiology of COPD, which is no longer considered a disease exclusively affecting male smokers. According to the GOLD, a substantial proportion of COPD cases occur among women and never-smokers, particularly in low- and middle-income countries. This pattern is attributed to multiple risk factors beyond active smoking, including long-term exposure to biomass fuel smoke during household cooking, second-hand tobacco smoke, occupational dust and chemicals, outdoor air pollution, recurrent respiratory infections, and impaired lung development.¹¹

Women are often disproportionately exposed to household air pollution because of traditional domestic roles, increasing their cumulative exposure to inhaled pollutants.¹¹ Therefore, the predominance of women and the relatively high proportion of never-smokers observed in this study are consistent with the evolving understanding of COPD epidemiology and highlight the importance of considering non-smoking-related risk factors in COPD prevention and management.

Based on age group, more than half (54%) of respondents were in the 55–65-year age range, and only 3% of respondents were under 45 years. COPD is a degenerative disease caused by the physiological decline of body function due to aging and is at greater risk for individuals over 40.^{12,13} The increased risk of COPD in older adults occurs due to metabolic processes involving interactions between genetics and the environment. These hallmarks include telomere shortening, genomic instability, oxidative damage to DNA leading to loss of proteostasis, deregulated nutrient sensing, mitochondrial dysfunction, cellular senescence, and stem cell exhaustion.¹⁴

The majority (70%) of respondents had a low level of education, i.e., elementary and junior high school graduates. The increasing prevalence of COPD is indirectly influenced by socioeconomic conditions. Education level is important because studies show that mortality decreases in patients with higher levels of education. The association of COPD with educational level has multiple aspects. A low educational level might favor childhood risk factors for asthma, nutritional status, and a healthy environment.¹⁵

Almost all respondents had suffered from COPD for less than 11 years, with 1–5 years (61%) and 6–10 years (22%). The duration of illness in COPD patients is crucial for self-management because it affects treatment adherence and survival rates. Early-stage COPD and prompt treatment have positive benefits in slowing disease progression.¹⁶

Based on smoking history, 63% of respondents smoked cigarettes, either actively (19%), passively (34%), or as ex-smokers (10%). Cigarettes are said to be the leading cause of COPD, but in this study, non-smokers accounted for nearly half of the respondents. The increase in COPD cases among non-smokers may be due to increasing air pollution. Some hazardous substances in air pollution include Carbon Dioxide (CO₂), Volatile Organic Compounds (VOCs), and Particulate Matter (PM) 2.5, which is said to be the leading cause of death from air pollution (58%).¹⁷ PM2.5 is considered dangerous because, with a diameter of less than 2.5 µm, it can directly penetrate the alveolar epithelium, causing mitochondrial fusion and fission, and directly damaging cells.¹⁸

Almost all (97%) of the respondents took bronchodilator medication regularly, and less than half (29%) of the respondents had comorbidities. Regular bronchodilator use improves health status, reduces pain complaints, and lowers the risk of comorbidities. Some comorbidities in COPD patients include acute coronary syndrome (ACS), obstructive sleep apnea (OSA), gastroesophageal reflux disease (GORD), venous thromboembolism (VTE), diabetes, frailty, pulmonary hypertension, osteoporosis, lung cancer, bronchiectasis, heart failure, arrhythmia, skeletal

muscle dysfunction, and malnutrition. The severity of comorbidities is greatly influenced by the aging process, nutritional status, and smoking history. COPD patients without comorbidities have the potential to experience better survival and quality of life.¹⁹

More than half (70%) of the respondents had moderate self-management, and only 15% were in the good category. This finding reflects the still low level of self-management skills among the respondents. Poor self-management can be caused by a lack of knowledge, experience, or health support.²⁰ A diagnosis of COPD itself has a significant impact on the patient's mental health. Patients feel physically limited, especially with symptoms that are progressive, irreversible, and persist throughout life.²¹

Good self-management in COPD patients is essential because COPD is a chronic disease that requires the ability to practice skills to implement treatment programs, guide changes in health behavior, and provide emotional support.²² This self-management ability can help COPD patients control their disease and prevent the disease from progressing to a worse state.

More than half (71%) of the respondents had a moderate quality of life, and only 20% had a good quality of life. Quality of life in COPD patients can decline due to decreased cardiopulmonary function, which leads to shortness of breath and decreased independence. The more severe the COPD, the greater the decline in cardiopulmonary function, thus further reducing quality of life.⁶

Other factors influencing quality of life in COPD patients include age, medication, male gender, low education level, and low and moderate average income, which are associated with poorer Health-Related Quality of Life (HRQOL). On the other hand, lower disease severity and the absence of comorbidities are associated with better HRQOL.^{23,24}

Quality of life is a crucial aspect in COPD patients. A good quality of life can improve self-perception of illness and increase survival rates. Quality of life reflects the impact of disruptive symptoms, the psychological burden of the disease,

the perceived ability to manage the disease, including self-efficacy, and its impact on physical activity and participation in social life.²⁵

The results of the bivariate test using Spearman's rho showed that self-management had a significant correlation ($P=0.01$) with quality of life. The correlation coefficient of 0.613 showed that there was a strong relationship between self-management and quality of life. The positive relationship means that better self-management improves quality of life.

The strong relationship in this study was also influenced by respondent characteristics. The majority (71%) of respondents were under 65 years of age, thus maintaining good cognitive abilities. Most (83%) had been ill for less than 10 years, thus maintaining enthusiasm for treatment and a positive life expectancy. Almost all (97%) respondents were also compliant with their medication, which can improve prognosis and increase survival rates. Most (71%) had no comorbidities, it has become an important factor because numerous comorbidities can increase pain complaints and reduce quality of life for COPD patients.

Self-management has become a crucial aspect of the quality of life for COPD patients. Good self-management can empower patients to adopt a lifestyle that aligns with their preferences and values and increases their confidence in managing their illness. COPD patients with good self-management also utilize healthcare services more efficiently.²⁶ Interventions to improve self-management are crucial for improving quality of life, especially if delivered digitally, because this minimizes dropout and lax monitoring.²⁸

Several other studies have also shown that behavioral changes to improve self-management can improve quality of life in COPD patients. Behavioral change is provided through education about smoking, inhaler use, physical activity, nutrition, breathing, exacerbations, vaccinations, work and environmental conditions, leisure time, sexuality, daily activities, anxiety, and depression. This behavioral change is said to be effective in patients with mild COPD but ineffective in patients with moderate to severe COPD.²⁷

LIMITATION

A limitation of this study is that respondents were recruited using random sampling, which may limit the generalizability of the findings. Furthermore, although all respondents had a stable COPD diagnosis established by a pulmonologist at the hospital in accordance with the hospital's routine diagnostic protocol, which included spirometry confirmation according to GOLD recommendations, the researchers did not analyze these data as a variable. Consequently, COPD severity could not be included as an analytical variable in this study.

CONCLUSION

Better self-management was associated with an improved quality of life among patients with COPD. These findings emphasize the importance of integrating self-management interventions into routine COPD care and patient education programs to enhance health outcomes and quality of life.

ACKNOWLEDGMENTS

The authors would like to express their appreciation to the Institute of Health Science Panti Rapih Yogyakarta and the research location, as well as all parties who have helped during the research process.

CONFLICT OF INTEREST

There were no disclosed potential conflicts of interest related to this article.

FUNDING

This research was supported by grant funding from the Institute of Health Science Panti Rapih Yogyakarta.

REFERENCES

1. World Health Organization. Chronic obstructive pulmonary disease (COPD) [Internet]. 2024 [cited 2025 Dec 6]. Available from: [https://www.who.int/news-room/fact-](https://www.who.int/news-room/fact-sheets/detail/chronic-obstructive-pulmonary-disease-(copd))
2. Boers E, Barrett M, Su JG, Benjafield A V., Sinha S, Kaye L, et al. Global burden of chronic obstructive pulmonary disease through 2050. *JAMA Netw Open*. 2023;6(12):e2346598.
3. World Economic Forum. Why we urgently need to reduce the global burden of COPD. 2024.
4. Stoleski S, Minov J, Mijakoski D, Brborović H, Milošević M, Žaja R. COPD prevalence and characteristics among sample of working population. *Front Public Health*. 2025;13:1598290.
5. Bhatt SP, Nakhmani A, Fortis S, Strand MJ, Silverman EK, Sciurba FC, et al. FEV1/FVC severity stages for chronic obstructive pulmonary disease. *Am J Respir Crit Care Med*. 2023;208(6):676–84.
6. Puspasari SFA. Clinical factor affecting quality of life in chronic obstructive pulmonary disease patients. *Jurnal Keperawatan Respati Yogyakarta* [Internet]. 2024 [cited 2026 Aug 15];11(1):41–7. Available from: <https://nursingjurnal.respati.ac.id/index.php/JKRY/article/view/722>
7. Supu NM, Muhith A. The impact of self-management program on quality of life and neurological function in stroke patients: A systematic review. *JANH*. 2024;6(2):587–98.
8. Cravo A, Attar D, Freeman D, Holmes S, Ip L, Singh SJ. The importance of self-management in the context of personalized care in COPD. *Int J Chron Obstruct Pulmon Dis*. 2022;17:231–43.
9. Scicluna V, Han ML. COPD in women: Future challenges. *Arch Bronconeumol*. 2023;59(1):3–4.
10. Steinberg AW, Ozga JE, Tang Z, Stanton CA, Sargent JD, Paulin LM. Gender, tobacco and chronic obstructive pulmonary disease: Analysis of the 2020 National Health Interview Survey. *BMJ Open Respir Res*. 2025;12(1):e002462.
11. Polverino M, Capuozzo A, Cicchitto G, Ferrigno F, Mauro I, Santoriello C, et al. Smoking pattern in men and women: A possible contributor to

- sex differences in smoke-related lung diseases. *Am J Respir Crit Care Med*. 2020;202(7):1048–51.
12. Atchley WT, Montgomery A, Seth R, Gandhi T, Brewer S. Navigating COPD in aging populations: Insights into pathophysiology and comprehensive care. *Semin Respir Crit Care Med*. 2024;45(5):560–73.
 13. Morena D, Izquierdo JL, Rodríguez J, Cuesta J, Benavent M, Perralejo A, et al. The clinical profile of patients with COPD is conditioned by age. *J Clin Med*. 2023;12(24):7595.
 14. Guo CJ, Godbole S, Labaki WW, Pratte KA, Curtis JL, Paine R, et al. Metabolic aging as an increased risk for chronic obstructive pulmonary disease. *Metabolites*. 2024;14(12):647.
 15. Lutter JI, Jörres RA, Welte T, Watz H, Waschki B, Alter P, et al. Impact of education on COPD severity and all-cause mortality in lifetime never-smokers and longtime ex-smokers: results of the cosyconet cohort. *Int J Chron Obstruct Pulmon Dis*. 2020;15:2787–98.
 16. Singh D, Litewka D, Páramo R, Rendon A, Sayiner A, Tanni SE, et al. DElaying disease progression in COPD with early initiation of dual bronchodilator or triple inhaled pharmacotherapy (DEPICT): A predictive modelling approach. *Adv Ther*. 2023;40(10):4282–97.
 17. IQAir. 2024 world air quality report: Region & city PM2.5 ranking. IQAir; 2024.
 18. Liu Q, Weng J, Li C, Feng Y, Xie M, Wang X, et al. Attenuation of PM2.5-induced alveolar epithelial cells and lung injury through regulation of mitochondrial fission and fusion. *Part Fibre Toxicol*. 2023;20:28.
 19. Cronin E, Cushen B. Diagnosis and management of comorbid disease in COPD. *Breathe (Sheff)*. 2025;21(1):240099.
 20. Qama E, Rubinelli S, Diviani N. Factors influencing the integration of self-management in daily life routines in chronic conditions: A scoping review of qualitative evidence. *BMJ Open*. 2022;12(12):e066647.
 21. Coakley M, Drohan M, Bruce E, Hughes S, Jackson N, Holmes S. COPD self-management: A patient–physician perspective. *Pulm Ther*. 2024;10(2):145–54.
 22. Schrijver J, Lenferink A, Brusse-Keizer M, Zwerink M, van der Valk PDLPM, van der Palen J, et al. Self-management for people with chronic obstructive pulmonary disease. *Cochrane Database Syst Rev*. 2022;1(1):CD002990.
 23. Kharbanda S, Anand R. Health-related quality of life in patients with chronic obstructive pulmonary disease: A hospital-based study. *Indian J Med Res*. 2021;153(4):459–64.
 24. Jarab AS, Al-Qerem W, Alzoubi KH, Abu Heshmeh S, Mukattash TL, Naser AY, et al. Health-related quality of life and its associated factors in patients with chronic obstructive pulmonary disease. *PLoS One*. 2023;18(10):e0293342.
 25. Lareau S, ZuWallack R, Nici L. Increasing quality and quantity of life in individuals with chronic obstructive pulmonary disease: A narrative review with an emphasis on pulmonary rehabilitation. 2025;15(5):750.
 26. Benzo M V., Novotny P, Benzo RP. Adding granularity of COPD self-management to impact quality of life. *Chronic Obstr Pulm Dis*. 2022;9(2):277–84.
 27. López Luque M, Chuecos Molina M, Ortega Cuelva G, Vázquez López MJ, Orfila Pernas F, Granel Giménez N, et al. Effectiveness of a structured self-management intervention to improve quality of life in individuals with chronic obstructive pulmonary disease (AMPOC study). *Open Respir Arch*. 2025;7(2):100426.
 28. Salgado R, Fernandes H, De Goumoëns V, Kiszio B, Costa P, Delmas P, et al. Effectiveness of self-management digital interventions for improving health-related outcomes in patients with chronic obstructive pulmonary disease: An umbrella review protocol. *JB I Evid Synth*. 2025;23(6):1246–56.