

## Effect of a Self-directed and Supervised Pulmonary Rehabilitation Approach on Cough and Sputum Expectoration in Chronic Obstructive Pulmonary Disease

Huma Balqias<sup>1</sup>, Syed Alamdar Hussain<sup>1</sup>, Usman Farooq<sup>1</sup>, Umair Ahmad<sup>1</sup>, Rohail Amir Babar<sup>2</sup>

<sup>1</sup>*Peshawar Institute of Cardiology, Peshawar city, Pakistan*

<sup>2</sup>*Islamabad Medical and Dental College, Islamabad, Pakistan*

### ABSTRACT

*Background.* Chronic obstructive pulmonary disease (COPD) is a multifactorial, progressive chronic lung disease. COPD was rated as the third largest cause of death by the World Health Organization (WHO) in 2016. Cough and sputum are present in about 60% of COPD patients. For persons with COPD who are unable to attend the standard centre-based program, home-based pulmonary rehabilitation offers a cost-effective option.

*The aim.* To compare the effects of supervised and self-directed pulmonary rehabilitation on cough and sputum expectoration in patients with chronic obstructive pulmonary disease.

*Methods.* Forty COPD-diagnosed subjects with ages between 40 to 60 years were recruited for this randomized clinical trial. The participants were randomly distributed into self-managed (n=18) and supervised (n=19) groups. Data was collected using a 6-minute walk test, the Leicester Cough Questionnaire and a cough and sputum assessment questionnaire at baseline after 6 weeks post treatment.

*Results.* There was a significant difference found between self-managed and supervised groups for six-minute walk test with P value to be  $P > 0.005$ . While analysing LCQ, overall no significant difference was observed demonstrating between two groups with  $P > 0.05$ ; besides, physical factors showed a significant difference during the pre-session which showed  $P = 0.004$ . No significant difference was found while analysing values from Cough and sputum assessment questionnaire with  $P > 0.05$

*Conclusion.* Supervised exercise program and self-managed group show equal improvement in COPD patients. Self-management exercise should be encouraged for active involvement of patient during the treatment and to promote self-preventive behavior.

**Keywords:** sputum, cough, self-management, pulmonary rehabilitation.

### INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a multifactorial, progressive chronic lung disease that causes airflow restriction (Berry & Wise, 2010). It is a complicated disease characterized by abnormalities of the airway and/or alveoli that is mostly caused by long-term exposure to noxious gases and particles

Copyright © 2022 Huma Balqias, Syed Alamdar Hussain, Usman Farooq, Umair Ahmad, Rohail Amir Babar. Published by Lithuanian Sports University.

This is an Open Access article distributed under the terms of the [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

(Vestbo, 2014). COPD is an umbrella term for chronic inflammatory lung illness, which is primarily caused by long-term hazardous inhalation and results in gradual airflow limitation – bronchial blockage (Kim & Aaron, 2018). COPD is more than simply a “smoker’s cough”, it is an underdiagnosed lung illness that can cause considerable quality-of-life impairment (Wurst, St. Laurent, Hinds, & Davis, 2017). It is a primary cause of chronic morbidity and mortality in the world, and it has a considerable impact on disability, quality of life, and healthcare expenses (Celli, 2010).

COPD was rated as the third largest cause of death by the World Health Organization (WHO) in 2016, with 251 million cases worldwide and 3.17 million (5%) deaths in 2015 (Adeloye et al., 2015). The prevalence of COPD in Pakistan is unknown; however, an international epidemiological study published in 2012 found a frequency of 2.1 per cent in those over the age of 40 (Husain et al., 2021). The pathogenic effects of COPD inflammation cause a variety of physiological changes that influence the quality of life and survival as COPD progresses naturally (Brashier & Kodgule, 2012). The daily burden of COPD endured by an individual is defined by a variety of symptoms and their impact on patients. Dyspnea, cough, and sputum production are the most prevalent COPD symptoms, whereas wheezing, chest tightness, and chest congestion are less commonly bothersome (de los Monteros, Pena, Hurtado, Jareno, & Miravittles, 2012). COPD can be managed by primary, secondary, and tertiary preventative measures. These range from improving smoking cessation and asthma treatment (primary), through early illness identification and subsequent risk factor adjustment (secondary), to preventing complications in individuals with established disease (tertiary) (Miravittles et al., 2016). Smoking cessation is most important, healthcare providers are encouraged to provide patients with smoking cessation messaging and interventions, such as counselling, financial incentive schemes, and patient education (Evensen, 2010). In the absence of contraindications, tobacco dependency therapies such as varenicline, sustained-release bupropion, nortriptyline, nicotine gum, nicotine inhaler, nicotine nasal spray, and nicotine patches can be helpful as quitting aids (Cooper & Barjaktarevic, 2015). Furthermore, lowering indoor and outdoor pollution, such as biomass fuel and occupational inhalants, may necessitate governmental policy reforms as well as individual preventive measures (Price et al., 2014). Medications are used to manage COPD symptoms, reduce the frequency and severity of exacerbations, and enhance exercise tolerance and health status. Long-acting 2-agonists (LABAs), long-acting muscarinic antagonists (LAMAs), and inhaled corticosteroids (ICS) are typical COPD treatments. Within each class, the option is based on pharmaceutical availability as well as patient responses and preferences (Dhamane et al., 2017).

Pulmonary rehabilitation aims to increase HRQoL by reducing COPD symptoms, re-establishing and improving functional capacity, increasing engagement in daily activities, promoting autonomy, and restoring and improving functional ability (Blondeel, Demeyer, Janssens, & Troosters, 2018). This is accomplished by concentrating on the systemic elements of the disease that are frequent among COPD patients (Hill, Vogiatzis, & Burtin, 2013). When a person is executing tasks, the exercise component of PR increases inspiratory volume and reduces dynamic hyperinflation, both of which alleviate dyspnoea. Exercise improves muscle function, which delays exhaustion and increases exercise tolerance (Holland et al., 2013). Home-based pulmonary rehabilitation is an affordable option for those with COPD who are unable to participate in community-based rehabilitation. Less supervision would mean fewer resources would be needed, which would allow for the enrolment of more patients. In this context, the goal of the study is to compare how supervised and self-directed pulmonary rehabilitation affects cough and sputum expectoration patients with chronic obstructive pulmonary disease.

## METHODS

### **Participants**

This randomized control trial was conducted at The Physiotherapy Clinic Afridi Medical Complex Peshawar. The sample size was 36 calculated by the EPITOOL sample size calculator with a confidence level of 0.95. The Convenience sampling technique was utilized to recruit the participants and the study duration was six months. The inclusion criteria were: age from 40 to 60 years, both genders, COPD diagnosis and ability to sign informed consent form. The exclusion criteria: the inability to provide informed consent or complete a self-administered questionnaire, patients with trauma, pregnancy and breastfeeding. The participants were also withdrawn from the study when the patient developed an unfavourable condition or complication that includes (a)Fever (b)Not maintaining blood pressure (c)Insufficient urine output (d)Arrhythmias (e)Unstable vitals.

Study participants were randomly assigned into two groups by convenience sampling using a sealed envelope method for randomization. Patients were divided into two groups: one group was self-managed and the other group was managed by a supervised exercise plan.

The demographic characteristics of the 37 patients with COPD are presented in table 1. The mean age of the participants was  $50.67 \pm 7.34$  in the Self-managed group while  $50.53 \pm 7.53$  in the supervised group.

*Participants in the Supervised group* followed supervised pulmonary rehabilitation (aerobic exercises, strengthening exercises of the upper and lower limbs, and huffing and coughing) for 6 weeks plan for one hour weekly.

*Participants in the Self-Managed Group* followed a home-based exercise plan (aerobic exercises, strengthening exercises of upper and lower limbs and huffing and coughing) for 6 weeks one hour weekly.

Both groups were given self-management (deep breathing and self-stretching exercises of upper and lower limbs) as baseline treatment.

### **Outcome measurements**

Physical capacity was measured by a 6-minute walk test which was developed in the 1960s: this is a simple test to evaluate the functional capacity by measuring the distance walked during a defined period of time (Balke, 1963). Cough and sputum results were measured by the Leicester Cough Questionnaire (LCQ), an English-originated self-reporting quality-of-life measure of chronic cough, developed by S.S. Birring. It consists of 19 items with a 7 point Likert response scale (range from 1 to 7), (Birring et al., 2003).

The Cough and Sputum Assessment questionnaire (CASA-Q) was developed by Bruce Crawford and his team and it targets cough and sputum by assessing these symptoms from two different approaches: descriptively (e.g., frequency of the symptom, severity of the symptom) and evaluating the impact of these two symptoms on daily activities (Crawford et al., 2008).

### **Ethical Consideration**

The data collected from the participants were confidential, a set of ethical principles by the declaration of Helsinki were followed for recruitment and the study protocol was approved by the Research Ethical Committee (REC), The Physiotherapy Clinic Afridi Medical Complex, Peshawar (Vide letter No. 02-11/11/AMC-PT/REC/2022).

### **Statistical Analyses**

Data was entered and analysed by using SPSS version 21. Statistical significance was set as  $P = 0.05$ . Descriptive statistics: Frequency tables, were used to show summaries of group measurements measured over time. Inferential statistics: after these using normality of the data by the Shapiro-Wilk test, non-parametric tests between two groups were applied.

## RESULTS

The characteristics of the 37 patients with COPD are presented in table 1.

Table 1. **Characteristics of the participants**

Variables		Self-Managed Group (n=18)	Supervised Group (n=19)
Age (yrs. ± SD)		50.67 ± 7.34	50.53 ± 7.53
Male n (%)		14(77.8%)	7(36.8%)
Female n (%)		4(22.2%)	12(63.2%)
Smoking n (%)	Current	5(27.8%)	5(26.3%)
	Former	4(22.2%)	2(10.5%)
	Never	9(50%)	12(63.2%)
BMI n (%)	<18.5	4(22.2%)	6(31.6%)
	18.5-24.9	5(27.8%)	7(36.8%)
	25-29.9	8(44.4%)	2(10.5)
	30-39.9	1(5.6%)	4(21.1%)

BMI: Body Mass Index

The Normality test was applied to protocol for further analysis. The test applied was Shapiro-Wilk test. Table 2 shows the test of normality for all the 3 tools. The application of the non-parametric analysis was decided because the data of all the 3 tools were continuous

Table 2. **Normality Test**

Tools	P-value	
	Pre	Post
Six Minute walk test.	.041	.008
Leicester Cough Questionnaire.	.374	.928
Cough & sputum assessment questionnaire.	.066	.003

While analysing six-minute walk test scores there was a significant difference found between the self-managed and supervised groups in pre and post-analysis showing the P value to be  $P > 0.005$  as shown in table 3.

**Table 3. Between Group Analysis Six Minute Walk Test**

Six Minute walk test	Self-Managed Group		Supervised Group		U Value	P-value
	Median(IQR)	Mean Rank	Median(IQR)	Mean Rank		
Pre (meters)	364(50)	16.25	378(59)	21.61	121.50	0.130
Post (meters)	378(122)	19.00	521(145)	19.00	171.00	1.000

IQR= Interquartile range.

Similarly, while analysing LCQ no significant difference was observed demonstrating  $P > 0.05$ . Physical factors showed a significant difference during the pre-session which showed  $P = 0.004$ . as shown in Table 4.

**Table 4. Between Group Analysis Leicester Cough Questionnaire**

Leicester cough Questionnaire (Likert response scale) Median(IQR)		Self-Managed Group		Supervised Group		U Value	P-value
		Mean Rank	Median(IQR)	Mean Rank			
Physical	Pre	3.37(0.44)	13.81	3.75(0.38)	23.92	77.50	.004
	Post	3.37(1.39)	16.33	3.75(0.5)	21.53	123.00	.144
Psychological	Pre	3.71(0.58)	18.28	3.71(0.86)	19.68	158.00	.691
	Post	3.50(0.86)	18.03	3.71(0.86)	19.92	153.50	.592
Social	Pre	3.50(1.25)	16.19	3.75(1.75)	21.66	120.50	.123
	Post	3.50(1.11)	15.75	4.00(1.5)	22.08	112.50	.073
Total	Pre	3.60(0.39)	15.53	3.73(0.63)	22.29	108.50	.057
	Post	3.50(0.73)	16.03	3.78(0.63)	21.82	117.50	.103

IQR= Interquartile range.

The cough and sputum assessment questionnaire was analysed using the Mann-Whitney U test, and the difference between both differences and the post-session self-managed and supervised group was  $P > 0.05$ , as shown in Table 5.

Table 5. **Between Group Analysis Cough & sputum Assessment Questionnaire**

Cough & sputum assessment questionnaire (Likert response scale)	Self-Managed Group		Supervised Group		U Value	P-value
	Median(IQR)	Mean Rank	Median(IQR)	Mean Rank		
Pre	69(10.75)	21.56	63(12)	16.58	125.00	.161
Post	64(10.5)	19.44	63(5)	18.58	163.00	.807

IQR= Interquartile range.

## DISCUSSION

The author examined two pulmonary rehabilitation programs for severe COPD patients, each with a different level of supervision. Both methods of training enhanced exercise tolerance, although the size and extent of physiological changes were greater in patients who received supervision during their training. Patients with severe COPD who were not getting chronic oxygen therapy and had a significant loss in exercise capacity were chosen for the trial. The first was a self-monitored program that can be easily carried out by people with moderate to severe dysfunction and requires only a little extra effort from a physiotherapist. It can also be conducted even if the patient rarely leaves their home.

Our study results are of similar magnitude as the results from a supervised rehabilitation program conducted by Siest et al. in 2015, programs with maintenance training conducted by Cockram et al. in 2006 and Weiner et al. in 2004, and another supervised rehabilitation program conducted by Troosters et al. in 2000. A similar program with daily self-monitored training at home was conducted by Hernandez in 2000 (Cockram, Cecins, & Jenkins, 2006; Hernández et al., 2000; Siest et al., 2015; Troosters, Gosselink, & Decramer, 2000). A maintenance program does not necessarily sustain the effect of short-term rehabilitation program. Regarding this, the results of the study conducted by De Roos et al. in 2018, Morris et al. in 2016, and Wang et al. in 2014 showed that with less intensive maintenance programs

(monthly supervised training), physical performance declined (De Roos, Lucas, Strijbos, & Van Trijffel, 2018; Morris, Walsh, Adams, & Alision, 2016; Wang et al., 2014). Contrarily the study done by Candemir et al. in 2018 found that unsupervised home-based pulmonary rehabilitation was found to be more successful than supervised hospital-based PR in terms of enhancing exercise capacity, quality of life, dyspnoea, and psychological status (Candemir, Ergun, Kaymaz, Demir, & McCurdy, 2019). While our study shows no differences in both programs. Home visits from physiotherapists or other specialists, or monthly excursions to a hospital program, home programs necessitate a large number of resources.

Studies done by Kaasgaard et al., De Roos et al., and Holland et al., found that after a year after completing respiratory rehabilitation, there was a significant decline in functional exercise capacity and health-related quality of life. This deterioration was most likely caused by poor post-program compliance, which was unaffected by an improved program that provided more frequent contact with health experts, both in person and over the phone at home (De Roos et al., 2018; Holland et al., 2017; Kaasgaard et al., 2022). The Holland et al. 2017, study demonstrated equivalence the of a home-based PR with an 8-week. center-based PR program, with very similar costs. Interestingly, their improvement in the 6 min walk test distance was below what you might expect in a center-based pulmonary rehabilitation program (within-group differences 10.82 m, 95% CI -4.52 to 26.16) (Holland et al., 2017).

## CONCLUSION

In conclusion, exercise training can cause a variety of changes and adaptations results in an improvement. These alterations appear to be conditional on achieving a particular level of exercise intensity. To elicit them, a rehabilitation program under supervision is required. In comparison of both it was found that supervised exercise program and self-managed group show equal improvement in COPD patients. Self-management exercise should be encouraged for active involvement of patient during the treatment and to promote self-preventive behavior.

### **Conflict of interest**

None.

### **Funding**

The authors declare that they have no conflicts of interest.



## REFERENCES

- Adeloye, D., Chua, S., Lee, C., Basquill, C., Papan, A., Theodoratou, E., ... & Global Health Epidemiology Reference Group (GHERG). (2015). Global and regional estimates of COPD prevalence: Systematic review and meta-analysis. *Journal of global health*, 5(2). doi: <https://doi.org/10.7189/jogh.05-020415>
- Balke, B. (1963). *A simple field test for the assessment of physical fitness* (Vol. 63, No. 6). Civil Aeromedical Research Institute.
- Berry, C. E., & Wise, R. A. (2010). Mortality in COPD: causes, risk factors, and prevention. *COPD: Journal of Chronic Obstructive Pulmonary Disease*, 7(5), 375–382. doi: <https://doi.org/10.3109/15412555.2010.510160>
- Birring, S., Prudon, B., Carr, A., Singh, S., Morgan, M., & Pavord, I. (2003). Development of a symptom specific health status measure for patients with chronic cough: Leicester Cough Questionnaire (LCQ). *Thorax*, 58(4), 339–343. doi: <http://dx.doi.org/10.1136/thorax.58.4.339>
- Blondeel, A., Demeyer, H., Janssens, W., & Troosters, T. (2018). The role of physical activity in the context of pulmonary rehabilitation. *COPD: Journal of Chronic Obstructive Pulmonary Disease*, 15(6), 632–639. doi: <https://doi.org/10.1080/15412555.2018.1563060>
- Candemir, I., Ergun, P., Kaymaz, D., Demir, N., & McCurdy, S. A. (2019). Comparison of unsupervised home-based pulmonary rehabilitation versus supervised hospital outpatient pulmonary rehabilitation in patients with chronic obstructive pulmonary disease. *Expert Review of Respiratory Medicine*, 13(12), 1195–1203. doi: <https://doi.org/10.1080/17476348.2019.1675516>
- Celli, B. R. (2010). Predictors of mortality in COPD. *Respiratory medicine*, 104(6), 773–779. <https://doi.org/10.1016/j.rmed.2009.12.017>
- Cockram, J., Cecins, N., & Jenkins, S. (2006). Maintaining exercise capacity and quality of life following pulmonary rehabilitation. *Respirology*, 11(1), 98–104. doi: <https://doi.org/10.1111/j.1440-1843.2006.00791.x>
- Cooper, C. B., & Barjaktarevic, I. (2015). A new algorithm for the management of COPD. *The Lancet Respiratory Medicine*, 3(4), 266–268. doi: [https://doi.org/10.1016/S2213-2600\(15\)00091-0](https://doi.org/10.1016/S2213-2600(15)00091-0)
- Crawford, B., Monz, B., Hohlfeld, J., Roche, N., Rubin, B., Magnussen, H., . . . Tetzlaff, K. (2008). Development and validation of a cough and sputum assessment questionnaire. *Respiratory medicine*, 102(11), 1545–1555. doi: <https://doi.org/10.1016/j.rmed.2008.06.009>
- de los Monteros, M. J. E., Pena, C., Hurtado, E. J. S., Jareno, J., & Miravittles, M. (2012). Variability of respiratory symptoms in severe COPD. *Archivos de Bronconeumología (English Edition)*, 48(1), 3–7. doi: <https://doi.org/10.1016/j.arbr.2011.07.006>
- De Roos, P., Lucas, C., Strijbos, J., & Van Trijffel, E. (2018). Effectiveness of a combined exercise training and home-based walking programme on physical activity compared with standard medical care in moderate COPD: a randomised controlled trial. *Physiotherapy*, 104(1), 116–121. doi: <https://doi.org/10.1016/j.physio.2016.08.005>
- Dhamane, A. D., Schwab, P., Hopson, S., Moretz, C., Annavarapu, S., Burslem, K., ... & Kaila, S. (2017). Association between adherence to medications for COPD and medications for other chronic conditions in COPD patients. *International journal of chronic obstructive pulmonary disease*, 12, 115. doi: <https://doi.org/10.2147/COPD.S114802>
- Evensen, A. (2010). Management of COPD exacerbations. *American family physician*, 81(5), 607–613.
- Hernández, M. T. E., Rubio, T. M., Ruiz, F. O., Riera, H. S., Gil, R. S., & Gómez, J. C. (2000). Results of a home-based training program for patients with COPD. *Chest*, 118(1), 106–114. doi: <https://doi.org/10.1378/chest.118.1.106>
- Hill, K., Vogiatzis, I., & Burtin, C. (2013). The importance of components of pulmonary rehabilitation, other than exercise training, in COPD. *European Respiratory Review*, 22(129), 405–413. doi: <https://doi.org/10.1183/09059180.00002913>
- Holland, A. E., Mahal, A., Hill, C. J., Lee, A. L., Burge, A. T., Cox, N. S., . . . Lahham, A. (2017). Home-based rehabilitation for COPD using minimal resources: a randomised, controlled equivalence trial. *Thorax*, 72(1), 57–65. doi: <http://dx.doi.org/10.1136/thoraxjnl-2016-208514>
- Holland, A. E., Mahal, A., Hill, C. J., Lee, A. L., Burge, A. T., Moore, R., ... & McDonald, C. F. (2013). Benefits and costs of home-based pulmonary rehabilitation in chronic obstructive pulmonary disease—a multi-centre randomised controlled equivalence trial. *BMC pulmonary medicine*, 13(1), 1–7. doi: <https://doi.org/10.1186/1471-2466-13-57>

- Husain, M. O., Chaudhry, I. B., Blakemore, A., Shakoor, S., Husain, M. A., Lane, S., ... & Husain, N. (2021). Prevalence of depression and anxiety in patients with chronic obstructive pulmonary disease and their association with psychosocial outcomes: A cross-sectional study from Pakistan. *SAGE Open Medicine*, 9, 20503121211032813. doi: <https://doi.org/10.1177/20503121211032813>
- Kaasgaard, M., Rasmussen, D. B., Andreasson, K. H., Hilberg, O., Løkke, A., Vuust, P., & Bodtger, U. (2022). Use of Singing for Lung Health as an alternative training modality within pulmonary rehabilitation for COPD: a randomised controlled trial. *European Respiratory Journal*, 59(5). doi: <https://doi.org/10.1183/13993003.01142-2021>
- Kim, V., & Aaron, S. D. (2018). What is a COPD exacerbation? Current definitions, pitfalls, challenges and opportunities for improvement. *European Respiratory Journal*, 52(5). doi: <https://doi.org/10.1183/13993003.01261-2018>
- Miravittles, M., Vogelmeier, C., Roche, N., Halpin, D., Cardoso, J., Chuchalin, A. G., ... & Blasi, F. (2016). A review of national guidelines for management of COPD in Europe. *European Respiratory Journal*, 47(2), 625–637. doi: <https://doi.org/10.1183/13993003.01170-2015>
- Morris, N. R., Walsh, J., Adams, L., & Alision, J. (2016). Exercise training in COPD: What is it about intensity? *Respirology*, 21(7), 1185–1192. doi: <https://doi.org/10.1111/resp.12864>
- Price, D., West, D., Brusselle, G., Gruffydd-Jones, K., Jones, R., Miravittles, M., ... & Bichel, K. (2014). Management of COPD in the UK primary-care setting: an analysis of real-life prescribing patterns. *International journal of chronic obstructive pulmonary disease*, 9, 889. doi: <https://doi.org/10.2147/COPD.S62750>
- Siest, G., Auffray, C., Taniguchi, N., Ingelman-Sundberg, M., Murray, H., Visvikis-Siest, S., ... & Németh, G. (2015). Systems medicine, personalized health and therapy. *Pharmacogenomics*, 16(14), 1527–1539. doi: <https://doi.org/10.2217/pgs.15.103>
- Troosters, T., Gosselink, R., & Decramer, M. (2000). Short-and long-term effects of outpatient rehabilitation in patients with chronic obstructive pulmonary disease: a randomized trial. *The American journal of medicine*, 109(3), 207–212. doi: [https://doi.org/10.1016/S0002-9343\(00\)00472-1](https://doi.org/10.1016/S0002-9343(00)00472-1)
- Vestbo, J. (2014). COPD: definition and phenotypes. *Clinics in chest medicine*, 35(1), 1–6. doi: <https://doi.org/10.1016/j.ccm.2013.10.010>
- Wang, C.-H., Chou, P.-C., Joa, W.-C., Chen, L.-F., Sheng, T.-F., Ho, S.-C., ... Chung, K. F. (2014). Mobile-phone-based home exercise training program decreases systemic inflammation in COPD: a pilot study. *BMC Pulmonary Medicine*, 14(1), 1–9. doi: <https://doi.org/10.1186/1471-2466-14-142>
- Wurst, K. E., St. Laurent, S., Hinds, D., & Davis, K. J. (2017). Disease burden of patients with asthma/COPD overlap in a US claims database: impact of ICD-9 coding-based definitions. *COPD: Journal of Chronic Obstructive Pulmonary Disease*, 14(2), 200–209. doi: <https://doi.org/10.1080/15412555.2016.1257598>

## Savarankiškos ir prižiūrimos plaučių reabilitacijos poveikis kosuliui ir skreplių išsiskyrimui, sergant lėtine obstrukcine plaučių liga

Huma Balqias<sup>1</sup>, Syed Alamdard Hussain<sup>1</sup>, Usman Farooq<sup>1</sup>, Umair Ahmad<sup>1</sup>, Rohail Amir Babar<sup>2</sup>

<sup>1</sup>Pešavaro kardiologijos institutas, Pešavaro miestas, Pakistanas

<sup>2</sup>Islamabado medicinos ir stomatologijos koledžas, Islamabadas, Pakistanas

### SANTRAUKA

*Tyrimo pagrindimas.* Lėtine obstrukcinė plaučių liga (LOPL) yra daugia-veiksnė, progresuojanti lėtine plaučių liga. Pasaulio sveikatos organizacija (PSO)

2016 m. trečiajame mirties priežastimi įvardijo LOPL. Kosulys ir skrepliavimas būdingas 60 proc. sergančiųjų. Asmenims, sergantiems LOPL, kurie negali dalyvauti standartinėje priežiūros centre vykdomoje programoje, namuose atliekama plaučių reabilitacija.

*Tikslas* – palyginti prižiūrimos ir savarankiškos plaučių reabilitacijos poveikį kosuliui ir skreplių išsiskyrimui pacientams, sergantiems lėtine obstrukcine plaučių liga.

*Metodai.* Į šį atsitiktinių imčių klinikinį tyrimą buvo įtraukta 40 tiriamųjų su diagnozuota LOPL, kurių amžius nuo 40 iki 60 metų. Dalyviai buvo atsitiktinai suskirstyti į savarankiškai valdomos (n=18) ir prižiūrimos (n=19) reabilitacijos grupes. Duomenys buvo renkami naudojant 6 min. ėjimo testą, Lesterio kosulio klausimyną ir kosulio bei skreplių įvertinimo klausimyną tyrimo pradžioje bei praėjus šešioms savaitėms po gydymo.

*Rezultatai.* Buvo nustatytas reikšmingas skirtumas tarp savarankiškai valdomų ir prižiūrimų grupių 6 min. ėjimo testo metu, kai skirtumas buvo  $p > 0,05$ . Analizuojant Lesterio kosulio klausimyną reikšmingas skirtumas tarp dviejų grupių, kai  $p > 0,05$ , nepastebėtas, be to, fiziniai veiksniai reikšmingai pagerėjo ( $p = 0,004$ ). Analizuojant kosulio ir skreplių vertinimo klausimyno vertes, reikšmingo skirtumo nerasta ( $p > 0,05$ ).

*Išvada.* Abi taikytos programos teigiamai veikė tiriamųjų būklę, tačiau nenustatyti reikšmingi skirtumai tarp prižiūrimos ir savarankiškai valdomos mankštos programų. Reikėtų skatinti savikontrolės pratimus, kad pacientas aktyviai dalyvautų gydymo procese ir būtų skatinamas savipreventinis elgesys.

**Raktažodžiai:** skrepliai, kosulys, savikontrolė, plaučių reabilitacija.

*Gauta 2022 10 01*

*Priimta 2022 10 18*