

Effectiveness of Deep Breathing Exercise among Chronic Obstructive Pulmonary Disease patients at Selected hospitals, Chennai.

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Abstract

In this study quasi experimental, non randomized control group pre test-post test design was adopted. The study include 60 samples patients who were selected by purposive sampling technique .the study was conducted in Sathyabama General Hospital, Chennai demographic data ,modified dyspnea Borg scale and intervention for deep breathing exercise these are method used for data collection procedure. the tool was finalized of five medical and nursing experts and pilot study for the its clarity ambiguity and feasibility on similar subject to analyse the experimental data statistical analysis was used Modified Borg scale was used to evaluate the dyspnea. Experimental group received intervention of deep breathing exercise for 25 minutes twice a day for without treatment

The control group the per test scores on the level of breathing pattern very severe were 4(13.3%) had very very severe, 8(26.7%) had maximum, 6(20%) had almost maximum 12(40%). whereas in post test scores on the level of moderate breathing were 6(20%) had very severe breath, 4(13.3%) had very very severe breath, 8(26.7%) had maximum 12(40%) respectively. In experimental group the pre test scores on the level of breathing pattern moderate were 2(6.7%) had somewhat severe, 3(10%) had moderate very very severe, 5(16.7%) had maximum breathing pattern 9(30%) had almost maximum 11(36.7). whereas in post test scores on the level of very very slight were 12(40%) had slight breath 10(33.3%) had moderate breathing pattern 6(20%) had severe breathing pattern and no one maximum breathing pattern respectively.

The calculated 't' values in the control group were 2.07 which are not significant. It is concluded that there was no significant differences between the pre and post test level of breathing pattern among chronic obstructive pulmonary disease patients. The calculated 't' value in the experimental group were 2.64 was statistically significant at $p < 0.05$ level which clearly shows that there was a significant reduce in the level of breathing pattern among patients among chronic obstructive pulmonary disease after giving breathing exercise .Hence H1 is accepted.

The obtained 't' values for level of pain between the control and experimental group is 4.51 which were highly significant at $p < 0.05$ level. These findings revealed that the subjects in experimental group had decreased level of breathing pattern after giving breathing exercise compared to control group. Hence research hypothesis H2 is accepted

INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is a progressive inflammatory disease characterized by chronic obstruction in the peripheral bronchus and pulmonary emphysema. The disease is disabling with symptoms such as chronic cough, phlegm, wheezing, shortness of breath, and increased infections of the respiratory passage. Changes in the lungs result in mucus hypersecretion, dysfunction of the cilia, airflow limitation and hyperinflation of the lungs, gas exchange abnormalities, pulmonary hypertension, and cor pulmonale. Persons with COPD are greatly underestimated because the disease is usually not diagnosed until it is moderately advanced. Patients usually seek medical help when they have an acute respiratory infection, with dyspnea being the main concern. Dyspnea is often progressive, and initially occurs with exertion, gradually interferes with daily activities and in late stages, dyspnea may be present at rest also. The person becomes more of a chest breather, relying on the intercostals and accessory muscles rather than effective abdominal breathing. Breathing exercises may assist the patient during rest and activity by decreasing dyspnea, improving oxygenation, and slowing the respiratory rate. This study will be able to evaluate the effectiveness of deep breathing exercises to improve the breathing pattern among chronic obstructive pulmonary disease □

RESEARCH METHODOLOGY

RESEARCH APPROACH

The researcher approaches is a adopted a quantitative evaluative approach.

RESEARCH DESIGN

The research design is the overall plan, structure and method of investigation of answers the research question or problem. For this study research design is quasi experimental. Pre experimental (one group pre and post test) design will be used for the study.

SCHEMATIC REPRESENTATION OF THE STUDY

The Schematic representation of the study design is given below.

VARIABLES UNDER THE STUDY

Independent variables

An independent variables is a variables that is manipulated to determine the value of a dependent variables deep breathing exercise

Dependent variable

A dependent variables is what you measure in the experiment and what is affected during the experiment chronic obstructive pulmonary disease (breathing difficulty)

Demographic variables :

Personal statistics that includes information like income level, location, ethnicity, race and family size. Age, sex, education, marital status, occupation, previous history of smoking habits, continuous breathing difficulty presented, income of the family, previous history of respiratory disease

SETTING OF THE STUDY

The research will be conducted at Sathyabama General Hospital, Chennai. The samples for the experimental group will be selected from Sathyabama General Hospital in Chennai

Sample

The sample selected for the present study was 60 patients admitted in Sathyabama General Hospital, Chennai.

Sample size

A sample of 60 chronic obstructive pulmonary disease patients who fulfilled the criteria were selected (30 samples for the experimental group and 30 samples for the control group) Total number of samples includes is 60

Sample technique

The sampling technique adopted for this study is non probability purposive sampling technique

Sampling criteria

The study samples will be selected in accordance to view of the following pre determined criteria

Inclusion criteria

- Patients who are available during the period and data collection.
- Patients affected with Chronic obstructive pulmonary disease who are willing to participate in this study
- Patients those who are able to understand and speak Tamil or English

Exclusion criteria

- Patients who are critical condition.
- Patients using any other complementary treatment
- Patients who were absent at the time of data collection

POPULATION

Target population

Here the target population is chronic obstructive pulmonary disease patients at selected hospitals, Chennai

Accessible population

Here Chronic obstructive pulmonary disease patients who are having breathing problem at selected hospitals, Chennai is considered as Accessible population

DATA COLLECTION INSTRUMENT

Structured interview schedule will be used to collect the personal variables and observation technique will be used to assess breathing pattern Data will be collected by using following tools:

Section I: Personal Performance will be used to assess personal variable. (demographical variables)

Section II: Breathing pattern will be assessed using modified Borg dyspnea scale

DATA ANALYSIS

Collected data were analyzed by descriptive and inferential statistics. The data related to demographic variables were analyzed by using descriptive measures (frequency, percentage distribution). Inferential statistics of t-test was used to evaluate the effectiveness of deep breathing exercise on level of breathing difficulty. Chi-square test was used to associate the level of breathing difficulty among patients' chronic

obstructive pulmonary disease and their selected demographic variables.

RESULT AND DISCUSSION

OBJECTIVE – I

Demographic variables of chronic obstructive pulmonary patients in experimental and control group.

Table: 1 Distribution offrequency and percentage for chronic obstructive pulmonary patients according to their Demographic variables.

SL. NO	DEMOGRAPHIC VARIABLES	CONTROL GROUP		EXPERIMENT GROUP	
		FREQUEN CY	PERCENTAGE	FREQUENCY	PERCENTAGE
1.	Age in (years):				
	a) 1 - 15	5	16.7	4	13.3
	b) 16- 30	6	20	8	26.7
	c) 31- 45	10	33.3	9	30
	d) 46 and above	9	30	9	30
2.	Gender:				
	a. Male	14	46.7	17	56.7
	b. Female	16	53.3	13	43.3
	c. Others	0	0	0	0
3.	Educational status :				
	a) Illiterate	8	26.7	8	26.7
	b) Primary	6	20	7	23.3
	c) High school	7	23.3	9	30
	D) Higher secondary	9	30	6	20
4.	Marital status :				
	a) Married	15	56.6	22	73.3
	b) Un married	6	20	6	20
	c) Divorce	5	16.7	0	0
	d) Widow	4	13.3	2	6.7
5.	Occupation :				
	a) Industrial workers	8	26.7	9	30

	b) Private employee	7	23.3	8	26.7
	c) Government Employee	6	20	4	13.3
	d) none	9	30	9	30
6.	Monthly income of the Family:				
	a) < 5000	12	40	10	33.3
	b) 5000-10000	9	30	10	33.3
	c) >10000	9	30	10	33.3
7.	Duration of illness :				
	a) < 1 year	9	30	10	33.3
	b) 2-5 year	9	30	10	33.3
	c) 6- 12 year	12	40	10	33.3
8.	Treatment of chronic obstructive pulmonary disease :				
	a) Regular	14	46.7	16	53.3
	b) Irregular	16	53.3	14	46.7
9.	Family history of chronic obstructive pulmonary disease :				
	a) Yes	6	20	12	40
	b) No	24	80	18	60
10.	Smoking habits:				
	a) Yes	12	40	24	80
	b) No	18	60	6	20

11.	Continuous breathing difficulty present at :				
	a) wake up	5	16.7	6	20
	b) walking	4	13.3	7	23.3
	c) sleeping at night time	5	16.7	6	20
	d) exercise	16	53.3	11	36.7
12.	Duration of sleep:				
	a. 6 - 8 hours	5	16.7	7	23.3
	b. 4 - 6 hours	5	16.7	6	20
	c. Less than 4 hours	16	53.3	11	36.7
	d. Disturbed sleep	4	13.3	6	20
13.	Breath holding capacity:				
	a) 30 - 35 sec	0	0	0	0
	b) 25 - 34 sec	0	0	0	0
	c) 20 - 24 sec	7	23.33	10	33.33
	d) 19 - 10 sec	11	36.66	9	30
	e) Below 10 sec	12	40	11	36.6
14	Difficulties felt other than breathlessness:				
	a. Wheezing	5	16.7	6	20
	b. Chest tightness	4	13.3	7	23.3
	c. Rapid weight loss	5	16.7	6	20
	d. All the above	16	53.3	11	36.7

CONTROL GROUP

The above table shows that among 30 samples, with regards to **age** majority belonged to above 46 years 10(33.3%) and With regards to **gender** male 14(46.7%), and female 16 (53.3%) .Regarding **educational** status illiterate 8(26.7%) of them ,6 (20%) of them had primary education, 7(23.3%),of them had high school education and9(30%) had higher secondary education

In relation to **marital status**, 15(56.6%) of the samples belonged to married and Unmarried6(20%) and divorce 5(16.7%) , widow 4(13.3%). With regards to occupational status Industrial workers8(26,7%), private employee,7(23.3%) , government employee,6(20%) and 9(30%) are jobless

About income of the **family monthly**, 12(40%) samples of them are<5000, 9(30%) samples of them belong to 5000-10000 and 9(30%) samples of them are>10000. About **duration if illness** <1year 9(30%) and 2-5 year 9(30%), 6 year 12 (40%) samples. Regarding the **treatment** of chronic obstructive pulmonary disease 14(46.7%) samples are in regular 16(53.3%) samples are in irregular

Regarding the **family history** of chronic obstructed pulmonary disease6(20%) of them were yes and 24(80%) were no. In regarding to **smoking habits** 12(40%) of the samples belonged to yes and 18(60%) of the samples belonged to no. Regarding **continuous breathing** difficulty presented at wake up are 5(16.7%), the samples belonged to walking are 4(13.3%), the sample belonged to, sleeping at night time 5(16.7%) and samples of the belonged to, exercise 16(53.3%)samples

Regarding duration of sleep 5(16.7%) of them sleep 6-8 hours,samples sleeping 4-8 hours are 5(16.7%),16(53.3%) of them sleep less than 4 hours and 4(13.3%) are suffering from disturbed sleep.

Regarding breath holding capacity in samples shows that 2(6.7%) has 30 -35 sec, 3(10%) has 25-29 sec, 5(16.7%) has 20-24 sec, 9(30%) has 19-10 sec and 11(36.7%) shows breath holding capacity below 10 sec. When consider difficulties other than dypnea 5(16.7%) of them shows wheezing, 4(13.3%) shows chest tightness, 5(16.7%) shows rapid weight loss and 16(53.3%) shows all mentioned difficulties.

EXPERIMENTAL GROUP

The above table shows that among 30 samples, with regards to **age** majority belonged to both 31-45 years 9(30%) and above 46 years 9(30%), and With regards to **gender** male 17(56.7%), and female 13 (43.3%) .Regarding **educational** status illiterate 8(26.7%) of them ,7(23.3%) of them had primary education,9(30%)of them had high school education and 6 (20%) had higher secondary education In relation to **marital status**, 22(73.3%) of the samples belonged to married and Unmarried6(20%) and divorce 0(0%) , widow 2(6.7%) With regards to occupational status Industrial workers9(30%), private employee, 8(26,7%), government employee, 4(13.3%) and 9(30%) are jobless About income of the **family monthly**, 10(33.3%) samples of them are<5000, 10(33.3%) samples of them belong to 5000-10000 and 10(33.3%) samples of them are>10000.

About **duration if illness** <1year 10(33.3%) and 2-5 year 10(33.3%), 6 year 10(33.3%) samples.

Regarding the **treatment** of chronic obstructive pulmonary disease16(53.3%) samples are in regular14(46.7%) samples are in irregular .Regarding the **family history** of chronic obstructed pulmonary disease 12(40%) of them were yes and 18(60%) were no. In regarding to **smoking habits**24(80%) of the samples belonged to yes and 6(20%) of the samples belonged to no.

Regarding **continuous breathing** difficulty presented at wake up are 6(20%), the samples belonged to walking are7(23.3%), the sample belonged to, sleeping at night time 6(20%) and samples of the belonged to, exercise 11(36.7%)samples .Regarding duration of sleep 7(23.3%) of them sleep 6-8 hours,samples sleeping 4-8 hours are 6(20%),11(36.7%) of them sleep less than 4 hours and 6(20%) are suffering from disturbed sleep. Regarding breath holding capacity in samples shows that 1(3.3%) has 30 -35 sec, 4(13.3%) has 25-29 sec, 6(20%) has 20-24 sec, 8(26.7%) has 19-10 sec and 11(36.7%) shows breath holding capacity below 10 sec. When consider difficulties other than dypnea 6(20%) of them shows wheezing, 7(23.3%) shows chest tightness, 6(20%) shows rapid weight loss and 11(36.7%) shows all mentioned difficulties.

OBJECTIVE-II

Deep breathing exercise among chronic obstructive pulmonary disease patients in experimental and control group.

Table 2: Frequency and percentage for deep breathing exercise among chronic obstructive pulmonary patients in control and experimental group

LEVEL OF BREATHING PATTERN (score)	CONTROL GROUP				EXPERIMENTAL GROUP			
	PRE TEST		POST TEST		PRE TEST		POST TEST	
	F	%	F	%	F	%	F	%
No breathlessness (0)	-	-	-	-	-	-	-	-
Very very slight (1)	-	-	-	-	-	-	-	-
Very slight (2)	-	-	-	-	-	-	12	40
Slight breath (3)	-	-	-	-	-	-	10	33.3
Moderate (4)	-	-	6	10	2	6.7	2	6.7
Somewhat severe (5)	-	-	-	-	3	10	6	20
Severe breath (6)	-	-	-	-	-	-	-	-
Very severe (7)	4	13.3	4	13.3	-	-	-	-
Very very severe (8)	8	26.7	8	26.7	5	16.7	-	-
Maximum (9)	6	20	12	40	9	30	-	-
Almost maximum (10)	12	40	-	-	11	36.7	-	-
Total	30	100	30	100	30	100	30	100

The above table shows that in control group the pre test scores on the level of breathing pattern very severe were 4(13.3%)had very very severe,8(26.7%) had maximum, 6(20%) had almost maximum12(40%). whereas in post test scores on the level of moderate breathing were 6(20%) had very severe breath,4(13.3%) had very very severe breath, 8(26.7%) had maximum 12(40%)respectively.

In experimental group the pre test scores on the level of breathing pattern moderate were 2(6.7%) had somewhat severe,3(10%) had moderate very very severe,5(16.7%) had maximum breathing pattern 9(30%) had almost maximum 11(36.7). whereas in post test scores on the level of very very slight were 12(40%) had slight breath 10(33.3%) had moderate breathing pattern 6(20%)had severe breathing pattern and no one maximum breathing pattern respectively.

This finding reveals that in experimental group after the deep breathing exercise administration among chronic obstructive pulmonary disease patients were decreased in post test than pretest.

OBJECTIVE –III

Effectiveness of deep breathing exercise among chronic obstructive pulmonary disease patients

Table 3: Mean, SD and paired ‘t’ –test of pre and posttest level of breathing pattern in control group

GROUP	Pre test		Post test		Mean difference	t - value
	Mean	SD	Mean	SD		
CONTROL GROUP	8.43	1.43	5.9	1.49	2.53	2.07

(* - P<0.05, significant and ** -P<0.01 & *** -P<0.001, Highly significant)

The above table shows that the calculated t value’ in the control group was 2.07 which was not significantly at P<0.05 level. It can be concluded that there is no much difference in pre test and post test in control group.

Table 4: Mean, SD and paired “t” test of pre and post level of breathing pattern in experimental group

GROUP	Pre test		Post test		Mean difference	t - value
	Mean	SD	Mean	SD		
EXPERIMENTAL GROUP	8.36	1.83	2.43	1.60	5.93	2.64*

(* - P<0.05, significant and ** -P<0.01 & *** -P<0.001, Highly significant)

The above table shows that the calculated “t” value in the experimental group was 2.64 which was statistically significant at P<0.05 level. Hence H1 is accepted. It can be concluded that deep breathing exercise was effective in reducing the dyspnea among chronic obstructive pulmonary disease patients.

Table 5: Mean, SD and unpaired ‘t’ test of posttest dyspnea in control and experimental group.

GROUP	Control post test		Experimental post test		Mean difference	t - value
	Mean	SD	Mean	SD		
Dypnea among patients	5.9	1.49	2.43	1.60	3.47	4.15*

(* -P<0.05, significant and ** -P<0.01 & *** -P<0.001, highly significant)

The above table shows that the obtained ‘t’ value between control and experimental group is 4.51 which was significant at p<0.05 level. Hence H1 is accepted. It can be concluded that the deep breathing exercise was effective in reducing the dyspnea in experimental group among chronic obstructive pulmonary disease patients than control group.

OBJECTIVE - IV

. Association between the pretest and post test breathing pattern in experimental group and their selected demographic variables.

Table 4.6: Data on compare the pretest and posttest level of breathing difficulty between the control and experimental group

(* - P<0.05, significant and ** -P<0.01 & ***-P<0.001, Highly significant)

GROUP	Pre test		Post test		Mean difference	t - value
	Mean	SD	Mean	SD		
EXPERIMENTAL	8.36	1.83	2.43	1.60	5.93	2.64*
CONTROL	8.43	1.43	5.9	1.49	2.53	2.07

Experimental group

The above table shows that the calculated “t” value in the experimental group was 2.64 which was statistically significant at P<0.05 level .Hence H2 is accepted. It can be concluded that deep breathing exercise was effective in reducing the dyspnea among chronic obstructive pulmonary disease patients

Control group

The above table shows that the calculated ‘t value’ in the control group was 2.07which was not significantly at P<0.05 level. It can be concluded that there is no much difference in pretest and posttest in control group

OBJECTIVE – V

Association between the pretest breathing pattern in control group and their demographic variables.

Table7: Frequency and percentage distribution of chi-square value on control group

SL. NO	DEMOGRAPHIC VARIABLES	slight		moderate		Very Very		Maximum		X2	P-value
		1	3.3	2	6.7	0	0	2	6.7		
1.	Age in (years):										
	a) 1 - 15	1	3.3	2	6.7	0	0	2	6.7	25.63 Df=9	16.92(S)
	b) 16- 30	1	3.3	1	3.3	2	6.7	2	6.7		
	c) 31- 45	1	3.3	5	16.7	4	0	0	0		
	d) 46 and above	1	3.3	0	0	0	13.3	8	0		
							0		26.6		

2.	Gender:											
	a. Male	2	6.7	5	16.7	4	13.3	3	10	4.46 Df=6	12.59 (NS)	
	b. Female	2	6.7	3	10	2	6.7	9	30			
	c. Others	0	0	0	0	0	0	0	0			
3.	Educational status :											
	a) Illiterate	2	6.7	2	6.7	1	3.3	3	10	7.67 Df=9	16.92 (NS)	
	b) Primary	1	3.3	3	10	2	6.7	0	0			
	c) High school	1	3.3	2	6.7	2	6.7	2	6.7			
	d) Higher secondary	0	0	1	3.3	1	3.3	7	23.3			
4.	Marital status :											
	a) Married	2	6.7	4	13.3	2	6.7	5	16.7	7.20 Df=9	16.92 (NS)	
	b) Un married	1	3.3	1	3.3	3	10	4	13.3			
	c) Divorce	1	3.3	1	3.3	0	0	1	3.3			
	d) Widow	0	0	1	3.3	1	3.3	2	6.7			
5.	Occupation :											
	a) Industrial workers	2	6.7	3	10	1	3.3	2	6.7	4.48 Df=9	16.92 (NS)	
	b) Private employee	1	3.3	2	6.7	3	10	1	3.3			
	c) Government Employee	1	3.3	1	3.3	1	3.3	3	10			
	d) none	0	0	2	6.7	1	3.3	6	20			

6.	Monthly income of the Family:										
	a) < 5000	2	6.7	3	10	4	13.3	3	10	6.16 Df=6	12.59 (NS)
	b) 5000-10000	1	3.3	2	6.7	1	3.3	5	16.7		
	c) >10000	1	3.3	3	10	1	3.3	4	13.3		
7.	Duration of illness :										
	a) < 1 year	1	3.3	2	6.7	2	6.7	4	13.3	3.896 Df=6	12.59 (NS)
	b) 2-5 year	1	3.3	2	6.7	1	3.3	5	16.7		
	c) 6- year	2	6.7	4	13.3	3	10	3	10		
8.	Treatment of chronic obstructive pulmonary disease :										
	a) regular									6.30 Df=3	7.82 (NS)
	b) Irregular	2	6.7	3	10	2	6.7	5	16.7		
		2	6.7	5	16.7	4	13.3	7	23.3		
9.	Family history of chronic obstructive pulmonary disease :										
	a)Yes	2	6.7	3	10	1	3.3	0	0	26.08 Df=3	7.82 (S)
	b) No	2	6.7	5	16.5	5	16.7	12	40		
10.	Smoking habits:										
	a)Yes	2	6.7	3	10	3	10	4	13.3	3.89 Df=3	7.82 (NS)
	b) No	2	6.7	5	16.5	3	10	8	26.7		

11.	Continuous breathing difficulty present at :										
	a) wake up										
	b) walking	1	3.3	2	6.7	1	3.3	1	3.3	11.78 Df=9	16.92 (NS)
	c) sleeping at night time	1	3.3	1	3.3	2	6.7	0	0		
		1	3.3	2	6.7	0	10	2	6.7		
	d) exercise	1	3.3	3	10	3	10	9	30		
12.	Duration of sleep:										
	a. 6 - 8 hours	2	6.7	3	10	1	3.3	2	6.7	4.48 Df=9	16.92 (NS)
	b. 4 - 6 hours	1	3.3	2	6.7	3	10	1	3.3		
	c. Less than 4 hours	1	3.3	1	3.3	1	3.3	3	10		
	d. Disturbed sleep	0	0	2	6.7	1	3.3	6	20		
13.	Breath holding capacity:										
	a) 90 - 70 sec	0	0	0	0	0	0	0	0	6.16 Df=6	12.59 (NS)
	b) 69 - 40 sec	0	0	0	0	0	0	0	0		
	c) 39 - 20 sec	2	6.7	3	10	4	13.3	3	10		
	d) 19 - 10 sec	1	3.3	2	6.7	1	3.3	5	16.7		
	e) Below 10 sec	1	3.3	3	10	1	3.3	4	13.3		
14	Difficulties felt other than breathlessness:										
	a. Wheezing	2	6.7	4	13.3	2	6.7	5	16.7	7.20 Df=9	16.92 (NS)
	b. Chest tightness	1	3.3	1	3.3	3	10	4	13.3		
	c. Rapid weight loss	1	3.3	1	3.3	0	0	1	3.3		
	d. All the above	0	0	1	3.3	1	3.3	2	6.7		

(* -P>0.05,significant) (NS=Not significant)S=(significant)

The above table shows that there was a significant association between dyspnea among

chronic obstructive pulmonary disease patients and their demographic variables such as Age, family history of COPD, There was no association between the demographical variables such as gender, educational status, marital status, occupation, duration of illness, treatment of COPD, family income, smoking habits, continuous breathing difficulty presented at, Duration of sleep, Breath holding capacity and Difficulties felt other than breathlessness

OBJECTIVE - VI

Association between the pretest level of breathing difficulty in experimental group and their demographic variables.

Table 4.8: Frequency and percentage distribution of chi-square value on experimental group.

S no	Demographic variables	Slight		Moderate		Severe breath		Very very severe		Maximum		X ²	P-value
		f	%	f	%	f	%	f	%	f	%		
1	Age in (years):											25.72 df-12	S 21.03
	a. 1 - 15	1	3.3	2	6.7	0	0	1	3.3	0	0		
	b. 16- 30	0	0	0	0	1	3.3	0	0	7	23.3		
	c. 31- 45	1	3.3	1	3.3	2	6.7	3	10	2	6.7		
	d. 46 and above	0	0	0	0	2	6.7	5	16.7	2	6.7		
2	Gender:											6.21 df-4	NS 9.49
	a) Male	2	6.7	2	6.7	3	10	4	13.3	6	20		
	b) Female	0	0	1	3.3	2	6.7	6	20	5	16.7		
	c) Other	0	0	0	0	0	0	0	0	0	0		
3	Educational status											12.45 df-12	NS 21.03
	a) Illiterate	1	3.3	1	3.3	2	6.7	1	3.3	3	10		
	b) Primary school	1	3.3	0	0	1	3.3	2	6.7	3	10		
	c) High school	0	0	2	6.7	1	3.3	4	13.3	2	6.7		
	d) Higher secondary	0	0	0	0	1	3.3	2	6.7	3	10		
4	Occupation											14.51 df-12	NS 21.03
	a) Industrial workers	1	3.3	1	3.3	2	6.7	4	13.3	1	3.3		
	b) Private employee	0	0	0	0	1	3.3	2	6.7	2	6.7		

	c) Government Employee	0	0	1	3.3	1	3.3	0	0	2	6.7		
	d) none	1	3.3	1	3.3	1	3.3	3	10	4	13.3		
5	Marital status												
	e) Married	2	6.7	2	6.7	3	10	8	26.7	7	23.3		
	f) Unmarried	0	0	1	3.3	1	3.3	0	0	4	13.3		
	g) Divorce	0	0	0	0	0	0	0	0	0	0		
	h) Widow	0	0	0	0	1	3.3	1	3.3	0	0		
												15.16	NS
												df-12	21.03
6	Family history of COPD												
	a) Yes	2	6.7	1	3.3	2	6.7	4	13.3	3	10	4.75	NS
	b) No	0	0	2	6.7	3	10	5	16.7	8	26.7	df-4	9.49
7	Duration of illness												
	a) <1year	0	0	2	6.7	1	3.3	4	13.3	3	10		
	b) 2-5years	1	3.3	0	0	2	6.7	2	6.7	5	16.7		
	c) 6years	1	3.3	1	3.3	2	6.7	3	10	3	10	7.32	NS
												df-8	15.51
8	Treatment of COPD												
	a) Regular	1	3.3	2	6.7	3	10	4	13.3	7	23.3		
	b) Irregular	2	6.7	1	3.3	2	6.7	5	16.7	4	13.3	2.3	NS
												df-4	9.49
9	Monthly income the family												
	c) <5000												
	a) 5000-1000	2	6.7	1	3.3	2	6.7	3	10	2	6.7		
	b) >10,000	0	0	1	3.3	2	6.7	2	6.7	5	16.7	9.23	NS
												df-8	15.51
		0	0	1	3.3	1	3.3	4	13.3	4	13.3		
10	Smoking habits												
	a) Yes	2	6.7	2	1.7	3	10	8	26.7	9	30		
	b) No	0	0	1	3.3	2	6.7	1	3.3	2	6.7	4.56	NS
												df-4	9.49
11	Continuous breathing difficulty												

	presented at												
	a)wake up	1	3.3	0	0	1	3.3	2	6.7	2	6.7	21.03	S
	b)walking	0	0	1	3.3	2	6.7	1	3.3	3	10	df=12	21.33
	c)sleeping at night time	1	3.3	0	0	0	0	3	10	2	6.7		
	d)exercise	0	0	2	6.7	2	6.7	3	10	4	13.3		
	Duration of sleep:												
12	a) 6 - 8 hours	1	3.3	1	3.3	2	6.7	4	13.3	1	3.3		
		0	0	0	0	1	3.3	2	6.7	2	6.7		
		0	0	1	3.3	1	3.3	0	0	2	6.7		
	b) 4 - 6 hours	1	3.3	1	3.3	1	3.3	3	10	4	13.3		
	c) Less than 4 hours											14.51	NS
												df=12	21.03
	d) Disturbed sleep												
13	Breath holding capacity:	0	0	0	0	0	0	0	0	0	0		
		0	0	0	0	0	0	0	0	0	0		
	a. 90 - 70 sec	2	6.7	1	3.3	2	6.7	3	10	2	6.7	9.23	NS
		0	0	1	3.3	2	6.7	2	6.7	5	16.7	df=16	26.30
	b. 69 - 40 sec	0	0	1	3.3	1	3.3	4	13.3	4	13.3		
	c. 39 - 20 sec												
	d. 19 - 10 sec												
	e. Below 10 sec												
14	Difficulties felt other than breathlessness:	2	6.7	2	6.7	3	10	8	26.7	7	23.3		
		0	0	1	3.3	1	3.3	0	0	4	13.3		
		0	0	0	0	0	0	0	0	0	0		
	a) Wheezing	0	0	0	0	1	3.3	1	3.3	0	0		
	b) Chest tightness											15.16	NS
												df=12	21.03
	c) Rapid weight loss												
	d) All the above												

(* -P>0.05, significant) (NS= Non significant)

The above table shows that there was a significant association between dyspnea among chronic obstructive pulmonary disease patients and their demographic variables such as Age, continuous breathing difficulty presented at there is no association between the educational status, marital status, family history, occupation, duration of illness, treatment of COPD, family income, smoking habits, duration of sleep, Breath holding capacity and Difficulties felt other

than breathlessness.

NURSING IMPLICATIONS

Nursing practice

- Complimentary therapies can provide effective economical, non-invasive, non-pharmacological complements to medical care.
- Breathing exercise is one of touch therapy, which in this study has proved effective in reducing and improving the breathing pattern among patients chronic obstructive pulmonary disease.
- Nurses can adopt simple interventions like breathing exercise while providing care for the chronic obstructive pulmonary disease patients.
- Breathing exercise used in this study can be applied in the practice set up; there by increasing the nursing practice based on evidence.

Nursing administration

- Nurse administrators can arrange seminars and workshops to educate learners and staff nurses regarding breathing pattern among chronic obstructive pulmonary disease.
- The findings of this study will help nurse administrator to plan and organize various in service programmes like in-service education and workshop on breathing pattern and its effects on chronic obstructive pulmonary patients.
- It helps to provide critical thinking regarding pain management in orthopedic surgical unit.
- The nurse administrator can take part in developing protocols related to breathing pattern.

Nursing education

- Several implications can be drawn from the present study for nursing education
- The curriculum incorporating the recent trends and demands of the changing society needed for the progress of nursing education.
- Practical hours for complementary and alternative medicine including yoga, massage and reflexology can be included in the nursing curriculum which will help the students to improve their skills.

Nursing research

- This study motivates nursing personnel to do further studies related to this field.
- Research can be conducted to find out the effectiveness of various non-pharmacological methods in pain management of patients who have chronic obstructive pulmonary disease

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