# EVALUATE THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING PULMONARY REHABILITATION AMONG PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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**Abstract**

*Background:* Pulmonary rehabilitation is an educational and exercise program to enhance awareness about the client's lungs and associated lung diseases. The client learns to achieve exercise with less shortness of breath.

*Aim:* The current study aimed to evaluate the effectiveness of a structured teaching program on knowledge regarding pulmonary rehabilitation among patients with chronic obstructive pulmonary disease.

*Method:* A quantitative research approach was used with pre-experimental with one group pre-test post-test design was adopted to assess the effectiveness of a structured teaching program on knowledge regarding pulmonary rehabilitation among patients with chronic obstructive pulmonary disease. A total of 50 patients suffering from chronic obstructive pulmonary disease were selected as study participants through a non-probability purposive sampling technique from selected hospitals. The self-structured knowledge questionnaire was used for data collection. The data were analyzed using descriptive and inferential statistics.

*Result:* The finding of the study indicated that the mean pre-test score of knowledge regarding pulmonary rehabilitation was 14.7 and the post-test mean score was 20.1 respectively. Enhancement was computed by using a paired 't' test at 0.05 level of significance and it was found to be 5.4, indicating that there is a significant improvement in the knowledge of pulmonary rehabilitation among Chronic Obstructive Pulmonary Disease (COPD) patients.

*Conclusion:* The study concluded that the structured teaching program was effective in terms of gaining knowledge of COPD patients regarding pulmonary rehabilitation.

*Keywords:* Structured Teaching Programme, Knowledge, Pulmonary Rehabilitation, Chronic Obstructive Pulmonary Disease

## INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is a common preventable, and treatable disease that is characterized by persistent respiratory symptoms and airflow limitation due to abnormalities in the airway and (or) alveolar abnormalities. According to the WHO's estimates, nearly 65 million people have moderate to severe COPD which accounts for 5% of deaths (41.9 deaths per 100,000 individuals) globally and COPD remained the most prevalent disease-specific chronic respiratory

disease (CRD) in 2017.

In low and middle-income countries, about 90% of COPD fatalities in those under 70 years occur. In high-income nations, tobacco use causes more than 70% of COPD cases while in low-middle-income class nations, it accounts for 30-40% of cases. Domestic air pollution is also a significant risk factor. Although COPD cannot be cured, symptoms can lessen if a person stops smoking, protects themselves from air pollution, and receives vaccinations to fend off infections. Additionally, it can be managed with medications, oxygen therapy, and pulmonary rehabilitation.

Pulmonary rehabilitation is an educational and exercise program to enhance awareness about the client's lungs and associated lung diseases. The client learns to achieve exercise with less shortness of breath. The signs of COPD can deteriorate rapidly. Flare-ups are the term used for this. These typically last for a few days and often require additional medicines. It has been discovered that developing a simple, quick, non-invasive, and cost-effective system that would aid in the diagnosis and detection of this condition is conceivable with the aid of developing technologies such as the Internet of Things, Artificial Intelligence, Machine Learning, and Signal processing techniques.

Mansfield et.al. (2016) conducted a systematic review and meta-analysis of the prevalence of COPD among the population above 30 years in India. The results show that overall, the prevalence of COPD among the population aged 30 years and above in India was 7%.

During recent years, hospitalization rates with COPD have markedly increased. The high morbidity rates related to COPD may be attributed to limited access to health care, an inaccurate assessment of the disease severe delay in seeking help inadequate medical treatment, and non-adherence to prescribed therapy, studies have proved that this could be overcome by educational programs emphasizing the importance of self-management at home. Nurses are in the best position to achieve this aim of COPD management therapy preventing the recurrent.

**Aim**

The study aimed to evaluate the effectiveness of a structured teaching program on knowledge regarding pulmonary rehabilitation among patients with chronic obstructive pulmonary disease.

## MATERIAL AND METHODS

A quantitative research approach with a pre-experimental one-group pre-test post-test design was used to assess the effectiveness of a structured teaching program on knowledge regarding pulmonary rehabilitation among patients with chronic obstructive pulmonary disease in selected hospitals. Non-probability purposive sampling technique was used to select 50 patients diagnosed with COPD. The self-structured knowledge questionnaire was prepared and administered by the researcher to the participants for data collection. It consists of 2 sections. Section 1 deals with demographic variables and section 2 consists of 30 multiple choice knowledge-based questionnaires with 6 sub divisions. The score given is one for the correct answer and zero for the wrong answer. After getting informed consent, a pretest was conducted and on the same day researcher implemented a structured teaching program by using charts, posters, and handouts. After seven days, a post-post-test was conducted. The data obtained were analyzed using descriptive and inferential statistics.

## RESULT

**1. Socio-demographic Characteristics of the Respondents**

In the present study, 50 COPD-diseased patients have participated. The most frequent response for the age category was those who are between 31 to 40 Years 20 (40%), followed by those in the 41 to 50 years age group 16 (32%). The respondents were mostly 33 Males (66%), and the educational status consisted mostly of completed secondary education 18 (36%) followed by primary education 16 (32%). 23 (46%) of respondent's monthly income had 5000 to 10000 rupees per month, followed by below 5000 rupees per month 21 (42%). The overwhelming majority 18 (36%)

reported that their occupation is farming and 28 (56%) patient's duration of illness is from 1 to 5 yrs. Regarding marital status most 45 (90%) of respondents were married. (Table-1)

| Table 1: Demographic and clinical working profile of the participants. N=50 | | | |
|---|---|---|---|
| **Demographic variables** | | **No. of patients** | **Percentage** |
| **Age** | 20 -30 yrs | 5 | 10% |
| | 31 -40 yrs | 20 | 40% |
| | 41- 50 yrs | 16 | 32% |
| | Above 51 yrs | 9 | 18% |
| **Gender** | Male | 33 | 66% |
| | Female | 17 | 34% |
| **Educational status** | Illiterate | 15 | 30% |
| | Primary | 16 | 32% |
| | Secondary | 18 | 36% |
| | Graduate | 1 | 2% |
| **Socio-Economic Status** | Below Rs.5000/- | 21 | 42% |
| | Rs.5000/- to 10000/- | 23 | 46% |
| | Above Rs.10000/- | 6 | 12% |
| **Marital status** | Unmarried | 4 | 8% |
| | Married | 45 | 90% |
| | Separated | 1 | 2% |
| | Divorce | 0 | 0% |
| **Type of occupation** | Unemployed | 14 | 28% |
| | Labor | 17 | 34% |
| | Farmer | 18 | 36% |
| | Professional | 1 | 2% |
| | Retired | 0 | 0% |
| **Duration of illness** | Below 1 yrs | 8 | 16% |
| | 1 to 5 yrs | 28 | 56% |
| | Above 5 yrs | 14 | 28% |

## 2. Pre-test and post-test knowledge level regarding pulmonary rehabilitation among patients with chronic obstructive pulmonary disease

| Table 2-: Pre and Post-Test Level of Knowledge. N=50 | | | | | |
|---|---|---|---|---|---|
| **PRE-TEST KNOWLEDGE SCORE** | | | **POST TEST KNOWLEDGE SCORE** | | |
| **Knowledge** | **Number of Samples** | **Percentage** | **Knowledge** | **Number of Samples** | **Percentage** |
| Inadequate | 14 | 28% | Inadequate | 0 | 0% |
| Moderately adequate | 30 | 60% | Moderately adequate | 28 | 56% |
| Adequate | 6 | 12% | Adequate | 22 | 44% |

Table 2 shows the majority of patients 60% have a moderately adequate level followed by 12% having an adequate knowledge level in the pre-test score while in the post-test 44% have an adequate knowledge level and 56% have a moderately adequate knowledge level.

**3. Comparison of mean scores between pre-test and post-test on knowledge regarding pulmonary rehabilitation among patients with chronic obstructive pulmonary disease**

| Table 3-: Mean difference of Pre and Post-test knowledge score. | | | | | N=50 | |
|---|---|---|---|---|---|---|
| Components | Observation | Mean | Mean Difference | SD | 't' value | Significance |
| Knowledge score | Pretest | 14.7 | 5.4 | 1.6413 | 23.18 | Significant P<0.05 |
| | Posttest | 20.1 | | | | |

Table 3 shows the mean difference is 5.4 of pre and post-test knowledge scores indicating there is a significant increase in knowledge regarding pulmonary rehabilitation after administering the structure teaching programme.

**4. Association between knowledge score and demographic variables of COPD patients regarding pulmonary rehabilitation**

| Table 4-: Association between demographic variables and level of knowledge. | | | | | | | N=50 | | |
|---|---|---|---|---|---|---|---|---|---|
| Demographic variables | | Level of Knowledge | | | | | | Chi-Square Value | Significance |
| | | Inadequate | | Moderate | | Adequate | | | |
| | | N | % | N | % | N | % | | |
| Age | 20 -30 yrs | 1 | 20.00 | 3 | 60.00 | 1 | 20.00 | $x^2$=4.386 P=0.6246 | Not significant |
| | 31 -40 yrs | 5 | 25.00 | 14 | 70.00 | 1 | 5.00 | | |
| | 41- 50 yrs | 4 | 25.00 | 10 | 62.50 | 2 | 12.50 | | |
| | Above 51 yrs | 4 | 44.44 | 3 | 33.33 | 2 | 22.22 | | |
| Gender | Male | 10 | 30.30 | 19 | 57.58 | 4 | 12.12 | $x^2$= 0.280 P=0.8693 | Not significant |
| | Female | 4 | 23.53 | 11 | 64.71 | 2 | 11.76 | | |
| Educational Status | Illiterate | 8 | 53.33 | 6 | 40.00 | 1 | 6.67 | $x^2$=15.43 P=0.017 | Significant |
| | Primary | 4 | 25.00 | 11 | 68.75 | 1 | 6.25 | | |
| | Secondary | 2 | 11.11 | 13 | 72.22 | 3 | 16.67 | | |
| | Graduate | 0 | 0.00 | 0 | 0.00 | 1 | 100.0 | | |
| | Others | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | | |
| Socioeconomic Status | Below Rs.5000/- | 7 | 33.33 | 11 | 52.38 | 3 | 14.29 | $x^2$=5.742 P=0.2193 | Not Significant |
| | Rs.5000/- to 10000/- | 5 | 21.74 | 17 | 73.91 | 1 | 4.35 | | |
| | Above Rs.10000/- | 2 | 33.33 | 2 | 33.33 | 2 | 33.33 | | |
| Marital status | Unmarried | 1 | 25.00 | 2 | 50.00 | 1 | 25.00 | $x^2$=8.389 P=0.0783 | Not Significant |
| | Married | 13 | 28.89 | 28 | 62.22 | 4 | 8.89 | | |
| | Separated | 0 | 0.00 | 0 | 0.00 | 1 | 100.00 | | |
| | Divorce | 1 | 25.00 | 2 | 50.00 | 1 | 25.00 | | |
| Type of occupation | Un-employed | 7 | 50.00 | 4 | 28.57 | 3 | 21.43 | $x^2$=17.39 P=0.007 | Significant |
| | Labor | 2 | 11.76 | 14 | 82.35 | 1 | 5.88 | | |
| | Farmer | 5 | 27.78 | 12 | 66.67 | 1 | 5.56 | | |
| | Professional | 0 | 0.00 | 0 | 0.00 | 1 | 100.0 | | |
| | Retired | 0 | 0.00 | 0 | 0.00% | 0 | 0.00 | | |
| Duration of illness | > 1 yrs | 6 | 75.00 | 1 | 12.50 | 1 | 12.50 | $x^2$ =13.76 P=0.008 | Significant |
| | 1 to 5 yrs | 7 | 25.00 | 19 | 67.86 | 2 | 7.14 | | |
| | < 5 yrs | 1 | 7.14 | 10 | 71.43 | 3 | 21.43 | | |

Table 4 depicts the association between demographic variables and the level of knowledge. Educational status (*P=0.017*), type of occupation (*P=0.007*), and duration of illness (*P=0.008*) were significantly associated with the level of knowledge.

## DISCUSSION
The findings of the present study are supported by another study conducted by **Karpukkarasi, Karpukkarasi & N. Arasumani (2020)** conducted a study on the effectiveness of a structured teaching program on knowledge regarding pulmonary rehabilitation among patients with chronic

obstructive pulmonary disease. Results show that in the pre-test, out of 60 patients, 45 (75.0%) had inadequate knowledge, 15 (25.0%) had moderate knowledge and none of the patients had adequate knowledge. In the post-test, out of 60 mothers, 46 (76.7%) had adequate knowledge, 14 (23.3%) had moderate knowledge and none of the mothers had inadequate knowledge. In the present study, the result shows that in the majority of patients 60% have a moderately adequate level followed by 12% have an adequate knowledge level in the pre-test while in the post-test 44% have an adequate knowledge level and 56% have moderately adequate knowledge level. Significant improvement was found in the knowledge of pulmonary rehabilitation among COPD patients.

**Priya et. Al., 2021** to assess the Effectiveness of Structured Teaching Programme on Knowledge Regarding COPD and Pulmonary Rehabilitation among COPD Patients in Selected Hospitals of District Hoshiarpur, Punjab. Results show that the mean pre-test knowledge score was 13.0 lower than the mean post-test knowledge score of 22.2 with a mean difference of 9.2. In the present study, the mean pre-test score of knowledge regarding pulmonary rehabilitation was 14.7 and the post-test mean score was 20.1 respectively. Enhancement was computed by using a paired 't' test at 0.05 level of significance and it was found to be 5.4, indicating that there is a significant improvement in the knowledge of pulmonary rehabilitation among COPD patients (Murali & Udayakumaran, 2019). The findings of the present study are supported by one more study conducted by **Elango G. (2018)** conducted a study to assess the effectiveness of a structured teaching program on knowledge regarding pulmonary rehabilitation among patients with chronic obstructive pulmonary disease in selected hospitals at erode district. In this study, there is only a significant association between education status, type of occupation, and duration of illness on Knowledge Regarding Pulmonary Rehabilitation among Patients with Chronic Obstructive Pulmonary Disease. In the present study educational status ($P=0.017$), type of occupation ($P=0.007$), and duration of illness ($P=0.008$) were significantly associated with the level of knowledge.

## CONCLUSION

The study concluded that the structured teaching program was effective in bringing the desired changes in the knowledge regarding pulmonary rehabilitation among patients diagnosed with chronic obstructive pulmonary disease. The positive outcomes in knowledge improvement could potentially lead to better adherence to rehabilitation protocols, improved self-management, and ultimately enhanced quality of life for individuals with COPD. The findings of such studies contribute valuable insights into healthcare practices, helping to refine and optimize interventions for better patient outcomes.

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