

# **A quasiexperimental study to assess the effectiveness of structured teaching programme on prevention of exacerbation among chronic obstructive pulmonary disease clients in selected super speciality hospitals, Bangalore city.**

**Mrs. Angel Mol Isac**

Lecturer , Department of Medical Surgical Nursing ,  
Sree Sudheendra College of Nursing, Ambalamedu P.O., Ernakulam, Kerala state.  
Email - angelmolisac@gmail.com

**Abstract:** A quasi -experimental pre-test post-test design with control group was undertaken to evaluate the effectiveness of structured teaching programme on prevention of exacerbation among chronic obstructive pulmonary disease clients in selected super speciality hospitals, Bangalore City. The objectives of the study was to assess the pre-existing knowledge of COPD clients of both experimental and control group regarding the prevention of COPD exacerbation, to assess the effectiveness of structured teaching programme on prevention of exacerbation of COPD clients by comparing pre-test and post-test knowledge scores of experimental group, to compare the post-test knowledge score of both experimental and control group regarding the prevention of COPD exacerbation and to find out the association between post-test knowledge scores with selected demographic variables of COPD clients in experimental group. The conceptual framework of the present study is based on J W Kenny's general system theory with input, throughput, output and feedback.

**Methods:** A quasi-experimental research approach was adopted for this study. The research design was a quasi -experimental pre-test post-test design with control group. The setting of the study was Rajiv Gandhi Institute of chest disease hospital, Jayanagar, Bangalore. The sample size was 60 COPD clients,30 each in experimental and control group and purposive sampling technique was used .The measurement used in this study was knowledge of COPD clients regarding prevention of COPD exacerbation. The intervention given in the study was the structured teaching programme (STP) on prevention of exacerbation among COPD clients. The data was collected from the experimental group before and after the administration of structured teaching programme and from control group, also data was collected twice but no STP was administered. The collected information was organized, tabulated, analysed and interpreted by using descriptive and inferential statistics.

**Results :** Among the demographic variables , the highest percentage of COPD clients who belongs to the age group of 41-50 years were 12(40%) and 11(36.7%) in experimental and control group respectively. With regard to gender, the highest percentage 18(60%) and 20(66.7%) of the COPD clients were males in the experimental group and control group respectively, when compared to females 12(40%) in experimental group and 10 (33.3%) in control group. The distribution according to educational status of the COPD clients shows that highest percentage 13(43.3%) of the COPD clients in the experimental group and 12 (40%) in the control group had only primary education. With regard to occupational status the highest percentage 10(33.3%) of the COPD Clients in the experimental group and 12(40%) in the control group are retired/ house wife. With regard to the duration of COPD treatment, the highest percentage 13 (43 %) of COPD clients in the experimental group and 14(46.6%) of COPD clients in the control group had duration of COPD between 6-10 years. Regarding the previous source of information, the highest percentage 11(36.67%) and 7(23.3%) of COPD clients got information regarding COPD through family/ friends / relatives in the experimental and control group respectively. The findings showed that the mean posttest knowledge score of the subjects in the experimental group which was 71%, higher than the mean pre-test score of 42%. It was found to be significant with a calculated paired 't' value of 17.13,  $P < 0.05$  which was higher than the critical value showing that the improvement in knowledge score was significant. The post test knowledge difference between experimental and control group was significant. The mean posttest knowledge score was (71%) and (45.53%) in both experimental and control group respectively. The knowledge difference is found to be significant with a calculated unpaired 't' value of 15.52,  $P < 0.05$ . The chi-square test at a level of significance of 5% was applied to check the association of demographic variables with knowledge score. The demographic variable such as age ( $df=3,10.13$  ,  $P < 0.05$ ),gender ( $df=1,10.46,P < 0.05$ ) , education ( $df=3,11.17$  ,  $P < 0.05$ ) occupation ( $df=3,9.78$  ,  $P < 0.05$ ) , duration of COPD treatment ( $df=4,11.61$  ,  $P < 0.05$ ) and source of information ( $df = 3,10.76,P < 0.05$ ) regarding prevention of COPD exacerbation shows a significant association with posttest level of knowledge in experimental group .

The present findings revealed that the overall mean percentage of the pre-test knowledge score of the COPD clients was less (42% in experimental group and 41% in control group) with the mean percentage values being as follows: 43.71% in experimental group and 42.28% in control group based on the concept of COPD, 39.12% in experimental group and 34.13% in control group related to causes, risk factors, disease manifestations, diagnosis and complications of COPD. 42.4% in experimental group and 42.6 % in control group regarding prevention of COPD exacerbation. This shows that there is lack of knowledge among COPD clients in all aspects regarding prevention of COPD exacerbation. This study revealed that there was a considerable improvement in the knowledge of COPD clients after the administration of structured teaching programme and was statistically significant. The overall mean knowledge score of COPD clients in experimental group in the pre-test was 42% and 71% in the post-test with an enhancement of 29%. The overall mean knowledge score in control group was 41% in pretest and 45.53 % in the post test and the enhancement was not statistically significant.

The post test knowledge scores of both experimental and control group shows a significant difference between two groups. In posttest the overall mean percentage was 71% in experimental group and 45.53% in control group. The total calculated t value was 15.52. The mean percentage in the aspect of the concept of COPD was 70.85%. and 47.58% was in control group and the calculated t value was 7.83. The mean percentage in the aspect of causes, risk factors, disease manifestations, diagnosis, and complications of COPD was 64.53% in experimental group and 48.75% was in control group and the calculated t value was 4. The mean percentage in the aspect of prevention of COPD exacerbation was 75.06% in experimental group and 42.86% was in control group and the calculated t value was 13.52. So it indicates that the post test mean knowledge score of experimental group is significantly greater than that of control group and found to be significant at 5% level for the all aspects. Hence H2 hypothesis is accepted. The result showed that there is significant association of post test knowledge score of experimental group with age, gender, educational status, occupation, duration of COPD treatment and source of information regarding prevention of COPD exacerbation. Hence H3 hypothesis is accepted. The study was found to be very effective.

**Interpretation and Conclusion :** The result revealed that there was a significant improvement in knowledge of prevention of exacerbation among chronic obstructive pulmonary disease clients in selected super speciality hospitals after the administration of structured teaching programme . The findings of the study indicated that structured teaching programme was significantly effective in improving the knowledge score of COPD clients on prevention of COPD exacerbation .

**Key words:** Assess, effectiveness, structured teaching programme(STP) ,prevention of COPD exacerbation, quasi experimental approach; purposive sampling technique.

## 1. INTRODUCTION:

Air is the ocean we breathe. Air supplies us with oxygen which is essential for our bodies to live. Human activities can release substances into the air, some of which can cause problems for humans, plants, and animals. Pollution is the introduction of contaminants into a natural environment that causes instability, disorder, harm or discomfort to the ecosystem. Air pollution is a mixture of solid particles and gases in the air that can cause harm to humans and the environment. Car emissions, chemicals from factories, dust, pollen and mold spores may be suspended as particles. More than 500,000 Americans die each year from cardiopulmonary disease linked to breathing fine particle air pollution.<sup>1</sup>

Epidemiological evidence suggests that exposure to air pollution causes exacerbations of pre-existing lung conditions. Exposure to second hand smoke, air pollution and tobacco smoke may contribute to the development of COPD and resulting in increased morbidity and mortality. In the non-industrialized world, the most common cause of COPD is indoor pollutions and it occurs due to indoor stoves used for cooking.<sup>2</sup>

Chronic obstructive pulmonary disease is the most common chronic lung disease, COPD, also known as chronic obstructive lung disease (COLD) refers to chronic bronchitis and emphysema, a pair of commonly co-existing diseases of the lungs in which the airways become narrowed. This leads to a limitation of the flow of air to and from the lungs causing shortness of breath. COPD is a heterogeneous, multi-component disease associated with significant clinical burden. COPD is caused most commonly from tobacco smoking, which triggers an abnormal inflammatory response in the lung.<sup>3</sup>

The preventive measure of COPD that which included smoking cessation is one of the most important factors in slowing down the progression of COPD .The measures can be taken to protect workers in at-risk industries such as coal mining have develop COPD and air quality can be improved by pollution reduction efforts which lead to health gains for people with COPD<sup>4</sup>.

Currently, COPD is the fourth leading cause of mortality worldwide. An estimated 210 million people have COPD worldwide. By 2020, it is predicted that COPD will have risen to be the third leading cause of mortality. The

estimated annual cost of COPD is 32.1 billion and 70% of these costs are related to acute exacerbations that require hospitalization.<sup>5</sup>

The natural course of COPD is characterized by occasional sudden worsening of symptoms called acute exacerbations, most of which are caused by infections or pollution. An acute exacerbation of COPD is a sudden worsening of COPD symptoms include shortness of breath, quantity and color of phlegm that typically lasts for several days. The diagnosis of COPD requires lung function tests. Some important management strategies of COPD are smoking cessation, vaccinations, rehabilitation, and drug therapy (often using inhalers).<sup>6</sup>

Acute exacerbations are the most important cause of mortality and morbidity in patients with COPD demonstrated an in-hospital mortality rate of 8% and a 1 year mortality rate of 23%. Patients with frequent exacerbation of COPD have more rapid decline in lung function and report worse health related quality of life than those who do not have frequent exacerbation. The primary triggers of exacerbations are community acquired respiratory infections caused by viral and bacterial pathogens. Effective treatments to manage exacerbation caused by infection are currently limited. Therefore, identifying evidence based strategies that prevent respiratory infections that cause COPD exacerbations would have a significant impact on reducing the mortality & morbidity of the disease.<sup>4</sup>

The widespread use of vaccines has resulted in dramatic advances in preventing disease, disability and death from infectious diseases. The current guidelines recommend that all patients with COPD, as well as other high risk subgroups, receive influenza vaccine annually. The US Centres for Disease Control and prevention recommend that pneumococcal vaccination should be administered to all patients 65 years of age as well as younger patients with chronic illness including COPD.<sup>6</sup>

## **2. NEED FOR STUDY:**

“When you can’t breathe, nothing else matters”, is the mantra of the American Lung Association. More than 30 million Americans are living with chronic lung disease. Chronic obstructive pulmonary disease refers to several disorders that affect the movement of air in and out of the lungs characterized by the presence of airflow obstruction caused by chronic bronchitis and emphysema.<sup>7</sup>

COPD is a systemic disease with major impact worldwide. Pulmonary rehabilitation programs may improve quality of life by reducing shortness of breath, increasing exercise tolerance, promoting a sense of well-being and to a lesser extent decreasing the number of hospitalizations.<sup>8</sup>

COPD has been diagnosed in India, now recognized in 4-10% of adult male population. COPD day has taken place on November 17 around the theme “2010- the year at the lung, measure your lung health-ask your doctor about a simple breathing test called spirometry.” In 1990, a study by the World Bank and WHO ranked 12th as a burden of disease, by 2010, it is estimated that COPD will be ranked 5th.<sup>9</sup> In between 2000 and 2025 absolute number of diagnosed COPD patients increased from 188,000 to 270,000 for males and from 117,000 to 224,000 for females. In China it is estimated to be 6%. The prevalence of COPD in Delhi is 8.1% (males) and 4.6 % (females). In Chennai the prevalence rate of COPD is 1.9% (males) and 1.2 % (females). In South India, the prevalence of COPD is 4.08 % (males) and 2.55% (females)<sup>10</sup>

A study was conducted to determine the safety and efficacy of pneumococcal vaccination in COPD. Pneumococcal vaccinations are considered to be one strategy for reducing the risk of infective exacerbation. Only randomised controlled trials were included. The study concluded that injectable pneumococcal vaccination in persons with COPD has a significant impact on morbidity or mortality.<sup>11</sup>

An experimental study was conducted to examine the effects of a structured education intervention program at a nurse-led primary health care clinic on knowledge about COPD and smoking cessation in COPD patients. Data were collected from 52 patients with COPD. They were randomized into two groups (intervention or control). The result revealed that conventional care alone did not have an effect on patients' quality of life and smoking habits. The study concluded that the structured program with self-care education is needed to motivate patients for life-style changes.<sup>13</sup>

The researcher had an experience with a neighbour who was suffering from COPD. The neighbour had severe dyspnea and wheezing for a prolonged period but the neighbour ignored it. The condition became worsened and the neighbour got admitted to the hospital where the condition deteriorated to such an extent that the neighbour could not be revived and thus expired. The physician explained to the relatives, that if the cause for the exacerbation would have been recognised and avoided at the right time, the condition of the patient would not have been deteriorated to such an extent. The researcher realized that there was a lack in knowledge and ignorance showed by the COPD clients on the prevention of exacerbation. This made the researcher decided to conduct a structured teaching programme regarding prevention of exacerbation among COPD clients.

### **3. OBJECTIVES :**

- To assess the pre-existing knowledge of COPD clients of both experimental and control group regarding the prevention of COPD exacerbation.
- To assess the effectiveness of structured teaching programme on prevention of exacerbation of COPD clients by comparing pre and post-test knowledge scores of experimental group.
- To compare the knowledge score of both experimental and control group regarding the prevention of COPD exacerbation.
- To find out the association between post-test knowledge scores and selected demographic variables of COPD clients in experimental group.

### **4. MATERIALS AND METHODS :**

The research approach adopted for this study was quasi-experimental in nature i.e., pre-test post-test design with control group . The sample size was 60 COPD clients and is selected by purposive sampling technique. The structured teaching programme on prevention of COPD exacerbation was prepared. The investigator personally visited all respondents, introduced himself and explained the purpose of the study and ascertained the willingness of the participants. The investigator collected data by structured questionnaire from each respondent, which require knowledge regarding the prevention of COPD exacerbation. After pretest, structured teaching programme was administered regarding the prevention of COPD exacerbation, only to 30 clients; those belong to experimental group. After the 7th day of implementation of structured teaching programme, posttest was carried out by the investigator by using the same structured knowledge questionnaire. It was taken 10 days to complete posttest for 60 COPD clients.In the present study the investigator aimed at evaluating the effectiveness of structured teaching programme on prevention of COPD exacerbation in terms of gain in knowledge score of COPD clients.. The study is intended to find out the gain in knowledge by the COPD clients of the experimental group after administering structured teaching programme, who was subjected for the study. The structured teaching programme is not administered to the control group. Thus both the experimental and control group is observed twice. The effect of treatment would be equal to the level of phenomenon after the treatment minus the level of the phenomena before treatment.

### **5. ANALYSIS :**

The data was presented in the form of table and figures.

#### **SECTION 1 DISTRIBUTION OF DEMOGRAPHIC VARIABLES AMONG COPD CLIENTS**

Table- 1.1 The frequency and percentage distribution of the COPD clients according to the age group  
N=60

Sl no:	Demographic variable	Group			
		Experimental		Control	
1.	Age in Years	Frequency	%	Frequency	%
1.	41-50	12	40	11	36.7
	51-60	5	16.67	6	20
	61-70	8	26.6	4	13.33
	71-80	5	16.67	9	30
	Total	30	100%	30	100%

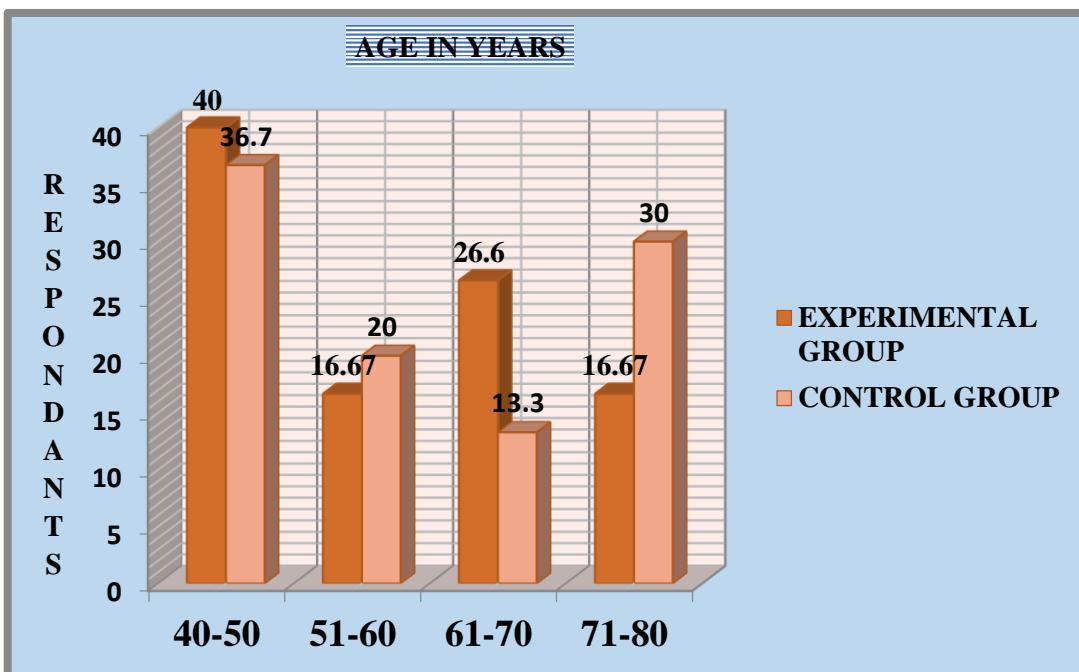
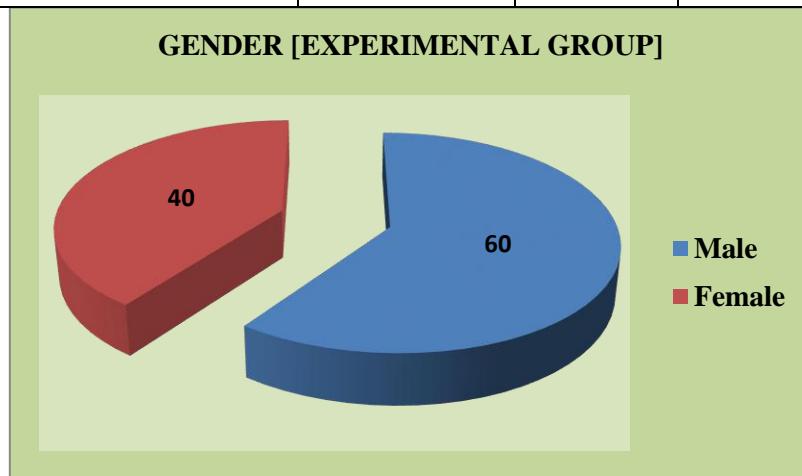


Figure 1.1: Percentage distribution of the COPD clients according to the age group

The above table- 1.1 and figure- 1.1 shows that the highest percentage of COPD clients who belonged to the age group of 41-50 years were 12(40%) and 11(36.7%) in experimental and control group

Table 1.2 The frequency and percentage distribution of the COPD clients according to the gender

Sl no:	Demographic variable	Group			
		Experimental		Control	
2.	Gender	Frequency	%	Frequency	%
	Male	18	60%	20	66.7%
	Female	12	40%	10	33.3%
	Total	30	100%	30	100%



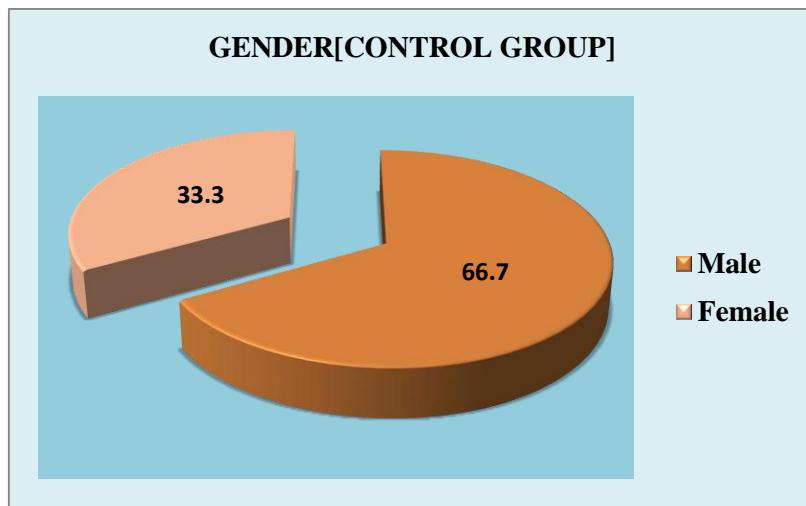


Figure 1.2: Percentage distribution of the COPD clients according to the gender

The above table- 1.2 ,figure- 1.2 and fig.1.3 shows that the highest percentage 18(60%) and 20(66.7%) of the COPD clients were males in the experimental group and control group respectively, when compared to females 12(40%) in experimental group and 10 (33.3%) in control group.

Table- 1.3: The frequency and percentage distribution of the COPD clients according to the educational status  
 $N=60$

Sl no:	Demographic variable	Group			
		Experimental		Control	
3.	Educational status	Frequency	%	Frequency	%
	Primary education	13	43.3	12	40
	Secondary education	10	33.3	9	30
	PUC	6	16.6	8	26.6
	Degree & above	1	3.33	1	3.33
	Total	30	100%	30	100%

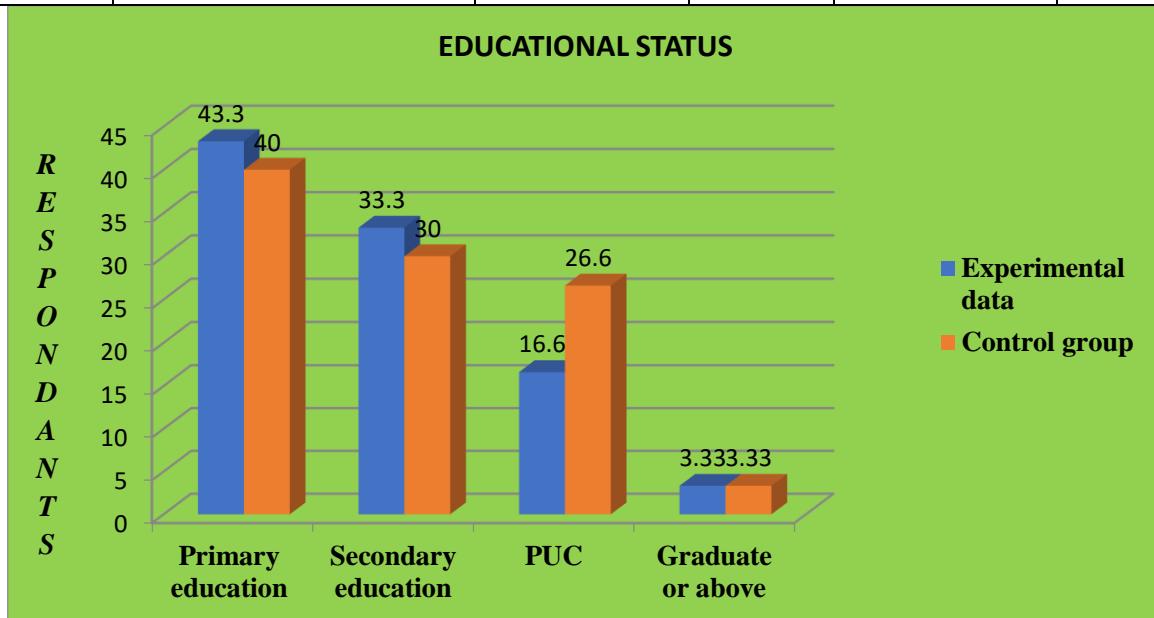


Fig 1.3. Percentage distribution of COPD clients according to educational status

Table 1.3 and fig.1.3 shows that highest percentage 13(43.3%) of the COPD clients in the experimental group and 12 (40%) in the control group had only primary education.

Table- 1.4. The frequency and percentage distribution of the COPD clients according to their occupation  
N=60

Sl no:	Demographic variable	Group			
		Experimental		Control	
4	Occupation	Frequency	%	Frequency	%
	Medical Professional	6	20	5	16.67
	Other employees	8	26.6	7	23.3
	House wife, Retired	10	33.3	12	40
	Unemployed	6	20	6	20
	Total	30	100%	30	100%

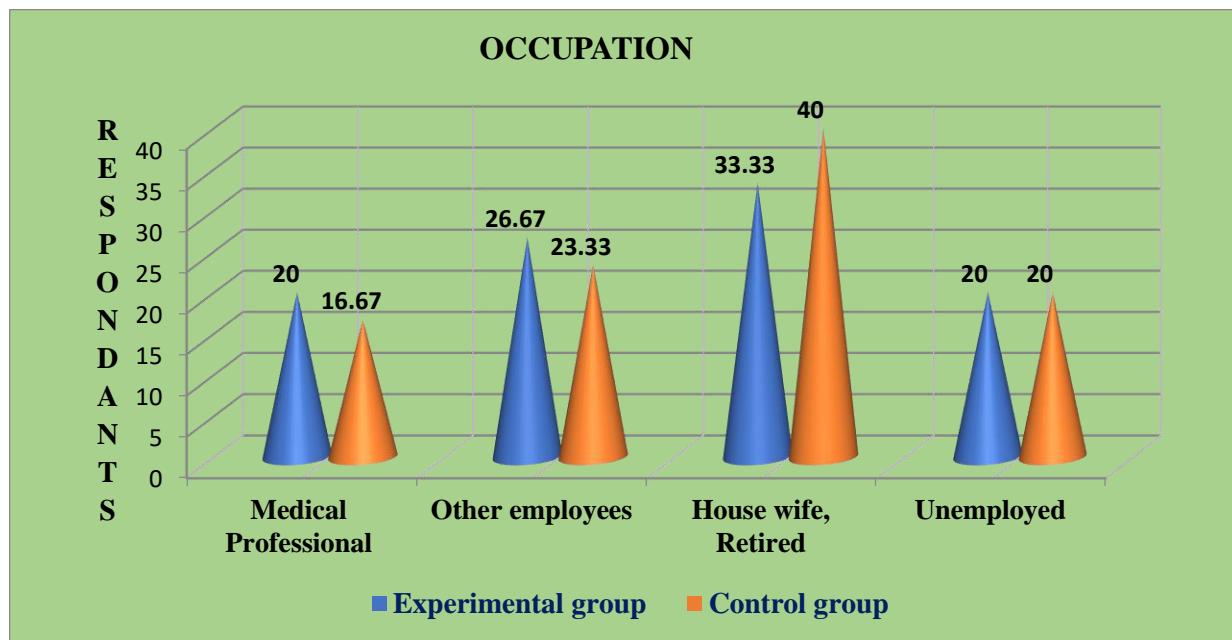


Fig 1.4 .Percentage distribution of COPD clients according to their occupation

The above table 1.4 and fig 1.4 shows that highest percentage10 (33.3%) of the COPD clients in the experimental group and 12(40%) in the control group are retired, house wife.

Table-1.5 The frequency and percentage distribution of COPD clients according to the duration of COPD treatment  
N=60

Sl no:	Demographic variable	Group			
		Experimental		Control	
5	Duration of COPD treatment	Frequency	%	Frequency	%
1	Below 5 years	4	13.3	5	16.6
2	6-10 years	13	43.3	14	46.6
3	11-15 years	8	26.6	7	23.3
4	16-20 years	3	10	3	10
5	21 years and above	2	6.6	1	3.33
	Total	30	100%	30	100%

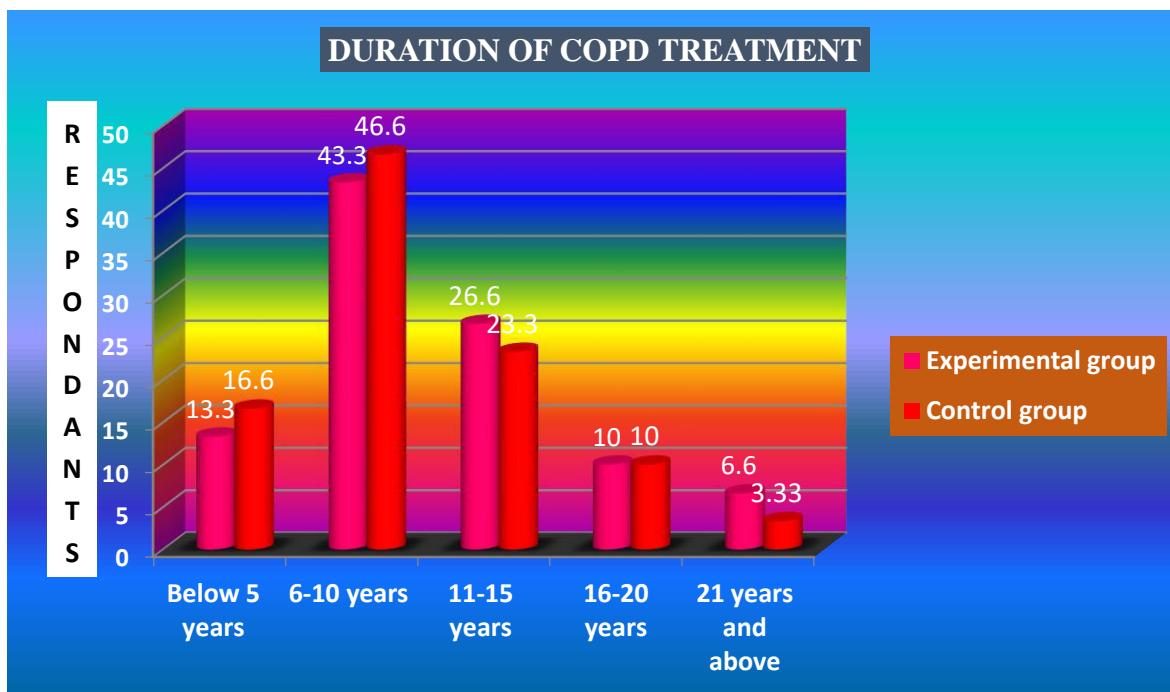


Fig.1.5 Percentage distribution of COPD clients according to duration of COPD treatment

The above table 1.5 and fig. 1.5 shows that highest percentage 13 (43 %) of COPD clients in the experimental group and 14(46.6%) of COPD clients in the control group had duration of COPD between 6-10 years.

Table-1.6 The frequency and percentage distribution of COPD clients according to the Source of information  
 N=60

Sl no:	Demographic variable	Group			
		Experimental		Control	
6	Source of information	Frequency	%	Frequency	%
	Mass media (T V, Radio, Internet	6	20	7	23.3
	Health personnel	8	26.6	12	40
	Family/ Friends / Relatives	11	36.67	7	23.3
	Books/ Magazines	5	16.6	4	13.3
	Total	30	100%	30	100%

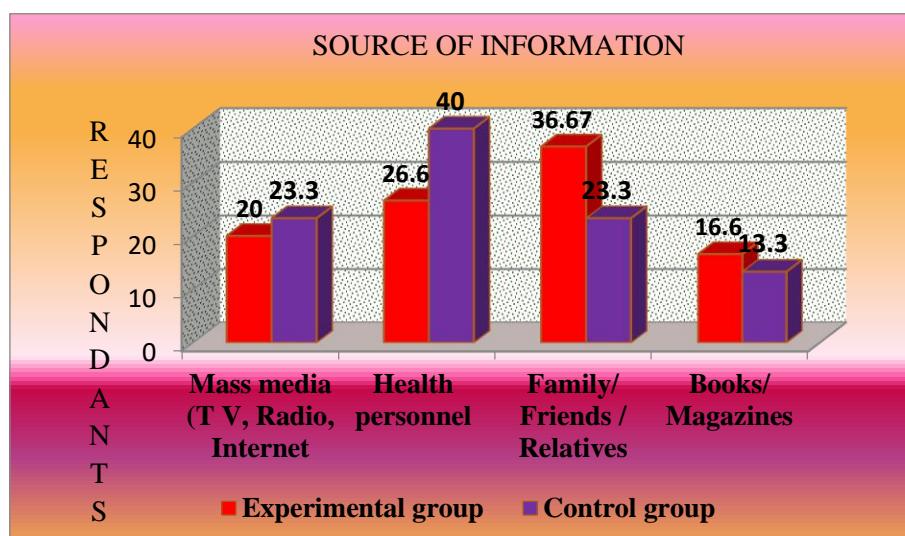


Fig. 1.6 Percentage distribution of COPD clients according to source of information

The above table 1.6 and fig 1.6 shows that shows that highest percentage 11(36.67%) and 7(23.3%) of COPD clients got information regarding COPD through family/ friends / relatives in the experimental and control group ..

## SECTION II

### THE LEVEL OF KNOWLEDGE OF COPD CLIENTS REGARDING PREVENTION OF COPD EXACERBATION BEFORE AND AFTER ADMINISTRATION OF STRUCTURED TEACHING PROGRAMME IN EXPERIMENTAL AND CONTROL GROUP .

Table 1.7 :frequency and percentage distribution of pretest & post test in experimental and control group

Knowledge score	Experimental group				Control group			
	Pretest		Post test		Pretest		Post test	
	f	%	F	%	f	%	f	%
Adequate (>75%)	0	0	16	53.4	0	0	0	0
Moderate (50-75%)	7	23.3	14	46.6	10	33.3	13	43.3
Inadequate (<50%)	23	76.6	0	0	20	66.6	17	56.6

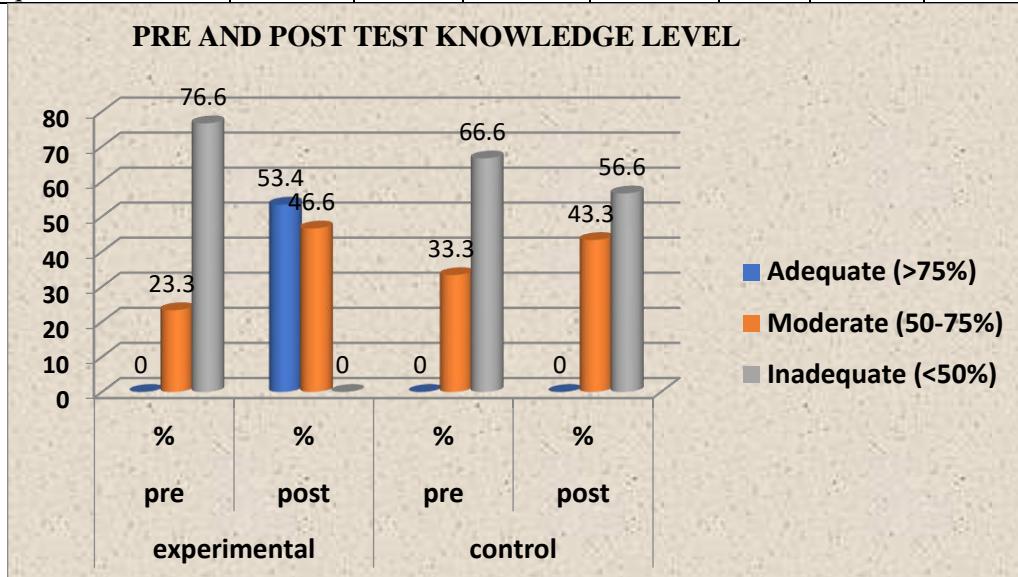


Fig 1.7.Percentage distribution of COPD clients of pre test and post test in experimental and control group

The above table 1.7 and fig 1.7 , in the pretest results showed that both experimental and control group had no COPD clients with adequate knowledge. The result also revealed that 23.33% of COPD clients from the experimental group had moderate knowledge and 76.6% had inadequate knowledge. Similarly in the control group 33.3% COPD clients had moderate knowledge and 66.6% had inadequate knowledge. In the posttest knowledge scores of the experimental group revealed that 46.6% COPD clients had moderate knowledge and 53.4% had adequate knowledge. . The result of the post test of experimental group revealed that 53.4% of COPD clients had adequate knowledge, 46.6% had moderate knowledge .

Table 1.8: Pre-test knowledge scores of COPD clients on prevention of COPD exacerbation in experimental and control group

Knowledge Aspect	No. of question s	MMini to Max score	Experimental group			Control group		
			Mean	MMean %	SSD	Mean	Mean %	SD
ASPECT 1: The concept of COPD	7	0-7	3.06	43.71	0.88	2.96	42.28	0.96
ASPECT 2			0	3.13	39.12	1.35	2.73	34.13
								1.17

Causes, risk factors, disease manifestations, complications of COPD	8	0 0 0-8						
ASPECT 3	15	00-15	6.36	42.4	1.69	6.34	42.26	1.65
Prevention of COPD exacerbation								
Total	30	0-30	12.46	42	2.52	12.23	41	2.58

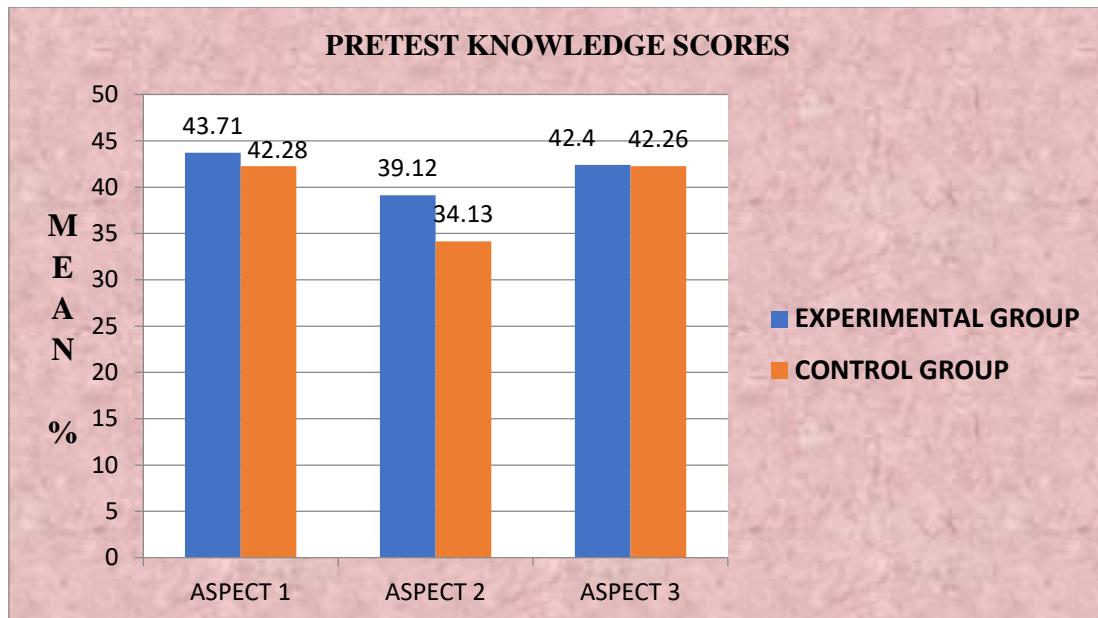


Fig.1.7 Aspect wise mean pretest knowledge score of COPD clients on prevention of exacerbation of COPD

The above table 1.7 and fig 1.7 shown that In pretest, before administration of structured teaching programme in experimental and control group of COPD clients are having almost the same level of knowledge on every aspect of prevention of COPD exacerbation. The total mean percentage in experimental group was 42%. The total mean percentage in control group was 41%..

Table 1.8 : Post-test knowledge scores of COPD clients on prevention of exacerbation

Knowledge aspect	No. of question s	MMini to Max score	Experimental group			Control group		
			Mean	Mean %	SD	Mean	Mean %	SD
ASPECT 1		00-7			0.85	3.5	47.58	0.84
The concept of COPD	7		4.96	70.85				
ASPECT 2		00-8	5.6	64.5	1.28	3.9	48.75	1.15
Causes, risk factors, disease manifestations, complications of COPD	8							
ASPECT 3		00-15	11.26	75.06	1.63	6.4	42.86	1.26
Prevention of COPD exacerbation	15							
Total	30	0-30	21.4	71.0	2.35	13.63	45.53	1.49

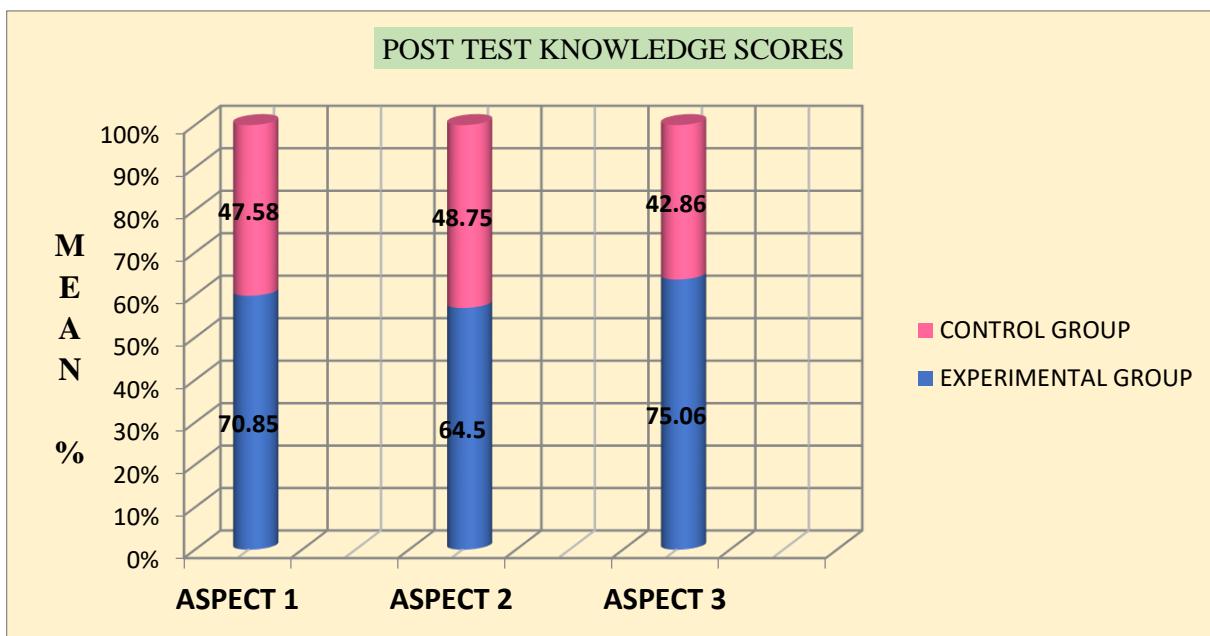


Fig.1.8 Aspect wise mean post test knowledge scores of COPD clients on prevention of exacerbation of COPD

The above table 1.8 and fig 1.8 shown In post test knowledge , after administration of structured teaching programme in experimental group COPD clients scored 71% knowledge whereas in control group knowledge scores without administering structured teaching programme was only 45.53% regarding prevention of COPD exacerbation.

### SECTION III

#### COMPARISON BETWEEN THE LEVEL OF KNOWLEDGE OF COPD CLIENTS ON PREVENTION OF EXACERBATION BEFORE AND AFTER ADMINISTRATION OF STRUCTURED TEACHING PROGRAMME IN EXPERIMENTAL AND CONTROL GROUP.

Table 1.9: Comparison of pretest mean knowledge score in experimental and control group

Knowledge aspect	Experimental Group			Control Group			Unpaired t test
	Mean	Mean (%)	SD	Mean	Mean (%)	SD	
1.The concept of COPD	3.06	43.71	0.88	2.96	42.28	0.96	0.436**
2..Causes,risk factors, disease manifestations, diagnosis, and complications of COPD	3.13	39.12	1.35	2.73	34.13	1.17	0.880**
3. Prevention of COPD exacerbation	6.36	42.4	1.69	6.34	42.26	1.65	0.483**
<b>Total</b>	<b>12.46</b>	<b>42</b>	<b>2.52</b>	<b>12.23</b>	<b>41</b>	<b>2.58</b>	<b>0.431**</b>

\*\*= Not significant \* = significant

\*Significant at 5% level

Table value =1.96

The above table 1.9 shows that in pretest before administration of structured teaching program, experimental and control group of COPD clients having almost the same level of knowledge on each aspects of prevention of COPD exacerbation. In pretest, the overall mean percentage was 42% in experimental group and 41% in control group. The total calculated 't' value was 0.48. The mean percentage in the aspect of concept of COPD was 43.71% in experimental group and 42.28 % in control group and the calculated 't' value was 0.43.. The mean percentage in the aspect of causes ,risk factors, disease manifestations, diagnosis, and complications of COPD was 39.12 % in experimental group and 34.13% was in control group and the calculated 't' value was 0.88.The mean percentage in the aspect of prevention of COPD exacerbation was 42.4 % in experimental group and 42.26% in control group and the calculated 't' value was 0.48. It was calculated using unpaired t-test.. So it indicates that there is no significant difference between experimental and control group.

Table 1.10 Comparison of post test mean knowledge score in experimental and control group  
**n=60**

Knowledge aspect	Experimental Group			Control Group			Un Paired t value
	Mean	Mean (%)	SD	Mean	Mean (%)	SD	
1.The concept of COPD	4.96	70.85	0.85	3.5	47.58	0.84	7.83*
2.Causes,risk factors, disease manifestations, diagnosis, and complications of COPD	5.6	64.5	1.28	3.9	48.75	1.15	4.00*
3.Prevention of COPD exacerbation	11.26	75.06	1.63	6.4	42.86	1.26	13.52*
Total	21.4	71.0	2.35	13.63	45.53	1.49	15.52*

\*\*= Not significant \* = significant

\*Significant at 5% level Table value =1.96

The above table shows that in posttest the overall mean percentage was 71% in experimental group and 45.53% was in control group. The total calculated t value was 15.52. The mean percentage in the aspect of the concept of COPD was 70.85%. and 47.58% was in control group and the calculated t value was 7.83. The mean percentage in the aspect of Causes, risk factors, disease manifestations, diagnosis, and complications of COPD was 64.53% in experimental group and 48.75% was in control group and the calculated t value was 4. The mean percentage in the aspect of prevention of COPD exacerbation was 75.06% in experimental group and 42.86% was in control group and the calculated t value was 13.52. So it indicates that the post test mean knowledge score of experimental group is significantly greater than that of control group (found to be significant at 5% level for the all aspects under the study) .Hence H2 hypothesis is accepted.

Table 1.11 : Comparison between mean pretest and post test knowledge score of experimental group  
**n=60**

Knowledge	Experimental Group						Paired t value	
	Pretest			Post test				
	Mean	Mean (%)	SD	Mean	Mean (%)	SD		
The concept of COPD	3.06	43.71	0.88	4.96	70.85	0.85	*9.25	
Causes,risk factors,disease manifestations,diagnosis, and complications of COPD	3.13	39.12	1.35	5.6	64.5	1.28	*7.94	
Prevention of COPD exacerbation	6.36	42.4	1.69	11.26	75.06	1.63	*14.29	
<b>Total</b>	<b>12.46</b>	<b>42</b>	<b>2.52</b>	<b>21.4</b>	<b>71.0</b>	<b>2.35</b>	<b>*17.13</b>	

\*\*= Not significant

\* = Significant

\*Significant at 5% level

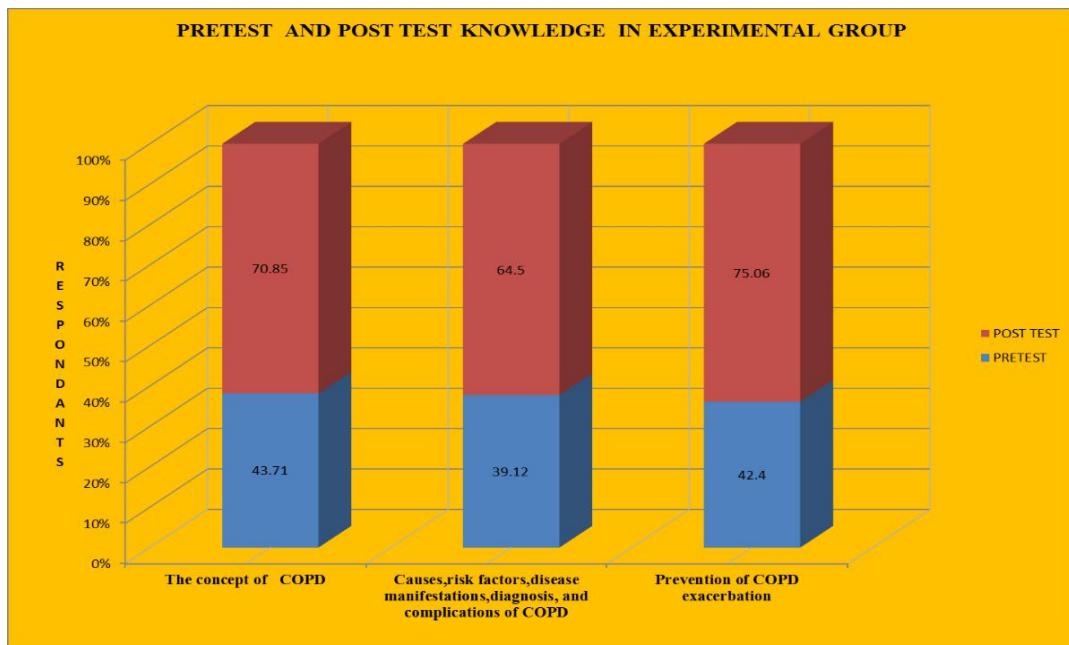


Fig 1.11, Aspect wise mean pre and post test knowledge scores of COPD clients in experimental group  
The above table1.11 and fig 1.11 shows that the overall mean percentage was 42% in pretest and 71% in posttest and the total calculated t value was 17.13. The mean percentage in the aspect of the concept of COPD was 43.71% in pretest and 70.85% in post test and the calculated t value was 9.25. The mean percentage in the aspect of causes, risk factors, disease manifestations, diagnosis, and complications of COPD was 39.12% in pretest and 64.5% and the calculated t value was 7.94. The mean percentage in the aspect of prevention of COPD exacerbation was 42.4% in pretest and 75.06% in posttest and the calculated t value was 14.29. It was calculated using paired 't' test. So it indicates that the post test mean knowledge score of experimental group is significantly greater than that of control group. Hence H1 is accepted.

Table 1.12 : Comparison between mean pretest and post test knowledge score of control group.  
n=60

Knowledge	Control Group						Paired t value	
	Pre test			Post test				
	Mean	Mean (%)	SD	Mean	Mean (%)	SD		
The concept of COPD	2.96	42.28	0.96	3.5	47.58	0.84	1.57**	
Causes,risk factors,disease manifestations,diagnosis, and complications of COPD	2.73	34.13	1.17	3.9	48.75	1.15	4.54*	
Prevention of COPD exacerbation	6.34	42.26	1.65	6.4	42.86	1.26	1.01**	
Total	12.23	41	2.58	13.63	45.53	1.49	2.69**	

\*\*= Not significant \* = significant

\*Significant at 5% level

The above table shows that the overall mean percentage was 41% in pretest and 45.53% in posttest and the total calculated t value was 2.69. . The mean percentage in the aspect of the concept of COPD was 42.28% in pretest and 47.58% in post test and the calculated t value was 1.57.. The mean percentage in the aspect of causes, risk factors, manifestations, diagnosis, and complications of COPD was 34.13% in pretest and 48.75% and the calculated t value was the 4.54. The mean percentage in the aspect of prevention of COPD exacerbation was 42.26% in pretest and 42.86%

in posttest and the calculated t value was 14.29. It was calculated by using paired t test. So it indicates that there is no significant difference between pretest and posttest knowledge score in control group.

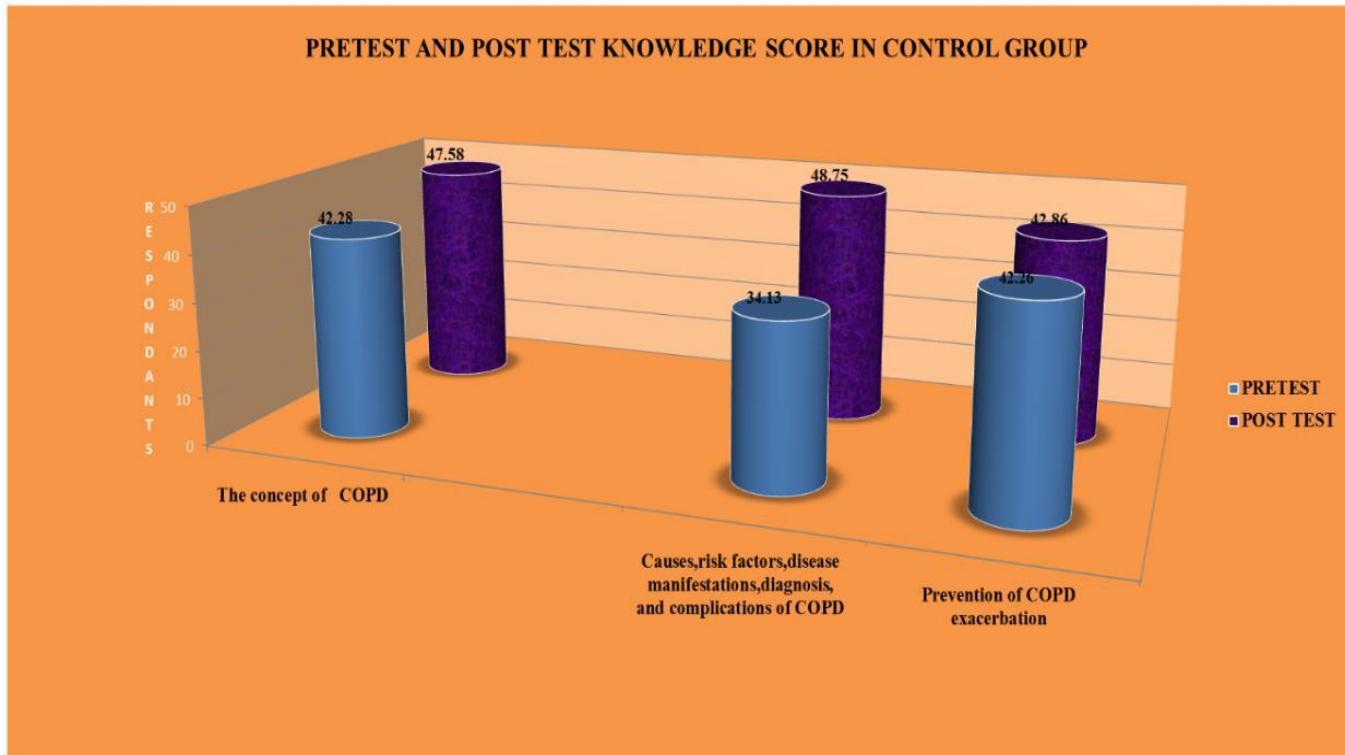


Fig 1.12, Aspect wise mean pre and post test knowledge scores of COPD clients in control group

#### SECTION IV

#### ASSOCIATION BETWEEN LEVEL OF POSTTEST KNOWLEDGE SCORES OF COPD CLIENTS REGARDING PREVENTION OF COPD EXACERBATION SELECTED DEMOGRAPHIC VARIABLES IN EXPERIMENTAL GROUP.

Table 1.13 Association between the posttest knowledge scores of experimental group with selected demographic variables.

SL. no	Variable	Category	Adequate		Moderate		<b>Total</b>	$\chi^2$ Value
			N	%	N	%		
1	Age in years	41-50	6	0.5	6	0.5	12	<b>Df=3 S 10.13</b>
		51-60	3	60	2	40	5	
		61-70	5	62.5	3	37.5	8	
		71-80	2	0.4	3	0.6	5	
2	Gender	Male	14	77.7	4	22.2	18	<b>Df=1 10.46 S</b>
		Female	2	16.6	10	83.3	12	
3	Educational status	Primary education	7	53.8	6	46.1	13	<b>Df=3 S 11.17</b>
		Secondary education	8	0.8	2	0.2	10	
		PUC	0	0	6	100	6	
		Graduate or above	1	100	0	0	1	
4	Occupational status	Medical Professional	5	83.4	1	16.6	6	<b>Df=3 S 9.78</b>
		Other employees	5	62.5	3	37.5	8	
		House wife, Retired	6	60	4	40	10	
		Unemployed	0	0	6	100	6	

5	Duration Of COPD treatment	Below 5 years	4	100	0	0	4	
6		6-10 years	8	61.5	5	38.4	13	Df=4 S 11.61
		11-15 years	2	25	6	75	8	
		16-20 years	0	0	3	100	3	
		21 years and above	2	100	0	0	2	
6	Source of information	Mass media (T V, Radio,net	4	66.6	2	33.3	6	
		Health personnel	3	37.5	5	62.5	8	Df=3 S 10.76
		Family/ Friends / relatives	6	54.54	5	45.4	11	
		Books/ Magazines	3	60	2	40	5	

S-Significant, NS-Non significant at 5 %

The above table 1.12 shows the association between knowledge and selected demographic variables of samples such as age, education, occupation, type of family and length of stay with patient.

### TESTING THE HYPOTHESIS 3:

H3. There will be significant association between post -test knowledge scores of COPD clients in experimental group regarding the prevention of exacerbation with selected demographic variables

There is association between the demographic variables and post test knowledge scores was calculated using chi-square test at 0.05% (5% level). The demographic variables analysed in the study were age ( $\chi^2 = 10.13$ ), gender group ( $\chi^2 = 10.46$ ), educational status ( $\chi^2 = 11.17$ ), occupation group ( $\chi^2 = 9.78$ ), duration Of COPD treatment group ( $\chi^2 = 11.61$ )and source of information ( $\chi^2 = 10.76$ ) regarding prevention of COPD exacerbation...So there is significant association of posttest knowledge score of experimental group with age, gender, educational status, occupation, duration of COPD treatment and source of information regarding prevention of COPD exacerbation. Hence H3 is accepted.

## 6. FINDINGS OF THE STUDY

### SAMPLE CHARACTERISTICS

In the present study ,the demographic data with regard to age the highest percentage of COPD clients who belongs to the age group of 41-50 years were 12(40%) and 11(36.7%) in experimental and control group respectively. With regard to gender, the highest percentage 18(60%) and 20(66.7%) of the COPD clients were males in the experimental group and control group respectively, when compared to females 12(40%) in experimental group and 10 (33.3%) in control group. With regard to educational status of the COPD clients shows that highest percentage 13(43.3%) of the COPD clients in the experimental group and 12 (40%) in the control group had only primary education .According to occupational status the highest percentage 10(33.3%) of the COPD clients in the experimental group and 12(40%) in the control group are retired,/ house wife. With regard to the duration of COPD treatment, the highest percentage 13 (43 %) of COPD clients in the experimental group and 14(46.6%) of COPD clients in the control group had duration of COPD between 6-10 years. Regarding the previous source of information, the highest percentage 11(36.67%) and 7(23.3%) of COPD clients got information regarding COPD through family/ friends / relatives in the experimental and control group respectively.

### MAJOR FINDINGS OF THE STUDY

### ASSESS THE PRE-EXISTING KNOWLEDGE OF COPD CLIENTS OF BOTH EXPERIMENTAL AND CONTROL GROUP REGARDING THE PREVENTION OF COPD EXACERBATION PRIOR TO THE IMPLEMENTATION OF STRUCTURED TEACHING PROGRAMME.

The overall mean percentage of the pre-test knowledge score of the COPD clients was less (42% in experimental group and 41% in control group).This shows that there is lack of knowledge among COPD clients in all aspects regarding prevention of COPD exacerbation.

### ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON PREVENTION OF EXACERBATION OF COPD CLIENTS BY COMPARING PRE AND POST-TEST KNOWLEDGE SCORES OF EXPERIMENTAL GROUP.

The result of the study revealed that there was a considerable improvement in the knowledge of COPD clients after the administration of structured teaching programme and was statistically significant. The overall mean knowledge score of COPD clients in experimental group in the pre-test was 42% and 71% in the post-test with an enhancement of 29%. The highest enhancement of 35.3% was found in the aspects of prevention of exacerbation of COPD (pre-test-42.4% & posttest-75%)

The aspect of concept of COPD shown an enhancement of 30% (39.2% and post test 70%). In the aspect of causes, risk factors, disease manifestations, complications of COPD the enhancement of 32.22% was evident (pre-test-42.4% and posttest-75%). These scores indicate that the respondents had some knowledge about these aspects and the STP has improved their level of knowledge about prevention of exacerbation of COPD. The overall t test value 17.13 is higher than the critical table value. So it indicates the enhancement in the mean knowledge score found to be significant at 5% level for all aspects under the study.

#### **COMPARE THE POST TEST KNOWLEDGE SCORE OF BOTH EXPERIMENTAL AND CONTROL GROUP REGARDING THE PREVENTION OF EXACERBATION OF COPD.**

The post knowledge scores of both experimental and control group shows a significant difference between two groups. In post-test, the overall mean percentage was 71% in experimental group and 45.53% in control group. The total calculated t value was 15.52. The mean percentage in the aspect of the concept of COPD was 70.85% and 47.58% was in control group and the calculated t value was 7.83. So it indicates that the post test mean knowledge score of experimental group is significantly greater than that of control group (found to be significant at 5% level). Hence H2 is accepted.

#### **FIND OUT THE ASSOCIATION BETWEEN POST -TEST KNOWLEDGE SCORES AND SELECTED DEMOGRAPHIC VARIABLES OF COPD CLIENTS IN EXPERIMENTAL GROUP**

The association between the demographic variables and post test knowledge scores was calculated by using  $\chi^2$  test at 0.05% (5% level). The demographic variables analysed in the study were age, gender, educational status, occupation, duration of COPD treatment and source of information.

There is significant association of post test knowledge score of experimental group with age, gender, educational status, occupation, duration of COPD treatment and source of information regarding prevention of COPD exacerbation. Hence H3 is accepted.

#### **7. CONCLUSION :**

This study enlightens the importance of the research work. The research was conducted among COPD clients on prevention of exacerbation in selected super speciality hospitals at Bangalore. The study revealed that the COPD clients have inadequate knowledge regarding prevention of COPD exacerbation. After the administration of structured teaching programme COPD clients' knowledge on prevention of COPD exacerbation was increased. The "t" test which was computed between post test knowledge scores in experimental group indicates that the structured teaching programme was very effective. The study shows that there is significant difference between pre and post test knowledge scores of COPD clients in experimental group regarding prevention of COPD exacerbation. The study shows that there is significant association between the post test knowledge score and demographic variables of the COPD clients in experimental group. Hence H3 is accepted in experimental group.

#### **8. RECOMMENDATIONS:**

- A similar study can be replicated on a large sample to generalize the findings.
- A study can be conducted on practice of the COPD clients on prevention of exacerbation.
- Same study can be conducted with equal distribution of the samples according to their type of family and educational qualification.
- A study can be carried out to evaluate the efficiency of various teaching strategies like and structured teaching programme on prevention of COPD exacerbation.

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