

Effectiveness of Structured Teaching Programme on Knowledge Regarding Pulmonary Rehabilitation among Patients with Chronic Obstructive Pulmonary Disease

Ambika Marali^{1*}, Dr. Shridhar G Pujari²

¹M. Sc. 2nd year, Dept. of Medical Surgical Nursing, B. V. V. S. Sajjalashree Institute of Nursing Sciences Navanagar, Bagalkote

²Associate Professor, Dept. of Medical Surgical Nursing, B. V. V. S. Sajjalashree Institute of Nursing Sciences Navanagar, Bagalkote

DOI: <https://doi.org/10.36347/sjams.2026.v14i04.031>

| Received: 03.03.2026 | Accepted: 16.04.2026 | Published: 25.04.2026

*Corresponding author: Ambika Marali

M. Sc. 2nd year, Dept. of Medical Surgical Nursing, B. V. V. S. Sajjalashree Institute of Nursing Sciences Navanagar, Bagalkote

Abstract

Original Research Article

Chronic obstructive pulmonary disease, is a progressive lung disease that makes lung difficult to breathe, often caused by long-term exposure to irritants like tobacco and smoke. It includes conditions like chronic bronchitis and emphysema, and while not curable, treatment can help manage symptoms and slow progression. This study examines knowledge regarding pulmonary rehabilitation among COPD patients. Pre-experimental research design with one group pre-test and post-test without control group was with 60 subjects through purposive sampling technique. Data was collected by structured knowledge questionnaire, and analysed using descriptive and inferential statistics in terms of mean, frequency distribution, percentage 't' test and chi-square test. **Methodology:** The pre-experimental, i.e. one group pre-test post-test design was adopted for the present study. The sample includes 60 COPD patients from selected hospitals of Bagalkote. Using non probability purposive sampling technique. Data was collected by using structured knowledge questionnaire and analysed using descriptive and inferential statistics. **Results:** The mean percentage of knowledge scores of the COPD patients in the pre-test was 165.48% with mean and SD [40.683±14.49], whereas the mean percentage of knowledge scores in post-test was 352.8075% with mean and SD [91.074±13.752]. The paired 't' test showed that there is a significance difference in knowledge of COPD patients regarding pulmonary rehabilitation after administration of STP. xv Finding reveals that there is a significant association between pre-test knowledge scores of the COPD patients and socio-demographic variables. **Conclusion:** A significant difference was found between the pre-test and post-test knowledge scores of COPD patients. The study showed that STP was effective in improving the knowledge of COPD patients on pulmonary rehabilitation.

Keywords: Effectiveness, COPD, Pulmonary Rehabilitation.

Copyright © 2026 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

Health is defined as a state of complete physical, mental, and social well-being and not merely the absence of disease [3]. Oxygen plays a critical role in sustaining life, supporting nearly 90% of metabolic activities in the human body [1]. The respiratory system facilitates gas exchange through alveoli, ensuring oxygen delivery to tissues [2].

Chronic respiratory diseases, including COPD, asthma, and pulmonary hypertension, are major contributors to global disease burden [3]. In India, COPD accounts for a significant proportion of respiratory morbidity and mortality, with millions affected annually [4]. Environmental factors such as air pollution and tobacco smoking are major contributors [5].

COPD is a progressive disease characterized by airflow limitation due to chronic bronchitis and emphysema [6,7]. Though not curable, it can be managed effectively through pharmacological and non-pharmacological approaches such as pulmonary rehabilitation [8].

Pulmonary rehabilitation is a comprehensive intervention including exercise training, education, and behavioral changes aimed at improving physical and psychological condition [9]. Despite its benefits, patient awareness remains inadequate, necessitating educational interventions.

NEED FOR THE STUDY

COPD is the third leading cause of death worldwide and contributes significantly to disability

[10]. Approximately 90% of COPD-related deaths occur in low- and middle-income countries [10]. Studies project that COPD burden will increase substantially by 2050 [11].

In India, COPD poses a major economic and healthcare burden [12]. Lack of awareness regarding pulmonary rehabilitation further worsens disease outcomes. Educational interventions such as structured teaching programmes can significantly improve patient knowledge and self-management.

OBJECTIVES

1. To assess knowledge regarding pulmonary rehabilitation among COPD patients.
2. To implement a structured teaching programme.
3. To evaluate the effectiveness of the programme.
4. To determine the association between knowledge and socio-demographic variables.

METHODOLOGY

Research Approach

A quantitative evaluative research approach was adopted to assess the effectiveness of a structured teaching programme [STP] on knowledge regarding pulmonary rehabilitation among patients with Chronic Obstructive Pulmonary Disease [COPD].

Research Design

A pre-experimental one-group pre-test and post-test design without a control group was used. Setting of the Study

The study was conducted in selected hospitals of Bagalkot district, including:

- HSK Hospital and Research Centre
- Kerudi Hospital and Research Centre
- Daddenavar Hospital

Population

- **Target population:** All COPD patients
- **Accessible population:** COPD patients admitted at HSK, Kerudi and Daddennavar hospital Bagalkote.

Sample Size and Sampling Technique

- **Sample size:** 60 COPD patients
- **Sampling technique:** Purposive sampling
- Sample size was estimated using Epi Info with 95% confidence level and 80% power

Variables

- **Independent variable:** Structured Teaching Programme
- **Dependent variable:** Knowledge on pulmonary rehabilitation
- **Socio-demographic variables:** Age, gender, religion, education, occupation, income, source of information

Data Collection Tool

A structured knowledge questionnaire consisting of 32 multiple-choice questions was used.

Scoring Criteria

Score Range	Interpretation
1–8	Mild
9–16	Moderate
17–24	Good
25–32	Excellent

Intervention

The Structured Teaching Programme included:

- Definition and overview of COPD
- Pulmonary rehabilitation concepts
- Components, benefits, and risks
- **Duration:** 40–45 minutes
- **Group size:** 5–8 patients

Data Collection Procedure

1. Pre-test assessment using questionnaire
2. Administration of STP
3. Post-test after 7 days
4. Data analyzed using descriptive and inferential statistics

RESULTS

Part I: Socio-Demographic Characteristics

Table 01: Socio-Demographic Characteristics of COPD Patients [N = 60]

Variable	Category	Frequency [n]	Percentage [%]
Age [years]	40–45	12	20%
	46–50	14	23.33%
	51–55	22	36.66%
	≥56	12	20%
Gender	Male	33	55%
	Female	27	45%
Religion	Hindu	33	55%
	Muslim	15	25%
	Christian	6	10%
	Others	6	10%

Variable	Category	Frequency [n]	Percentage [%]
Educational Status	No formal education	22	36.66%
	Primary education	21	35%
	Secondary education	11	18.33%
	Degree & above	6	10%
Occupation	Agriculture	17	28.33%
	Construction	14	23.33%
	Manufacturing	6	10%
	Others	23	38%
Monthly Income [₹]	≤10,000	13	21.66%
	10,001–20,000	26	43.33%
	20,001–30,000	13	21.66%
	≥30,001	8	13.33%
Source of Information	Family members	19	31.66%
	Health professionals	29	48.33%
	Mass media	7	11.66%
	Others	5	8.33%
Attended Educational Programme	Yes	11	18.33%
	No	49	81.66%

The socio-demographic data of 60 COPD patients showed that the highest proportion of participants [36.66%] belonged to the 51–55 years age group, while 20% each were in the 40–45 years and 56 years and above categories. More than half of the participants were male [55%], and the majority followed the Hindu religion [55%]. Regarding education, 36.66% had no formal education, followed closely by 35% with

primary education. In terms of occupation, most participants were involved in other occupations [38%], while 28.33% worked in agriculture. Nearly 43.33% had a monthly income between ₹10,001–20,000. The main source of information about COPD was health professionals [48.33%], and only 18.33% had previously attended an educational programme.

Part II: Assessment of Pre-Test Knowledge

Table 02: Pre-Test Knowledge Levels

Level	Score Range	Frequency	Percentage
Mild	1–8	33	55%
Moderate	9–16	19	31.66%
Good	17–24	8	13.33%
Excellent	25–32	0	0%

The pre-test knowledge assessment revealed that the majority of participants had mild knowledge [55%], followed by moderate knowledge [31.66%], while only 13.33% had good knowledge, and none had excellent knowledge.

Table 03: Area-wise Pre-Test Mean Score

Area	Max Score	Mean	SD	Mean %
General information	9	22.77	6.22	253.08%
Components & benefits	23	17.91	8.27	77.88%
Total	32	40.69	14.49	330.96%

The area-wise mean pre-test scores indicated that the participants scored 53.08% in general information and 77.88% in components and benefits, with an overall mean percentage score of 30.96%.

Part III: Assessment of Effectiveness of STP

Table 04: Comparison of Pre-test and Post-test Knowledge

Level	Pre-test [n=60]	%	Post-test [n=60]	%
Mild	33	55%	0	0%
Moderate	19	31.66%	0	0%
Good	8	13.33%	29	48.33%
Excellent	0	0%	31	51.66%

The comparison of pre-test and post-test knowledge scores demonstrates a marked improvement after the Structured Teaching Programme [STP]. In the pre-test, most participants were in the mild and moderate knowledge categories, whereas in the post-test, 48.33% achieved good knowledge and 51.66% achieved excellent knowledge, with no participants remaining in the mild or moderate categories. This indicates that the STP was highly effective in improving the knowledge of COPD patients.

DISCUSSION

The study findings indicate that COPD patients initially had inadequate knowledge regarding pulmonary rehabilitation. This aligns with previous studies showing low awareness among patients [13].

After intervention, knowledge improved significantly, supporting evidence that educational programmes enhance disease understanding and self-management [14]. Pulmonary rehabilitation improves symptoms, exercise tolerance, and quality of life [12].

CONCLUSION

The structured teaching programme was highly effective in improving knowledge regarding pulmonary rehabilitation among COPD patients. Educational interventions should be integrated into routine clinical care to enhance patient outcomes.

RECOMMENDATIONS

- Conduct similar studies with larger sample size.
- Include control group for stronger evidence.
- Implement regular patient education programmes.
- Promote awareness at community level.

REFERENCES

1. Role of Oxygen in Human Body [Internet]. OXY99; 2019 [cited 2024 Apr 20]. Available from: <https://www.oxy99.org/blog/role-oxygen-human-body/>
2. Wikipedia Contributors. Respiratory system [Internet]. Wikimedia Foundation; 2019 [cited 2024 Apr 20]. Available from: https://en.wikipedia.org/wiki/Respiratory_system
3. World Health Organization. Chronic respiratory diseases [Internet]. WHO; 2019 [cited 2024 Apr 20]. Available from: <https://www.who.int/health-topics/chronic-respiratory-diseases>
4. World Lungs Day 2023: How to break down barriers to healthy lungs [Internet]. CNBCTV18; 2023 [cited 2024 Apr 20]. Available from: <https://www.cnbctv18.com/healthcare/world-lungs-day-2023-how-to-break-down-barriers-to-healthy-lungs>
5. Sharma BB, Singh S, Sharma KK, Sharma AK, Suraj KP, Mahmood T, et al. Proportionate clinical burden of respiratory diseases in Indian outpatient services and its relationship with seasonal transitions and risk factors: Results of SWORD survey. PLOS ONE. 2022;17[8]:e0268216
6. Chronic obstructive pulmonary disease [COPD] [Internet]. www.who.int. 2023. Available from: <https://www.who.int/news-room/fact-sheets/detail/chronic-obstructive-pulmonary-disease> [copd]#:~:text=It%20is%20sometimes%20called%20emphysema.
7. National Heart, Lung, and Blood Institute. COPD - What is COPD? [Internet]. www.nhlbi.nih.gov. <https://www.nhlbi.nih.gov/health/copd>
8. Agarwal AK, Raja A, Brown BD. Chronic obstructive pulmonary disease [COPD] [Internet]. National Library of Medicine. Treasure Island [FL]: StatPearls Publishing; 2023. Available <https://www.ncbi.nlm.nih.gov/books/NBK559281/>
9. Asthma + Lung UK. Pulmonary rehabilitation [PR] | Asthma + Lung UK [Internet]. www.asthmaandlung.org.uk. 2023. Available <https://www.asthmaandlung.org.uk/living-with/keeping-active/pulmonary-rehabilitation>
10. World Health Organization. Chronic obstructive pulmonary disease [COPD] [Internet]. World Health Organization: WHO. 2023. Available from: [https://www.who.int/news-room/fact-sheets/detail/chronic-obstructive-pulmonary-disease-\[-copd\]](https://www.who.int/news-room/fact-sheets/detail/chronic-obstructive-pulmonary-disease-[-copd])
11. Boers E, Barrett M, Su JG, Benjafield AV, Sinha S, Kaye L, et al. Global Burden of Chronic Obstructive Pulmonary Disease Through 2050. JAMA Network Open 87 CHAPTER 10: 2023 Dec 7;6[12]: REFERENCES [Internet]. e2346598. Available from: <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2812622>
12. . India could face third highest economic burden of COPD from 2020-50: Lancet Study. The Times of India [Internet]. 2023 Jul 25 [cited 2024 Apr 21]; Available from: <https://timesofindia.indiatimes.com/india/india-could-face-third-highest-economic-burden-of-copd-from-2020-50-lancet-study/articleshow/102110984.cms>
13. Javaid MA, Amir M, Faheem M. CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND PULMONARY REHABILITATION: AWARENESS AMONG THE PATIENTS. PAFMJ [Internet]. 2020 Jun. 29 [cited 2024 Apr. 20];70[3]:721-26. Available from: <https://pafmj.org/PAFMJ/article/view/4612>
14. Awotidebe TO, Fasakin OM, Awopeju OF, Adesokan OJ, Ademoyegun AB, Odunlade AJ, Suleman JF, Adedoyin RA. Assessment of knowledge, attitude and practice of exercise for pulmonary rehabilitation among patients with pulmonary diseases.