

# A STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING BREATHING TECHNIQUE AMONG PEOPLE RESIDING NEAR FACT, AT AMBALAMEDU

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**Abstract:** STP on knowledge regarding the Breathing Technique among the people residing near the FACT, Ambalamedu area of Ernakulam District. The objectives were to assess the existing level of knowledge of the people residing near the FACT, Ambalamedu regarding the Breathing Technique before the structured teaching programme and to evaluate the effectiveness of structured teaching programme in terms of gain in knowledge. The pre experimental design of one group pre test post test design was used for our study. The sample size was 36 people who were residing near the FACT chosen by means of convenient sampling technique. The data for the study was collected by structured questionnaire following which samples were subjected to STP on breathing technique for duration of one hour. Post test was done on 7th day following intervention. The same tool was used to conduct the post test. The data was analyzed by descriptive and inferential statistics. The paired t test provide "T" value of 11.955 with a  $p < 0.01$  which was very highly significant which shows that the teaching programme was effective.

**Key Words:** STP, knowledge, breathing techniques.

## 1. INTRODUCTION:

Breathing is a normal physiological process which maintains the vital function of the body. Breathing is a complex behavior requiring the co-ordinated activity of several muscle groups, both in the upper airway and in the chest wall. The primary function of the respiratory system is the exchange of gases between atmosphere and blood. At the end of the last century Austrian physiologists Breyer and Gering made a sensational discovery - Man is the only biological specimen on earth who had not developed a correct way of breathing. All other beings know how to breathe but not humans. Just observe those around you carefully and you will find that people breathe differently. Some breathe deeply others superficially, some faster, others slower, with pauses and some without.

The function of our respiratory system is not just to push air in and out but to maintain a very specific ratio of oxygen and carbon dioxide. When we over breathe and hyperventilate, we lose valuable carbon dioxide. Hyperventilation causes a depletion of carbon dioxide. Low levels of carbon dioxide in the organism cause blood vessels to spasm and also cause oxygen starvation of the tissues. The air that we breathe contains 200 times less carbon dioxide than we need and 10 times more oxygen than we need.

At the end of the last century Russian Physiologist Verigo and Dutch scientist Bohr independently discovered that without carbon dioxide, oxygen is bound to the hemoglobin of the blood and simply does not work. This consequently leads to oxygen deficiency in the tissues of the brain, heart, kidneys and other organs and a raising of the blood pressure and many respiratory diseases and complications occurs due to the oxygen deficiency in the human body. Many measures have been employed to prevent complications, such as administering broad spectrum antibiotics, adequate pain management by opioid. Among these the simplest and easiest method to prevent pulmonary complication is the deep breathing and coughing exercises. Russian Medical Scientist Professor KONSTANTIN PAVLOVICH BUTEYKO has devoted over 40 years of research in to breathing and in the process discovered that only one in ten people breathe correct. Natural and normal breathing results in very specific accumulated gas mixture that our organisms requires to function properly. Traditional wisdom tells as that deep breathing is the best as it is thought to provide the most oxygen

## 2. NEED OF THE STUDY :

The respiratory diseases are common in all age groups. The contributing factors are hereditary, cigarette smoking, change in temperature, allergens, food, medications, pollens, fumes, dust, air pollution, viral infection, stress, laughing, crying, exercise, and strong odours. Among these people who are living in a polluted area have a more chance

for respiratory diseases. We are all aware of danger of pollution and declining quality of air. Many respiratory diseases such as asthma, emphysema are caused by environmental pollution. The problem faced by the evolving human organism has been the depletion of carbon dioxide in our atmosphere from the tens of 0.03%. Human evolution has dealt with this dilemma, by creating an autonomous internal air environment within alveolar spaces of the lungs. These alveoli ideally contain around 6.5% of carbon dioxide quite a contrast to the surrounding air.

From this studies we think that breathing technique will be essential for the people who are residing near the FACT, because of they have more chance for getting pulmonary diseases than other area due to the expulsion of highly polluted gases from FACT.

According to the founding principles of the breathing techniques some 200 diseases are linked to dysfunctional breathing, asthma, allergies and emphysema are just a few examples. More than 40 years of research have produced the Buteyko method, which can recondition and normalize the breathing and restore the body's most important function. We can see many respiratory diseases in the people who are residing near the FACT .So Buteyko Breathing Technique is effective and acceptable method for them

Many measures have been employed to prevent respiratory diseases and its complications such as administering broad spectrum antibiotics, and adequate pain management by opioids. Among these the newly invented simplest and easiest method is Buteyko Breathing Technique

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Buteyko Breathing method can reverse the symptom such as asthma attacks blocked nose, dizziness, chest pain, palpitation and coughing. When we breathe very deeply for 5-10 minutes because reducing the depth of our breathing by shallowly can reverse the symptoms within a few minutes.

We conducted an interview with medical officer in FACT and understood that the people who are residing near the FACT, have more chance for getting respiratory diseases. As said above Buteyko breathing technique can be effective for those people with severe respiratory difficulties. As such we selected this teaching programme on breathing technique for the people residing near FACT.

### 3. OBJECTIVES :

- To assess the existing level of knowledge of the people residing near the FACT regarding the Breathing Technique before the structured teaching programme measured by structured questionnaire.
- To develop a structured teaching programme.
- To evaluate the effectiveness of structured teaching programme in terms of gain in knowledge
- To associate pre-test knowledge with certain demographic variables such as educational level and income.

### 4. RESEARCH APPROACH :

Research approach, is the method used to find out the effectiveness of structured teaching programme on knowledge regarding the Breathing Technique among people residing near FACT Ambalamedu. In this study quantitative research approach is used.

### 5. RESEARCH DESIGN :

One group pre test pre-experimental research design was adopted for this study. In this study structured teaching programme was given to the samples after pre test. Seven days after the structured teaching programme post test was done to assess the knowledge regarding breathing technique .In this study a comparison between the pre test and post test score was done to find out the effectiveness of structured teaching programme.

#### 5.1 STUDY SETTING

The people residing near FACT, Ambalamedu were selected for the study

#### 5.2 POPULATION

A population is the entire aggregation of cases in which reasearcher is interested. In this study population consists of both male and female residing near FACT at ambalamedu.

### 5.3 SAMPLE

A sample is a small portion of population selected for observation and analysis. In this study, sample consist of people residing FACT

### 5.4 SAMPLING TECHNIQUE

Sampling is the process of selecting a portion of the population to represent the entire population. In this study convenient sampling technique was used to select the sample.

### 5.5 SAMPLE SIZE

A sample is a subset of the population, that is selected for a particular study and the members of a sample are the subjects. The study sample consists of 36 people residing near the FACT, Ambalamedu.

### 5.6 DATA COLLECTION PROCEDURE:

Structured questionnaire methods consisting of two parts

#### Section A. Demographic variable

Items on demographic variable include , name, age.sex, education, income, occupation, data of previous class attended.

#### Section B. Structured questionnaire

Structured questionnaire on the knowledge of people residing near FACT, Ambalamedu regarding breathing techniques and its performance

## 6. FINDINGS:

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

### SECTION-1

#### AGE

Table 1: Distribution of age among people residing near the FACT

SL NO:	AGE IN YEARS	FREQUENCY	%
1	15-30	1	2.77%
2	30-45	7	19.44%
3	45-60	28	77.77%
4	Above 60	0	0

The table shows % of sample, 3% within the age group of 15-30.19% were between 30-45 , 78% were between 45-60 and nobody was there above 60years.

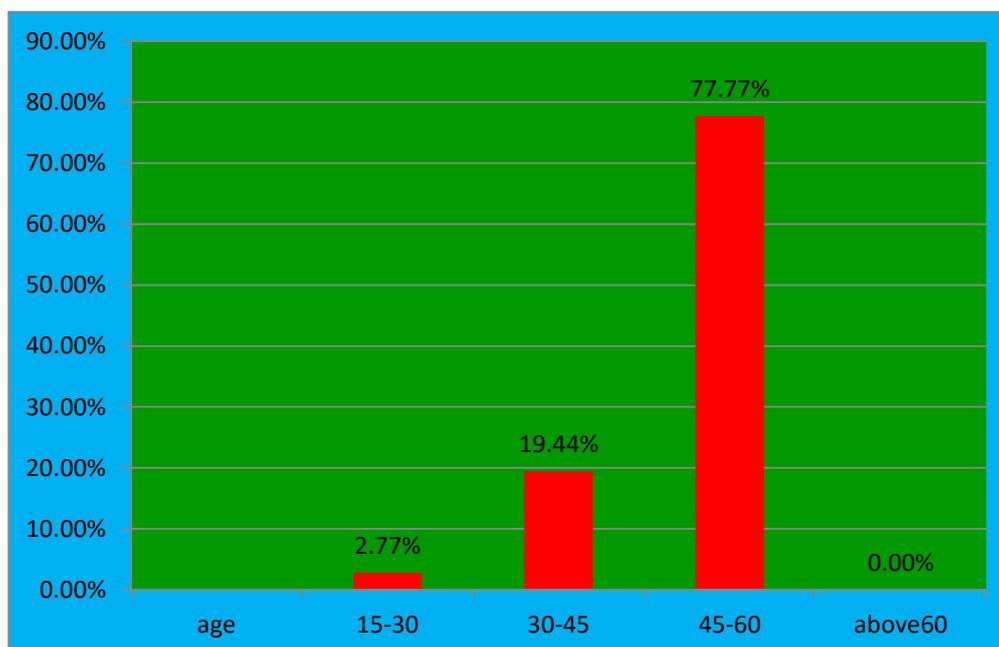


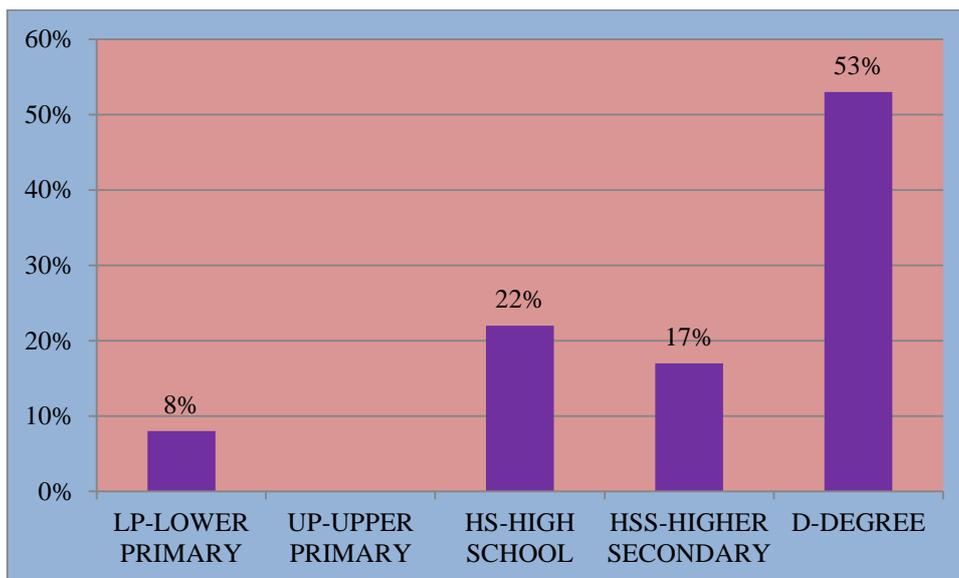
Figure: 1. Distribution of people in terms of age

**EDUCATION**

**Table:3 Distribution of education of people residing near the FACT**

SL NO:	EDUCATION	FREQUENCY	%
1	Lower primary	3	8%
2	Upper primary	-	-
3	High school	8	22%
4	Higher secondary	6	17%
5	Degree	19	53%

The highest frequencies of the sample (53%) were graduates, (22%) were having the high school education, (17%) having higher secondary education and (5%) with lower primary education.



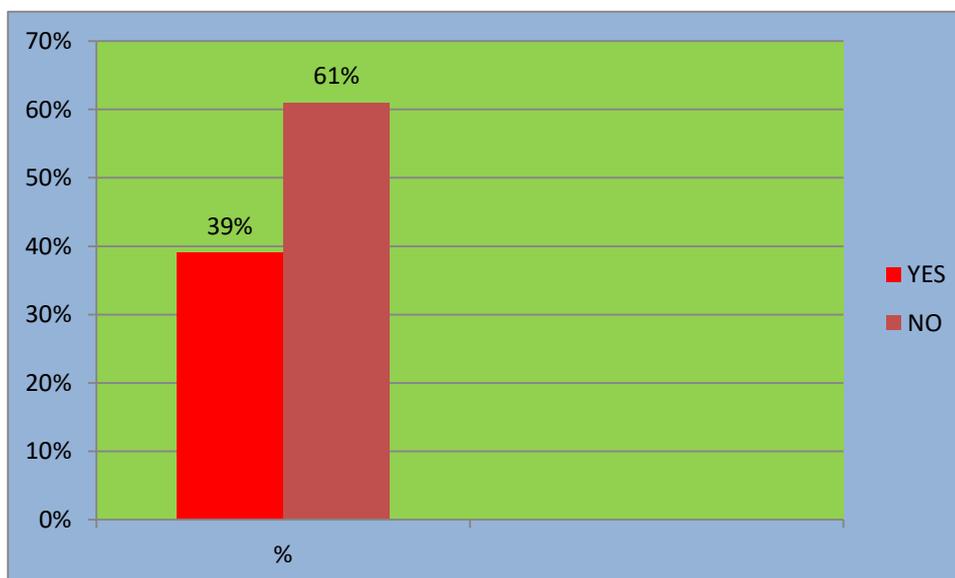
**Figure 3: Distribution of people in terms of their education**

**OCCUPATION**

**Table 4: Distribution of occupation among people residing near the FACT**

SL NO:	OCCUPATION	FREQUENCY	%
1	Yes	14	39%
2	No	22	61%

The highest frequencies of the sample (61%) have no occupation and (39%) have occupation



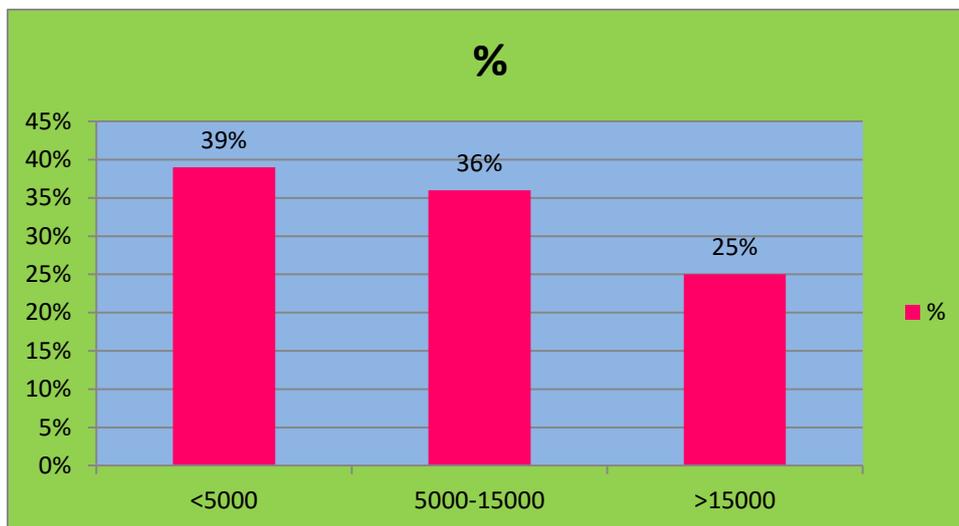
**Figure 4: Distribution of people in terms of their occupation**

**INCOME**

**Table 5: Distribution of income among people residing near the FACT**

SL NO:	INCOME	FREQUENCY	%
1	<5000	14	39%
2	5000-15000	13	36%
3	>15000	9	25%

The highest frequency of sample (39%) having income <5000, (36%) having 5000-15000 and 25% were having income above 15000.



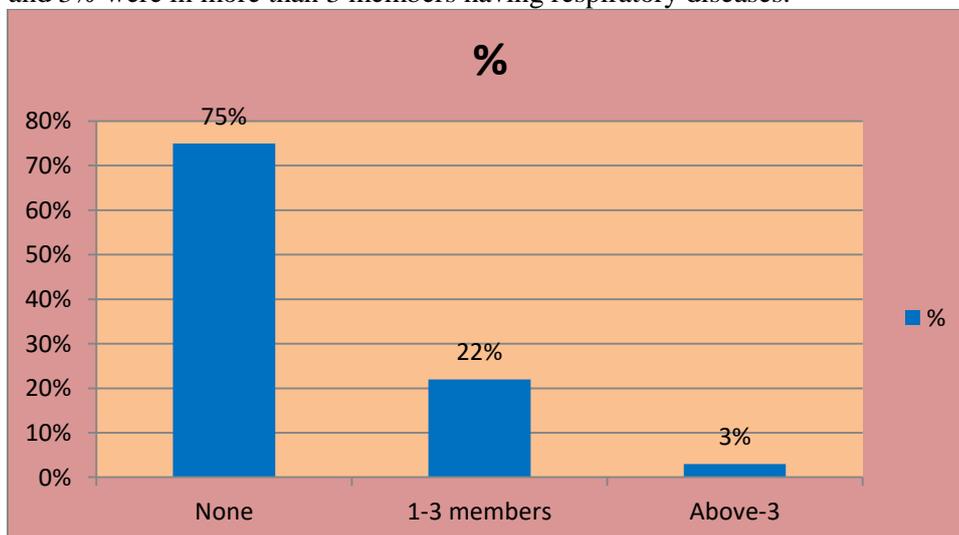
**Figure 5: Distribution of people in terms of their income**

**NUMBER OF FAMILY MEMBERS WHO HAVE RESPIRATORY DISEASES**

**Table 6: Distribution family members who have respiratory diseases**

SL NO:	NO: OF FAMILY MEMBERS WHO HAVE Resp.Diseases	FREQUENCY	%
1	None	27	75%
2	1-3 Members	8	22%
3	Above-3	1	3%

The highest frequency of sample 75% have no respiratory diseases, 22% were in 1-3 members in the family having respiratory diseases and 3% were in more than 3 members having respiratory diseases.



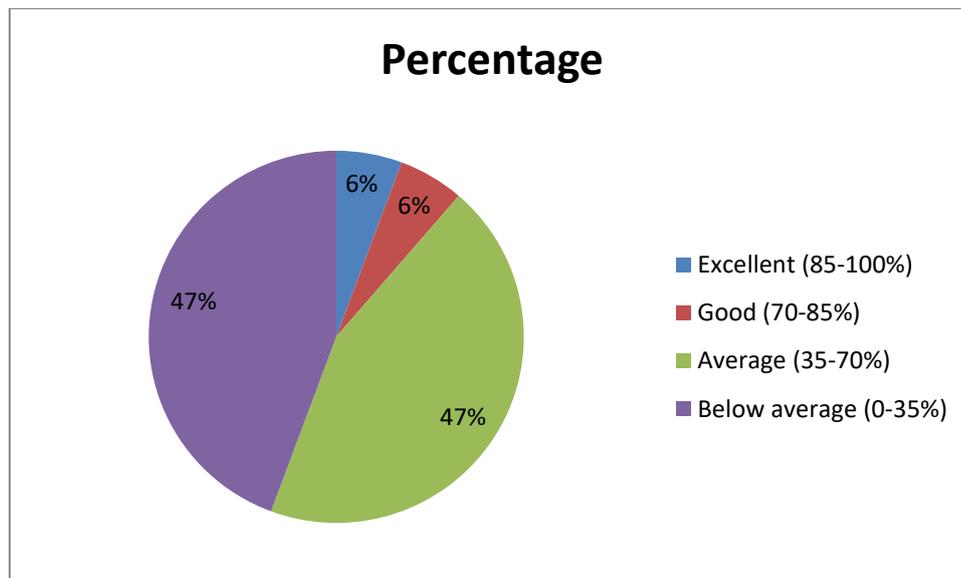
**Figure 6: Distribution of people in terms of number of family members who have respiratory diseases**

**SECTION-2**

**Table 7-Distribution of pre test level of knowledge regarding breathing technique among people residing near FACT**

LEVEL OF KNOWLEDGE	NUMBER OF RESPONDENTS	
	FREQUENCY	PERCENTAGE
Excellent (85-100%)	2	6%
Good (70-85%)	2	6%
Average (35-70%)	17	47%
Below average (0-35%)	15	47%

The above table shows that the frequency and percentage distribution of people residing near FACT according to the pre test level of knowledge regarding the breathing technique. The level of knowledge was seen into 4 categories, Excellent, Good, Average, Below Average. Among people almost 6% have excellent knowledge, 6% have good knowledge, 47% have Below average knowledge.



**Mean, SD, Mean percentage, Range of pre test knowledge regarding breathing technique among people residing near FACT.**

DOMAIN	MAXIMUM SCORE	RANGE	MEAN	STANDARD DEVIATION	MEAN%
KNOWLEDGE	22	1-19	9.19	4.744	4.77%

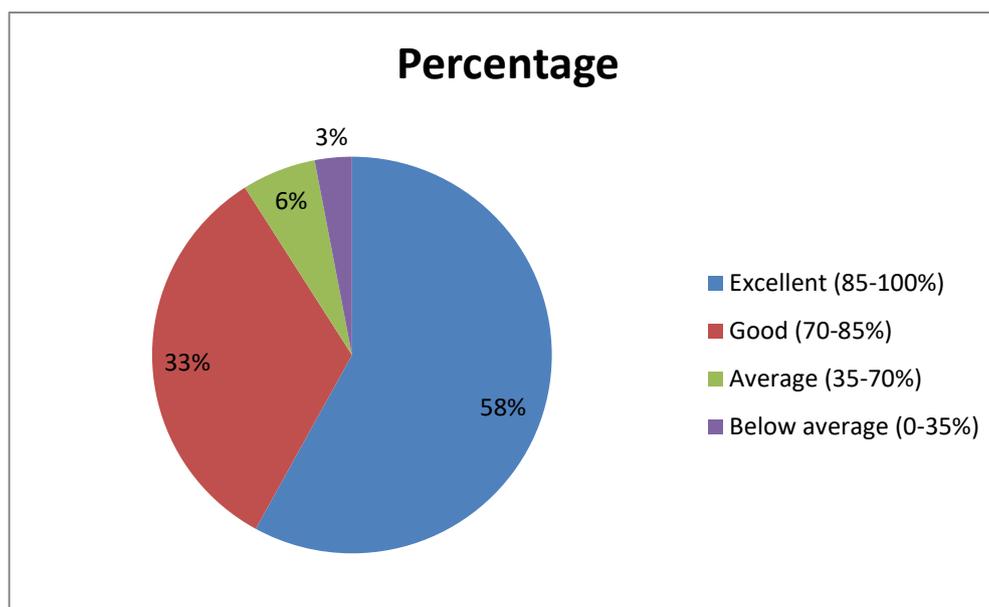
The statistical outcome such as mean, median, SD, mean% of pre test knowledge regarding breathing technique among people residing near FACT were shown in the table. Out of maximum score of 22, the people attained mean knowledge of 9.19 with SD of 4.744. The mean % attained was 41.77%

**SECTION-3**

**Table 8: Distribution of post test level of knowledge regarding breathing technique among people residing near FACT, using descriptive statistics**

LEVEL OF KNOWLEDGE	NO: OF RESPONDENTS	
	NUMBER	%
Excellent(85-100%)	21	58%
Good (70-85%)	12	33%
Average (35-70%)	2	6%
Below average (0-35%)	1	3%

The above table shows the frequency and % distribution according to the post test level of knowledge regarding breathing technique among people residing near FACT. Among these 58% had excellent knowledge, 33% had good knowledge, 6% had average knowledge, 3% had bad knowledge.



**Figure 8: Percentage distribution of post test knowledge among people residing near FACT**

**Table 11: Mean, SD, Mean% of post test knowledge regarding the breathing technique among people residing near FACT.**

DOMAIN	MAXIMUM SCORE	RANGE	MEAN	STANDARD DEVIATION	MEAN%
KNOWLEDGE	22	16-22	18.67	1.724	84.8%

The statistical outcomes such as mean, SD, mean% of post test knowledge regarding breathing technique among people residing near FACT were shown in the table. Out of maximum score of 22 the people had attained mean knowledge of 18.67 with SD 1.724. The mean% attained is 84.8%.

#### SECTION 4

##### Effectiveness of STP on knowledge regarding breathing technique

**Table 12: Pre test and post test level of knowledge among people residing near FACT**

LEVEL OF KNOWLEDGE	PRE TEST		POST TEST	
	NO:	%	NO:	%
Excellent(85-100%)	2	6	21	58
Good (70-85%)	2	6	12	33
Average(35-70%)	17	47	2	6
Below average (0-35%)	15	41	1	3

**Table 13: Comparison of mean and SD of pre test and post test level of knowledge regarding breathing technique among people residing near FACT.**

DOMAIN	MEAN	SD	PAIRED 'T' TEST
Pre test	9.19	4.744	11.955
Post test	18.67	1.724	
Enhancement	9.472	4.757	

The people knowledge on breathing technique was studied on questionnaire method with 22 items. The knowledge was evaluated by the questionnaire method of 22 questions with a total score of '0' or '22'. This was also test after the STP with the same way of scoring. Before the STP knowledge was evaluated by taking the total score and the mean score observed 9.19 with a SD of 4.744 and after the training the similar procedure was adopted and the total score observed 18.67 with a SD of 1.724 which gave an improvement of 9.472 (mean difference and this was tested by using paired 't' test). The paired 't' test provide 't' value of 11.955 with a  $P < 0.001$  which is very highly significant. That means the knowledge was improving

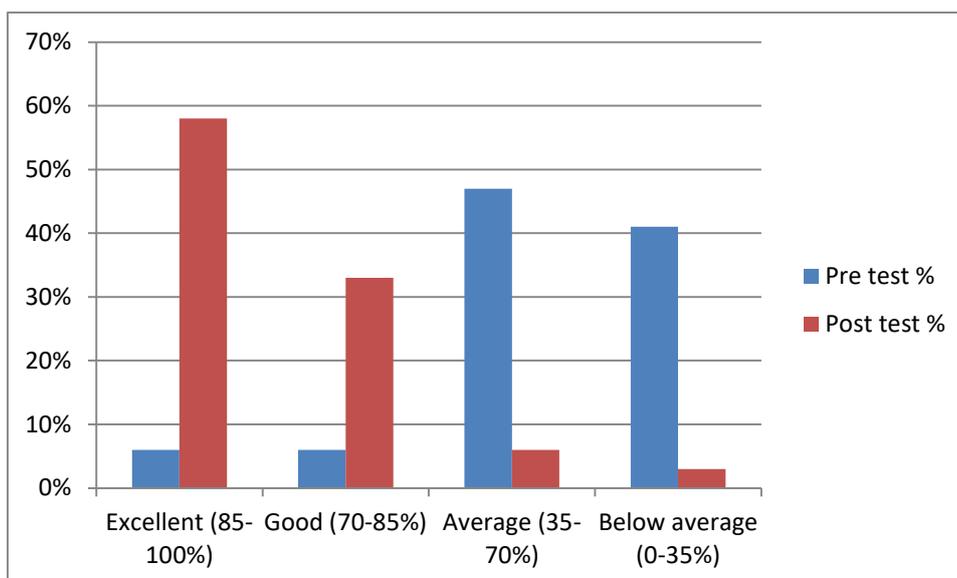


Figure 9: comparison of pre test and post test knowledge

**SECTION 5**

Find out the association between level of pretest knowledge and selected demographic variables

Table 14 : shows association between knowledge and demographic variables

Sl no	Demographic variables	No	%	Level Of Knowledge				Chi square
				Excellent		Good		
				No	%	No	%	
1	Education							1.000
a	Primary	11	30.6	7	31.8	4	28.3	
b	Secondary	25	69.4	15	68.2	10	71.4	
2	Income							.738
a	<5000	14	38.9	8	36.4	6	42.9	
b	>5000	22	22.0	14	13.4	8	8.6	

The above table shows the association between knowledge and selected demographic variables of people such as education, income.

**TESTING THE HYPOTHESIS**

Research Hypothesis 2. :

- \* There is a significant association between pre test knowledge and selected demographic variables
- \* The results of chi square analysis shows that there is no significant association between the pre test knowledge of people residing near the FACT and the selected demographic variables

**FINDINGS OF THE STUDY**

There was a significant improvement following structured teaching programme on Breathing Technique among peoples living near the FACT. Paired ‘t’ test value was significant. There is no association between knowledge and selected demographic variables of peoples identified according to age, sex, religion, education, occupation, income and no: of family members who have respiratory diseases..

**Major Findings of the study.**

Sample characteristics.

**According to age:** The people residing near the FACT (78%) were between the ages of 45-60,19% were between ages of 30-45 and between 15-30 only 3%.

**According to sex:**67% were females and rest of 33% were males. Of the people (78%) were Hindu,19% were Christian and only 3% were Muslims.

**According to Education:** Majority (53%) were graduates,22% were high school education completed persons,70% Higher secondary and 8% were Lower Primary completed persons

**According to Occupation:** Majority(61%) have no occupation and rest of 39% are employees.

**Regarding monthly income:** 39% were <5000, 36% were having within 5000-15000 and 25% having the income of 15000 above.

**Regarding no. of family members who have respiratory disease:** Majority (75%) have no respiratory diseases, 22% having 1-3 members with respiratory diseases and 3% were in above 3 members having respiratory diseases

#### **Pre test Level of knowledge of people regarding breathing technique**

The table shows frequency and % distribution according to the pre test level of knowledge regarding breathing techniques among people residing near the FACT. Among these people almost 6% have excellent knowledge, 47% have average and 41% have bad knowledge.

#### **Post test Level of knowledge of people regarding breathing techniques**

The table shows frequency and % distribution according to the post test level of knowledge regarding breathing techniques among people residing near the FACT. Among these people most of them (58%) had excellent knowledge, 33% had good knowledge, 6% had average knowledge and 3% had poor knowledge.

#### **Effectiveness of STP on knowledge regarding breathing technique**

Before the STP knowledge was evaluated by taking the total score and the mean score observed 9.19 with a standard deviation of 4.744 and after STP the similar procedure was adopted, and total score observed 18.67 with a standard deviation of 1.724 which give an improvement of 9.472 (mean difference) and this was tested by using t test. The paired t test provide "T" value of 11.955 with a  $p < 0.001$  which is very highly significant that means the knowledge was increasing.

#### **The association between level of pre test knowledge and selected demographic variables**

The table describes the association between knowledge and selected demographic variables such as education, income..

The results of chi square (Fisher's Exact Test) analysis indicates that  $p > 0.001$  so there was no significant association between knowledge and selected demographic variables such as education, income.

### **7. CONCLUSION:**

This chapter enlightens importance of this research, reveals that there was significant lack in knowledge regarding Breathing technique among people residing near FACT and structured teaching programme had a significant role in improving the knowledge. The study also reveals that there was a significant association between knowledge with age, gender, occupation, education and no: of family members who have respiratory diseases

### **8. RECOMMENDATION:**

- The study can be repeated by taking a large sampling in another area.
- A similar study can be conducted among FACT workers.
- A comparative study on the knowledge of urban and rural peoples regarding breathing technique can be conducted.
- A similar study can be replicated on a large sample with a control group using a large population of the community.

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