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A STUDY TO ASSESS THE EFFECTIVENES OF DEEP BREATHING EXERCISE ON PEAK EXPIRATORY FLOW RATE AMONG PATIENT WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) AT GOVERNMENT VILLUPURAM MEDICAL COLLEGE AND HOSPITAL, MUNDIYAMPAKKAM

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Key word:

Effectivenes, deep breathing exercise, peak expiratory flow rate, patient, chronic obstructive pulmonary disease AIM: Effectivenes of deep breathing exercise on peak expiratory flow rate among patient with chronic obstructive pulmonary disease.

ABSTRACT

Respiration is the mechanism whereby air flows between the atmosphere and the alveoli of the lungs. Normal respiratory rate for adult is about 20 breaths per minute which is controlled by respiratory pacemaker, medulla oblongata. Normal respiration is affected as a result of short term infections and long term respiratory diseases. As respiratory disease is a significant chronic health problem in our society, chronic respiratory disease is found to be one of the most distressful conditions, badly affecting human life. Respiratory diseases such as COPD and asthma are the major health problems in India. While, COPD ranks 5th biggest killer disease worldwide.World Health Organization (2020) defines chronic obstructive pulmonary disease as a lung disease characterized by chronic obstruction of lung airflow that interferes with normal breathing and is not fully reversible. A quantitative research method used for this study in the true experimental design (pre-test-Post-test design). A formal permission was obtained from the concerned authority of the hospital and study participants, the data was collected by using structured demographic and clinical variables questionnaire, modified borg dyspnea scale and peak expiratory flow meter among the chronic obstructive pulmonary disease patients. The samples was divided in to two groups 30 were in experimental group and 30 were in control group. Pretest was conducted to both group of samples and there searcher intervened Modified borg dyspnea scale and peak expiratory flow meter to experimental group and control group received routine treatment. Post-test was conducted on 5th day. Deep breathing exercise was demonstrated to 6 - 8 samples per day. Data was collected from 9.00 am to 1.00 pm.

INTRODUCTION

Breathing is fundamental to life. Breathing is one of the most important functions of our body. It is a slow, regular, diaphragmatic, invisible and inaudible otherwise

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referred as respiration. Each day we breathe about 20,000 times. A person can live only for 5 to 10 seconds without breath. A good respiratory cycle accounts for about 8-10 seconds. The respiratory center in the brainstem responsible for controlling a person's respiration. According to the control of respiration is automatic, involuntary and continuous, seeming effortless on inspiration and expiration. The respiration and pattern of the respiration,



respiratory rate are notable vital sign in determining general health status. Currently, respiratory rate has been referred to as a 'neglected vital sign' which is often overlooked, despite its potential utility in the early recognition of changes in disease state. Hence, patients with COPD will be benefitted with early participation in breathing exercise programme as it may tend to alleviate dyspnea and improves the respiration. It also helps in reduction in exacerbations where persons activity is convincingly limited

Objectives:

- To assess the respiratory rate, level of dyspnea and lung capacity among patients with Chronic obstructive pulmonary disease.
- To effectiveness of deep breathing exercise on respiratory rate, level of dyspnea and lung capacity among patients with Chronic obstructive pulmonary disease in experimental group.
- To associate the pretest level of respiratory rate, level of dyspnea and lung capacity among patients with Chronic obstructive pulmonary disease with their selected demographic variables and clinical variables.

Assumptions:

- The patients with chronic obstructive pulmonary disease may have dyspnea.
- The patients with chronic obstructive pulmonary disease may have decreased lung capacity.
- Deep breathing exercise may slow down the exhalation phase of respiration which is helpful for decreasing shortness of breath.
- Respiratory rate, level of dyspnea and lung capacity of patients with Chronic obstructive pulmonary disease will be influenced by selected demographic variables.

Research Hypotheses:

- H1 : There is a significant difference between mean Pre-test and posttest scores of respiratory rate, level of dyspnea and lung capacity among patients with Chronic obstructive pulmonary disease in experimental and control group.
- H2 : There is a significant difference between mean Post-test scores of level of dyspnea and lung capacity among patients with Chronic obstructive pulmonary disease in experimental and control group.

Conceptual Frame Work:

The conceptual framework is the processor of the theory. It provides a broad perspective for nursing practice, research and education. Conceptual frame work plays several interrelated roles in the progress of science. Their overall purpose is to make scientific findings meaningful and generalizable.

Development and Description of the Tool:

The research instrument is developed in English after extensive review of literature and experts' opinion. The structured demographic questionnaire and Numerical Pain Rating Scale was used as an instrument to assess the post-operative pain.

It Consists of the Following 3 Sections: Section A: Demographic Variables

A structured questionnaire was used to collect the demographic variables which includes 10 items such as age, gender, religion, educational status, occupation status, income, types of family.

Section B–Clinical Variables.

It consisted of 9 items seeking information about the chronic obstructive pulmonary disease such as Smoking history, Duration of respiratory illness in years, Number of previous hospitalization due to acute exacerbation of COPD, Reason for admission, Season of exacerbation, Other triggers for exacerbation and Sleep disturbance comorbidity, treatment modalities.

Section C-Modified borg's dyspnea scale.

The Modified borg's dyspnea scale is a valid and reliable assessment tool for dyspnea. The principle of selfrating is used to describe the degree of dyspnea by the patient himself which is an important link in quantifying the complex feeling of being short of breathor having dyspnea. It consists of11 items with an option including nothing at all level of dyspnea to maximal level of dyspnea of total score 0-10.

Section D incentive peak flow meter:

A Peak flow meter is a device, which records the peak or maximal flow during a force expiratory manoeuvre.

Table 1: Frequncey and Percentage of Sample According to Deep Breathing Exercise of Pre and Post-test. (n=60)

S NO	LEVEL OF DEEP	EXPERIMENTAL GROUP				
	BREATHING	PRE-	TEST	POST	-TEST	
	EXERCISE RATE	f	%	f	%	
1	Mild (1-4)	0	0	28	93	
2	Moderate(5-6)	3	10	2	7	
3	Severe(7-10)	27	90	0	0	



S NO	LEVEL OF DEEP	CONTROL GROUP					
	BREATHING	PRE-TEST		POST-TEST			
	EXERCISE RATE	f	%	f	%		
1	Mild (1-4)	0	0	0	0		
2	Moderate (5-6)	6	20	4	13		
3	Severe (7-10)	24	80	26	87		

Table 2: Frequncey and Percentage of Sample According to Deep Breathing Exercise Rate of Pre and Post-test (n=60)

 Table 3: Frequency and Percentage Distribution of Sample Based on Level of Peak Expiratory Flow Rate Pre and Posttest (n=60)

S NO	LEVEL OF PEAK	EXPERIMENTAL GROUP					
	EXPIRATORY FLOW	PRE-	TEST	POST-TEST			
	RATE	f	%	f	%		
1	Below normal (1)	30	100	0	0		
2	Normal (2)	0	0	13	43		
3	Above normal (3)	0	0	17	57		

Table 4: Frequency and Percentage Distribution of Sample Based on Level of Peak Expiratory Flow Rate Pre and Post-
test (n=60)

	LEVEL OF PEAK		CONTRO	OL GROUP	
S NO EXPIRATORY FL		PRE	TEST	POST-TEST	
	RATE	F	%	F	%
1	Below normal (1)	30	100	30	100
2	Normal (2)	0	0	0	0
3	Above normal (3)	0	0	0	0

 Table 5: Mean and Standard Deviation of Deep Breathing Exercise Rate of the Sample Pre-test and Post-test and level of Significance (n=60)

S NO	INTERVENTION	EXPERME	NTAL GROUP	MEAN	PAIRED T TEST
		MEAN	SD	DIFFRENCE	(P<0.05) df=58
1	Pre-test	8.16	1.59		
2	Post-test	2.3	1.59	5.86	79.082

Shows the mean and standard deviation of peak expiratory flow rate of the sample pre and Post-test.

TABLE 6: Mean and Standard Deviation of Deep Breathing Exercise Rate of the Sample Pre-test and Post-test and
Level of Significance (n = 60)

S NO	INTERVENTION	CONTROL GROUP		MEAN	PAIRED T TEST
		MEAN	SD	DIFFRENCE	(P<0.05) df=58
1	Pre-test	8.0	2.24		
2	Post-test	8.13	1.59	0.13	79.082

Shows the mean and standard deviation of peak expiratory flow rate of the sample pre and Post-test.

 TABLE 7: Mean and Standard Deviation of Peak Expiratory Flow Rate of the Sample Pre And Post-test and Level of Significance (n=60)

S NO	INTERVENTION	EXPERMENTAL G	ROUP	MEAN DIFFRENCE	PAIRED T TEST
		MEAN	SD		(P<0.05) df=58
1	Pre-test	183.3	2491.8		
2	Post-test	613.6	7196.3	430.3	79.082

Shows the mean and standard deviation of p[eak expiratory flow rate of the sample pre and Post-test.



Significanc	e (n=60)				
S NO	INTERVENTION	CONTROL GROUP		MEAN DIFFRENCE	PAIRED T TEST
		MEAN	SD		(P<0.05) df=58
1	Pre-test	208.3	2807.4		
2	Post-test	244	2438.6	35.7	79.082

Table 8: Mea	n and Standard Deviation of Peak Expiratory Flow Rate of the Sample Pre and Post-test and Level of
Significance	(n=60)

Shows the mean and standard deviation of p[eak expiratory flow rate of the sample pre and Post-test.

Figure 1: Frequency percentage distribution of deep breathing exercise rate Pre and Post-test in experimental group.



Figure 2: Frequency percentage distribution of deep breathing exercise rate pre and Post-test in control group.



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Figure 3: Frequency percentage distribution level of peak expiratory flow rate Pre-test and Post-test in experimental group

Figure 4: Frequency percentage distribution level of peak expiratory flow rate of pre and Post-test in control group



RESULT AND DISCUSSION:

Assessment of deep breathing exercise rate frequency and percentage distribution of sample base on level of deep breathing exercise rate pre-test and post-test

The above table reveals that the frequency and percentage of deep breathing exercise rate majority of the sample Pre-test 27(90%) severe (7-10) and 3(10%) moderate (5-6). And Post-test majority of the sample 28(93%) mild (1-4) and 2(7%) moderate (5-6).

The above table reveals that the frequency and percentage of deep breathing exercise rate majority of the sample Pre-test 24(80%) severe (7-10) and 6(20%) moderate (5-6). And Post-test majority of the sample 26(87%) severe (7-10) and 4(13%) moderate (5-6).

The above table reveals that the frequency and percentage of peak expiratory flow rate majority of the sample Pre-test 30(100%) below normal (1).And Post-test

majority of the sample 17(57%) above normal (3) and 13(43%) normal (2).

The above table reveals that the frequency and percentage of peak expiratory flow rate majority of the sample Pre-test 30(100%) below normal (1). And Post-test majority of the sample 30(100%) below normal (1).

CONCLUSION:

The findings of the study concluded that there were significant differences found in the mean score of peak expiratory flow rate before and after intervention. It was quiet clear that deep breathing exercise used to improve the peak expiratory flow.

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