

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

Madhu Rajput¹, N Vijaya Prasanthi, Adarsh Kumar,

Kesani Vanaja Lakshmi Durga Bhavani, Prabakaran N, Akurathi Mary Madhuri,

Faculty of Nursing, Rama University Madhana Kanpur Nagar Uttar Pradesh. UP 209217

madhu.rcn@ramauniversity.ac.in

Abstract

A quasi experimental research design was adopted for the study. The study was conducted in tertiary hospitals of Kanpur. The sample of the study well COPD (who are fulfilled the inclusion criteria between the age group of 25yrs -55yrs) the purposive sampling technique 56 samples are experimental group and 56 are considered control group. The aim of the study was to assess the knowledge of COPD patients regarding pulmonary rehabilitation. Methods: Pre experimental design of one group pre and posttest group design was selected for the study. Evaluative approach was adopted for the study. the data collection instrument was the structured interview to assess the knowledge on pulmonary rehabilitation the results revealed that in the post test of the experimental group, the overall mean 39.46 with SD: 0.738 in control group the overall mean 17.52 with SD 3.722 the impaired T-test value was $t=37.808$ experimental group the $T=3.810$ control group its depicts the + there is significant difference between the experimental and control group so that the computer based education is effective the past test of dyspnea scale in experimental group over all mean 0.58 with SD: 0.499 in control group over all mean 1.63 with SD:1.396. the impaired T test value was $t=14.402$ experimental group. The $T=1.264$ control group based education programme effective. The past test of cat scale in experimental group mean 9.21 SD=2.213, control group cat scale means 25.88 SD=5.596 increased control group effective.

Keywords: Video based education, Develop & Enhance knowledge, pulmonary rehabilitation, COPD Patients.

Introduction

When a child is born, it cries to take its first breath which continues till death. The respiratory process is thus vital for human survival. The lung takes the important role in maintaining respiration from the birth. As the child grows the lung capacity and function also improves, but due to many factors the vital part corrupted. Respiratory problems are widespread in current scenario due to pollution, Climatic changes, allergy etc¹. The human respiratory system not only provides oxygen to each cell of the body but also removes body wastes, filters out infectious agents, and provides air needed for speech. Although the lungs are able to withstand abuse in the form of smoke and other pollutants, a number of disorders impair its function². Some of these maladies are temporary and relatively harmless while others may be life-threatening. Any chronic breathing problem or other cough should be checked³. Respiration in simple terms is the act of breathing, a vital function of the body which helps to supply oxygenated blood to the various organs, and aids in elimination of carbon dioxide from the body⁴. Chronic obstructive pulmonary disease is a type of obstructive lung disease where the airways become damaged causing them to narrow.⁵ The world department reported that chronic obstructive pulmonary disease is an umbrella term for diseases that impair lungs and leave people feeling breathlessness. Currently 64 million people are

affected with COPD worldwide, in India almost 24 million adults who are over the age of 40. Chronic obstructive pulmonary disease is predominantly a disease of men and only 40% of cases in India occur among women. Much more than a smoker's cough, it will become the 3rd leading cause of death by 2030⁶. Pulmonary rehabilitation plays a key role in the management of chronic obstructive pulmonary disease. Health-related quality of life outcomes related to pulmonary rehabilitation explores five themes: optimizing pulmonary rehabilitation components to improve health-related quality of life, characterization of a responder phenotype, suitability of pulmonary rehabilitation following acute exacerbations, exploration of psychological and behavioral mechanisms explaining pulmonary rehabilitation benefits, and long-term maintenance of health-related quality of life benefits after pulmonary rehabilitation.⁷ Pulmonary rehabilitation is a multidimensional continuum of services, directed to persons with pulmonary disease and their families usually by an interdisciplinary team of specialists, with the goal of achieving and maintaining the individual's maximum level of independence and functioning in the community. Pulmonary rehabilitation improves the sense of control of a patient over their disease, as well as their emotions.⁸ A qualitative study was conducted on "self-management behaviors for patients with chronic obstructive pulmonary disease, among 18 patients in College of Nursing, Taiwan. The study concluded that the participants are experts on their lives and, as such, they adopt appropriate disease control behaviors, based on their experience, knowledge, as well as integrate the illness and its symptoms into their lives."⁹

A study conducted on "effects of home-based pulmonary rehabilitation in patients with COPD" in Canada. A sample of 252 cases were selected and questionnaire dyspnea sub scale analysis was done. The study reveals that after 4 weeks of education programme, patient took part in home based rehabilitation or out patient, hospital- based rehabilitation for 8-weeks. The study results revealed that both interventions produced similar improvements in the chronic respiratory questionnaire dyspnea subscale; improvement in dyspnea of 0.62 (95% CI, 0.43 to 0.80) units in the home intervention (n=107) and 0.46 (CI, 0.28 to 0.64) units in the outpatient intervention (n= 109). The study concluded that home rehabilitation is a useful, equivalent alternative to outpatient rehabilitation in patients with COPD¹⁰.

Methodology

Research Approach

A quantitative evaluative research approach was considered appropriate for the present study was conducted effectiveness of structured teaching programme on pulmonary rehabilitation among patients with chronic obstructive pulmonary disease in selected Kanpur hospital UP.

Research Design

A quasi experimental study, Pretest and Posttest design.

Research Setting

The present study was conducted at Kanpur Hospital up.

Population

The population of the present study comprises of patients with COPD who were attending the Pulmonary and Medicine Outpatient department and admitted in wards in a selected at Kanpur Hospital UP.

Sample Size

The Total sample used for the study was 112 patients with Chronic Obstructive Pulmonary disease. The assigned samples in experimental group 56 and control group 56.

Sampling Technique

Purposive sampling technique was used for the study.

Sampling Criteria**Inclusion Criteria**

- Patients with chronic obstructive pulmonary disease who are willing to participate in the study and present at the time of data collection.

Patients with chronic obstructive pulmonary disease who can understand Hindi and English.

- Both male and female patients.

Exclusion Criteria

- Patients with Chronic obstructive pulmonary disease who are seriously ill.

Description of the Tool

Section A

The structured questionnaire consists of closed ended questions to elicit the information on demographic data. It consists of demographic variables like a age, gender, education, marital status, occupation, history of smoking, co morbid conditions and BMI.

Section B

Knowledge questionnaire regarding pulmonary rehabilitation. Section C Modified Medical Research Council Dyspnea Scale comprises of 5 statements regarding Breathlessness. Grade>2 or equal is consider as High risk.

Section D

COPD assessment test is a standardized scale which includes 8 subjective statements regarding symptoms of COPD. If score >30 is, consider as very high risk. Score<10 is consider is low risk.

Section E

Structured teaching programme on Pulmonary rehabilitation refers to educating the chronic obstructive pulmonary disease patients on breathing retraining and bronchial hygiene technique, respiratory muscle training, nutritional counseling, guidelines for cessation of smoking, alcohol and beverages, stress relaxation techniques for 30 Minutes.

Method of Data Collection

112 patients with COPD was selected using simple random sampling technique. Among Patients with COPD in Pulmonary unit considered as Experimental group and Medical unit patients considered as control group to prevent sample contamination. The objective of the study was explained and Informed consent was obtained from both the groups. Demographic data was collected by using structured

questionnaire, Breathlessness and COPD patient quality of life was assessed by using standardize scale such as CAT assessment and dyspnea scale. The experimental group was divided and was given Structured teaching programme on Pulmonary rehabilitation for 30 minutes on Day1 and Day 8. The Posttest was assessed on day 15 in both experimental and control group. The nurse investigator thanked the participants for their cooperation throughout the data collection period.

Statistical Analysis

A statistical software programme (SPSS) was used for data analysis. Descriptive statistics was used to analyze Frequency, Percentage, and Mean in all the aspects such as demographic variables, level of knowledge among experimental & control group. Chi-square used to identify the association between the selected demographic and the level of knowledge.

Results and Discussion

The majority (54%) patients were in the age group of 36-45yrs in experimental group. In control group majority (57%) of patients were in the age of 46-55 years. The mean age and Standard deviation as 43.51(6.65) in experimental group and 46.14(5.95) in control group. The majority 96 % of the patients were married in experimental group and 98% of the patients were married in control group. 57% of the patients were in the primary school in experimental group and In control group majority 53% of the patients were primary school. Majority 53% of the patients were private employee in experimental group, In control group majority 54% of the patients were private employee. 43% of the patients were getting below Rs. 8000 in experimental group and control group majority 61% of the patients were getting Rs.8001-12000. 63% of the patients were not having habit of smoking and 27% of them having history of smoking in experimental group. In control group 80% of the patients were not having habit of smoking and 20% had habit of smoking. The majority i.e. 57% of the patients having obstructive sleep apnoea, 23% of them were having hypertension and 20% of them were having diabetes in the experimental group. In control group majority 54% of the patients were having obstructive sleep apnoea, 34% of them were having hypertension and 12% of them were having diabetes. The majority 57% of the patients was having COPD for the past 4-5 years and In control group majority 71% of them were having 4-5 years. The majority 88% of the patients were normal weight, In control group majority 86% of the patients were normal weight, The mean BMI and Standard deviation as 25.08 + 2.77 in experimental group and 23.39 + 3.24 in control group.

The study findings showed that majority of the patients pre and posttest level of knowledge in the experimental and control group. The pretest mean value of knowledge as 16.79 and standard deviation 4.499 posttest level of mean 39.46 and standard deviation 0.738 the value of t is -37.80 which has statistically significant at $p < 0.001$. In experimental group, Dyspnea grade depicts the pretest mean value as 1.98 and standard deviation 0.522 and posttest level of mean 0.57 and standard deviation 0.499 the value of t is -14.402, where as in control group the pretest means as 1.88 and standard deviation 0.605 post test level of mean 1.63 and standard deviation 1.396 the value of t is -1.264 which has not statistically significant at $p > 0.001$. A study aimed to determine the effects of a comprehensive eight-week pulmonary rehabilitation program on the physiologic response to and performance of ADLs in patients with COPD. Methods Before and after pulmonary rehabilitation, 31 patients with COPD (71% men; mean age: 64.2±8.4 years; mean FEV1: 54.6±19.9% predicted) performed physical function tests, the Canadian Occupational Performance Measure (COPM) and an ADL-test. After rehabilitation, patients with COPD used a significantly lower proportion of their peak aerobic capacity and ventilation to perform ADLs, accompanied by lower Borg scores for dyspnea and fatigue. The study concluded that the comprehensive

pulmonary rehabilitation program can improve the physiologic response to and actual performance of ADLs in patients with COPD¹¹.

A study conducted on “education in pulmonary rehabilitation: the patient’s perspective” in Ireland. A sample of 32 patients with COPD were selected and educated about pulmonary rehabilitation. The study reveals that patients had deficit knowledge, understanding and management of their disease. So the researcher educated about management of breathlessness, management of exacerbations, medications, and psychological support, welfare and benefits systems. The study concluded that subject’s gained knowledge regarding pulmonary rehabilitation after pulmonary rehabilitation education programme. Both the study results reveals that there was a significant difference between the pretest and Posttest level of knowledge and CAT score and dyspnea Grade in the experimental group which indicates that pulmonary rehabilitation can be implemented in management of patients with COPD.

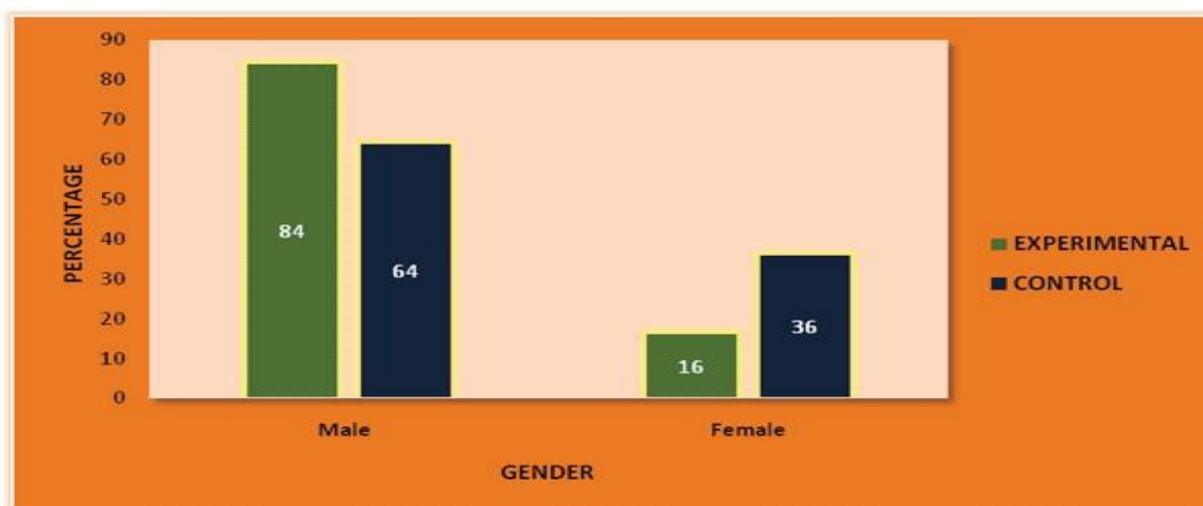


Fig: Percentage distribution of samples with reference to gender.

GROUP	PARAMETERS	PRETEST		POST TEST	
		Mean	SD	Mean	SD
Experimental	Knowledge level	16.79	4.499	39.46	.738
Control		15.07	3.562	17.52	3.722
Experimental	CAT score	24.38	3.333	9.21	2.213
Control		24.05	3.544	25.88	5.596
Experimental	Dyspnea scale	1.98	.522	.58	.499
Control		1.88	.605	1.63	1.396

Mean and Standard Deviation regarding pre and post-test level of knowledge on Pulmonary Rehabilitation, CAT score and dyspnea Grade among patients with chronic obstructive pulmonary disease in experimental and control group.

References

1. Joyce M. Black, June Hokanson Hawks, Medical – Surgical Nursing, 8th edition, Clinical management for positive outcomes, page no: - 1577-1591.
2. Maton Anthea, Hopkins Jean Susan, Johnson Charles William, McLaughlin Maryanna Quon, Warner David, LaHart Wright Jill. Human Biology and Health. Englewood Cliffs: Prentice Hall. 2010, 108-118
3. Porth CM, Matfin G. Pathophysiology: Concepts of altered health states (8th ed.). Philadelphia: Lippincott Williams & Wilkins. 2009.
4. West JB. Respiratory physiology: The essentials. Edn 8 Philadelphia: Lippincott Williams & Wilkins. 2008
5. British lung foundation.2011; Available from:<http://www.lunguk.org/you-and-your-lungs/conditions-and-disease>.
6. Epidemiology: COPD in India. [online]. 2011 April; Available from: <http://www.bioportfolio.com/news/article/635370/epidemiologycopd>.
7. Moullec G, Laurin C, Lavoie KL, Ninot G. Effects of pulmonary rehabilitation on quality of life in chronic obstructive pulmonary disease patients. Curr Opin . 2011 Mar; 17(2): 62
8. Pulmonary rehabilitation. [online]. 2010 Apr; Available from <http://www.emedicine.medscape.com/article/319885=overview>.
9. Chen KH, Chen ML, Lee S, Cho HY, Weng LC. Self-management behaviors for patients with chronic obstructive pulmonary disease. J Adv Nur. 2008 Dec;64(6):595-604.
10. Francois Maltais, Jean Bourbeau, Stan Shapiro, Yves Lacasse, Helene Perrault, Marc Baltzan “et al”. Effects of home-based pulmonary rehabilitation in patients with chronic obstructive pulmonary disease. American College of Physicians. 2008 Dec; 149:1-56.
11. N.J. Roberts, K. Kirkwood, J. Cross, M.R. Partridge. 2018.A systematic review of the content and delivery of education in pulmonary rehabilitation programmes. Respiratory medicine. Volume 145, Pages 161–181.