



“A STUDY TO ASSESS THE EFFECTIVENESS OF DEEP BREATHING EXERCISE ON RESPIRATORY PROBLEMS AMONG SPINNING MILL WORKERS IN SELECTED AREA AT NAMAKKAL DISTRICT.”

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ABSTRACT

The research approach adopted for the study was quantitative Evaluative approach. The research design selected for the study was pre experimental one group pre and posttest design which was used to measure the effectiveness of deep breathing exercise on respiratory problems among spinning mill workers. The selection of samples was done by Non Probability purposive sampling technique and the sample consisted of 50 spinning mill workers who had respiratory problems in KKP spinning mill. The data was collected by using demographic profile of the people, tool used for the study was modified respiratory status assessment scale by using the data collection method of semi structured interview schedule.

KEYWORD:

Effectiveness, Deep Breathing Exercise, Spinning Mill Workers.

INTRODUCTION

“An important event you can do with during your lifetime you breathe in and exit. So if you do your breathing air in and out regularly as an exercise, you can maintain your body in relax and healthy state.”

According to NCOH (Netherlands Centre for One Health) respiratory problem it is one of the major health threats Workers in the cotton industry. Cotton industry workers are exposed to a variety of risks especially in weaving and spinning section that contribute to high levels of industrial health risks. The major health problems associated with cotton dust are respiratory tract complications, including byssinosis, bronchitis and bronchial asthma.

NEED FOR THE STUDY

India is now a major source of energy and is turning to a developed country from a developing country. It is estimated by the Indian government that small industries account for 40% of the total number of industries in Indian economy. The small sector has grown so fast over the years that; the growth rates of the various planning periods have been very positive. The number of small-scale units has increased from an estimated 0.87 million units in 1980-81 to more than 3 million in 2015. This will result in the arrest of 4.2 million people in the spinning industry. This is in addition to the nearly 6.5 million people already involved in the sector, which is the second largest employer after agriculture. **(W Khan, 2020)**

OBJECTIVES OF THE STUDY:

1. To assess the respiratory problems among spinning mill workers.
2. To determine the effectiveness of deep breathing exercise on respiratory problems among spinning mill workers.
3. To find out the association between the pre and post test level of respiratory problems among spinning mill workers with their selected socio demographic variables.

VARIABLES UNDER STUDY

Variable

According to **Polit and Beck, (2010)** a variable is an attribute of a person or object that is, taken on different values.

Independent variable

Independent variable is a stimulus or activity that is manipulated or varied by the researcher to create an effect on dependent variable. The independent variable is also called a treatment or experimental variable. **(Suresh K. Sharma, 2014).**

Present study, deep breathing exercise on respiratory problems is the independent variable.

Dependent variable

Dependent variable is the outcome or response due to the effect of the independent variable, which researcher wants to predict or explain. **(Suresh K. Sharma, 2011).**

In this study, the dependent variable refers to the Respiratory problems among spinning mill workers.

Attributed variables

Attributed variables are preexisting characteristics of the study participants, which the researcher simply observes or measures to describe samples. **(Polit & Beck, 2010).**

Attributed or demographic variables are the characteristics of the subjects that are collected to describe the samples. Age, gender, religion, educational status, marital status, monthly income, smoking habits, no of years of experience in spinning mill, family history of respiratory problem, present history of respiratory problem, If yes duration of illness, are u ontreatment, if yes, presence of breathing difficulty.

STUDY SETTING

Study setting is the physical location and condition in which data collection takes place in the study. **(Polit & Hungler, 2014).**

Selection of the area for the study is one of the essential steps in the research process. The selection of settings for the present study was on the basis of availability of the subjects, feasibility of conducting the study, economy of time and energy. The study was conducted in KKP Spinning mills, Erumapatty, Namakkal district. 1500 workers were working in spinning mill. Per shift 500 workers are working in the KKP mill. In spinning section 100 workers are working in the mills.

RESEARCH DESIGN

It states that research design is the overall plan for collecting and analyzing data, including specifications for enhancing the internal and external validity of the study. **(Polit and Hungler, 2016)**

The research design adopted for this study is pre-experimental, one group pre-test, post-test design, to measure the effectiveness of using deep breathing exercise on respiratory problems among spinning mill workers.

SAMPLE SIZE

The number of sampling units is included in the sample **(Polit and Hungler, 2010).**

The sample for the present study comprised of 50 spinning mill workers in KKP spinning mill.

SCORING PROCEDURE

There were 15 items in modified respiratory assessment scale regarding respiratory problem. Each item in scale has 3 options, the score for the item was stipulated as score 0, score 1, score 2. The maximum possible score was 30. The level of respiratory problem was categorized based on the percentage of score obtained.

Scoring for level of respiratory problem

| Level of Respiratory problem | Percentage of score | Actual score |
|-------------------------------------|----------------------------|---------------------|
| Normal breathing pattern | 0 | 0 |
| Mild respiratory problem | 1-30% | 1-9 |
| Moderate respiratory problem | 31-60% | 10-18 |
| Severe respiratory problem | 61-100% | 19-30 |

Frequency and percentage distribution of demographic variables of spinningmill workers.

| S.No | Demographic Variables | Frequency N=50 | % |
|-------------|------------------------------|---------------------------|----------|
| 1 | Age in years: | | |
| | 25 – 30 | 11 | 22 |
| | 31 – 35 | 21 | 42 |
| | 36 – 40 | 10 | 20 |
| | 41– 50 | 8 | 16 |
| 2 | Gender: | | |
| | Male | 31 | 62 |
| | Female | 19 | 38 |
| 3 | Religion: | | |
| | Hindu | 37 | 74 |
| | Muslim | 11 | 22 |
| | Christian | 2 | 4 |
| | Others | 0 | 0 |
| 4 | Educational Status: | | |
| | Non- literate | 4 | 8 |
| | Primary School | 8 | 16 |
| | Middle school | 12 | 24 |
| | High School | 19 | 38 |
| | Higher Secondary | 7 | 14 |
| | Graduation | 0 | 0 |
| 5 | Marital Status : | | |
| | Married | 34 | 68 |
| | Unmarried | 11 | 22 |
| | Divorced/separated | 2 | 4 |
| | Widow/Widower | 3 | 6 |
| 6 | Monthly Income: | | |
| | < Rs.5000 | 5 | 10 |
| | Rs.5001- 10000 | 28 | 56 |
| | Rs.10001-15000 | 17 | 34 |
| | >Rs.15001 | 0 | 0 |
| 7 | Place of Residence | | |
| | Urban | 10 | 20 |
| | Semi-urban | 13 | 26 |
| | Rural | 27 | 54 |
| 8 | History of Smoking | | |
| | Do not smoke | 27 | 54 |

| | | | |
|-----------|--|----|-----|
| | < 1 packet/day | 20 | 40 |
| | 2-3 packets/day | 3 | 6 |
| | >3 packets/day | 0 | 0 |
| 9 | Years of experience in the spinning Mill : | | |
| | 1-5 Years | 31 | 62 |
| | 6-10 Years | 17 | 34 |
| | 10-15 Years | 2 | 4 |
| | >15 Years | 0 | |
| 10 | History of Respiratory Problem: | | |
| | Yes | 50 | 100 |
| | No | 0 | 0 |
| 11 | If yes, duration of illness: | | |
| | < 1 year | 16 | 32 |
| | 1-3 years | 29 | 58 |
| | >3 years | 5 | 10 |
| 12 | Number of hospitalization for respiratory problem | | |
| | Nil | 10 | 20 |
| | 1-3 times | 23 | 46 |
| | 4-6 times | 11 | 22 |
| | More than 6 times | 6 | 12 |
| 13 | Are you on any treatment? | | |
| | Pharmacological | 8 | 16 |
| | Non-Pharmacological | 19 | 38 |
| | None | 23 | 46 |
| 14 | Family history of respiratory problems | | |
| | Parents | 11 | 22 |
| | Siblings | 8 | 16 |
| | Grandparents/Relatives | 18 | 36 |
| | Nil | 13 | 26 |
| 15 | Allergies histories | | |
| | House dust | 28 | 56 |
| | Pet dander | 7 | 14 |
| | Plastic | 0 | 0 |
| | Others | 6 | 12 |
| | Pollen | 9 | 18 |
| 16 | Are you affected with COVID19? | | |
| | Yes | 17 | 34 |
| | No | 33 | 66 |
| 17 | Are you vaccinated against COVID-19? | | |
| | Yes | 12 | 24 |
| | No | 38 | 76 |
| 18 | If Yes, Name of the vaccine | | |
| | Covishield | 3 | 25 |
| | Covaccine | 9 | 75 |

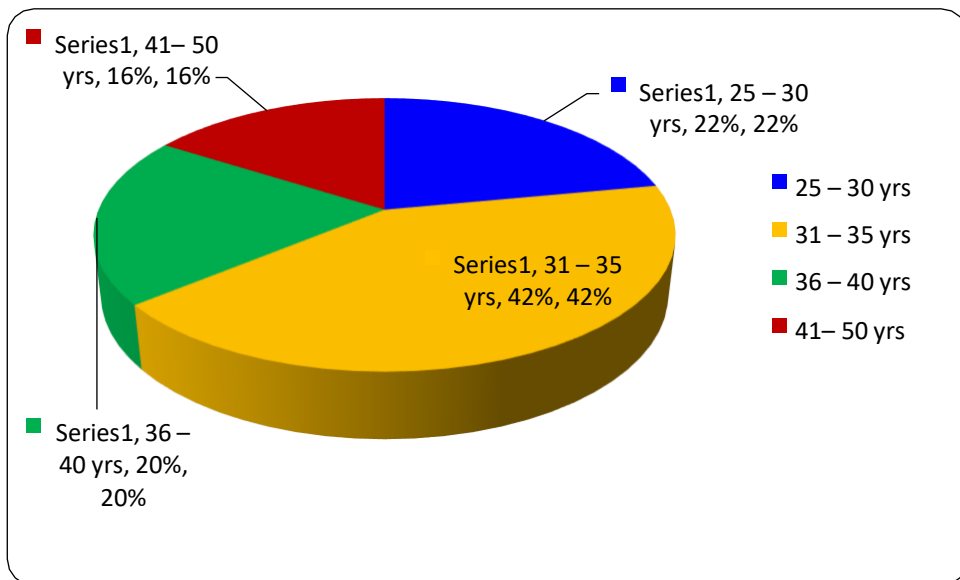


Fig.4.1 Percentage distribution of age of the spinning mill workers

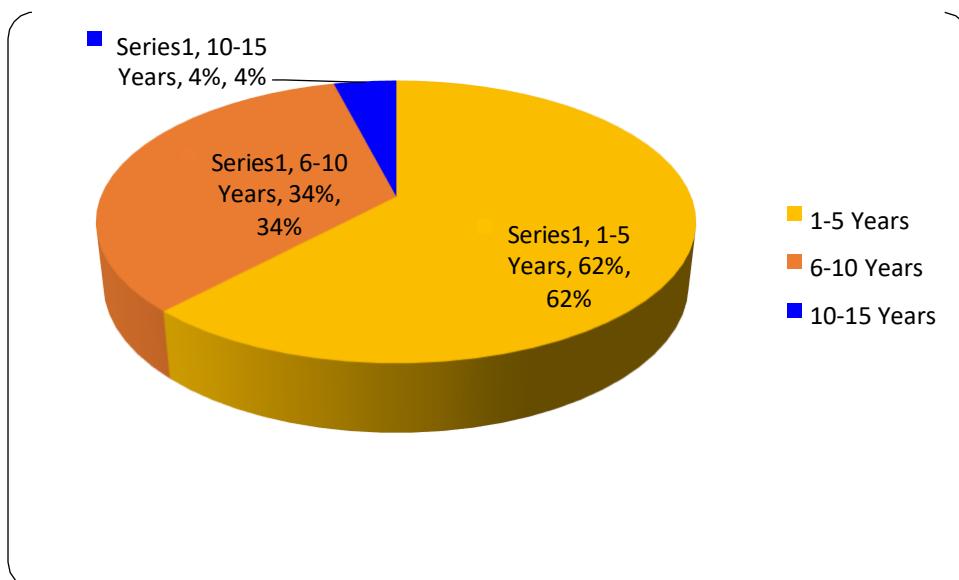


Fig.4.2 Percentage distribution of years of working experience in spinning mill

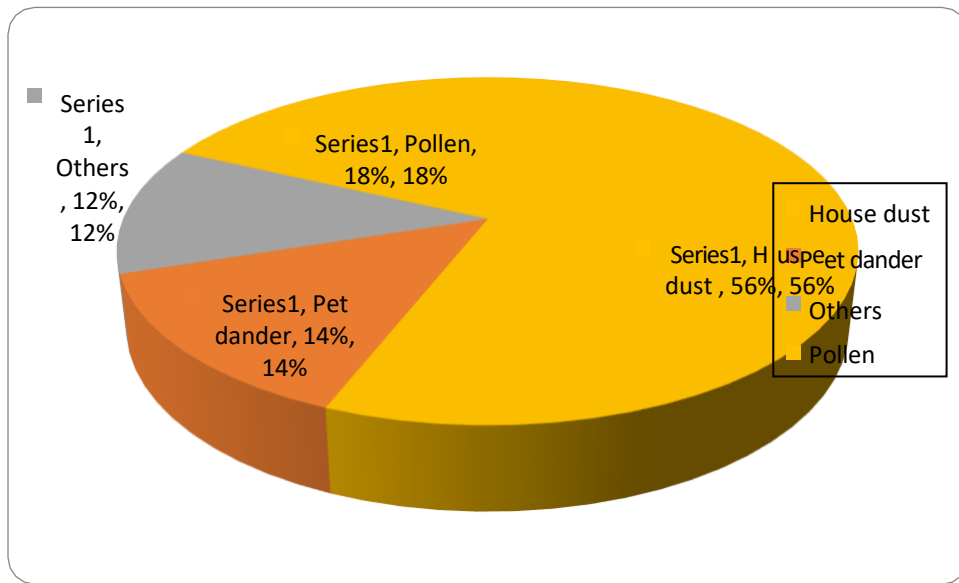


Fig.4.3 Percentage distribution of allergic histories of spinning mill workers

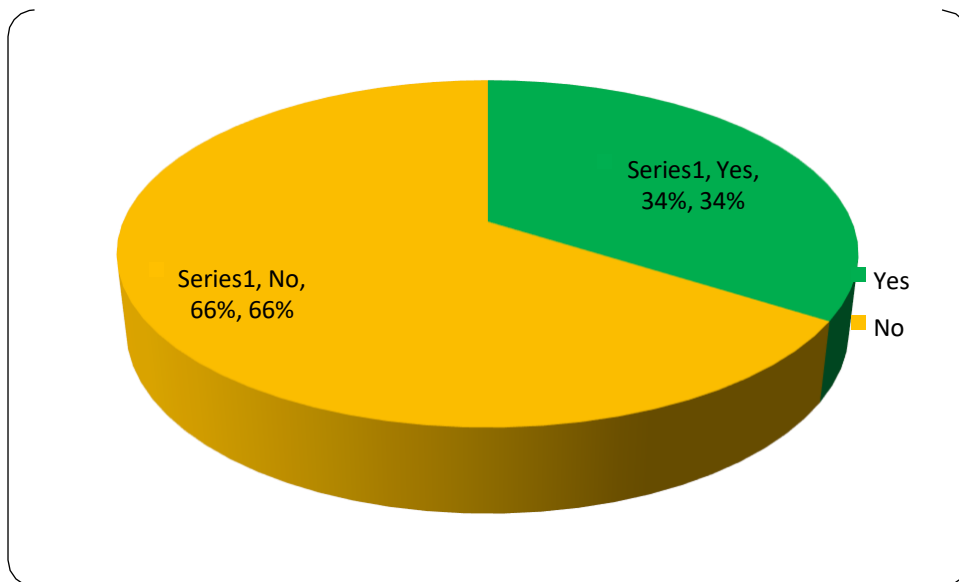


Fig.4.4 Percentage distribution of spinning mill workers affected with COVID-19

Frequency and percentage distribution of pretest level of respiratory problems among spinning mill workers.

| Level of Respiratory problem | Frequency N=50 | % |
|-------------------------------------|-------------------|----|
| Mild respiratory problem 1-30% | 19 | 38 |
| Moderate respiratory problem 31-60% | 29 | 58 |
| Severe respiratory problem 61-100% | 2 | 4 |

Tab 4.2 depicts the frequency and percentage distribution of pretest level of respiratory problems among spinning mill workers. Among the participants, majority 29 (58%) had moderate level of respiratory problem, 19 (38%) had mild level of respiratory problem and 2 (4%) had severe level of respiratory problem.

Tab 4.3: Frequency and percentage distribution of posttest level of respiratory problems among spinning mill workers.

| Level of Respiratory problem | Frequency N=50 | % |
|--|---------------------------|----------|
| Normal breathing pattern 0% | 10 | 20 |
| Mild respiratory problem 1-30% | 32 | 64 |
| Moderate respiratory problem 31-60% | 7 | 14 |
| Severe respiratory problem 61- 100% | 1 | 2 |

Tab 4.3 depicts the frequency and percentage distribution of posttest level of respiratory problems among spinning mill workers. It was found that after the intervention with deep breathing exercise, majority of the participants 32 (64%) had mild level of respiratory problem, 10 (20%) had normal breathing pattern, 7 (14%) had moderate level of respiratory problem and 1 (2%) had severe level of respiratory problem.

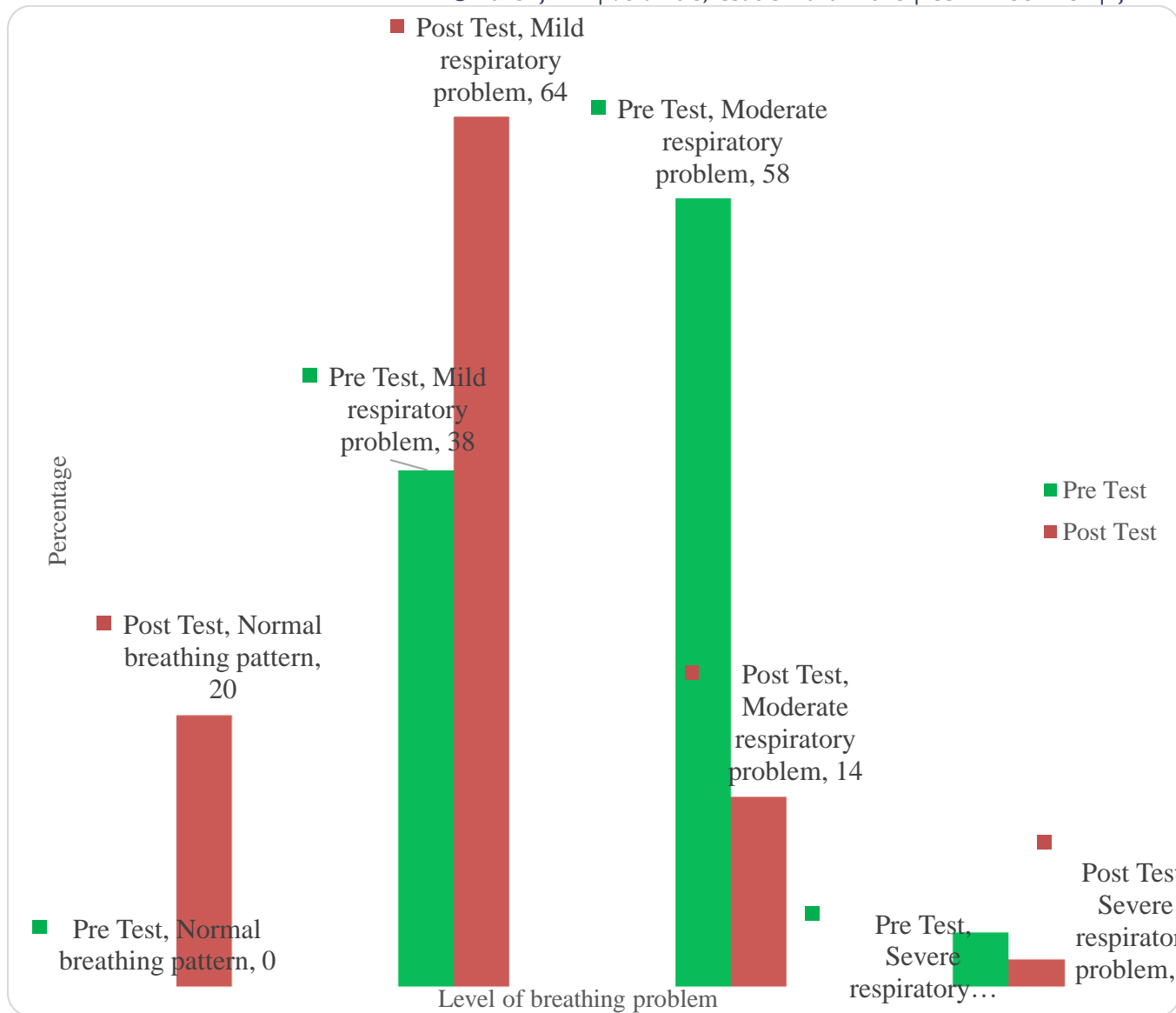


Fig.4.5 Percentage distribution of pre and posttest level of respiratory problems among spinning mill workers

Tab 4.4: Mean Difference between pretest and posttest level of respiratory problems among spinning mill workers.

N=50

| Test | Mean | SD | Mean Difference |
|-----------|-------|-----|-----------------|
| Pre test | 41.14 | 1.8 | 16.74 |
| Post test | 24.4 | 2.1 | |

Tab 4.4 depicts the Mean Difference between pretest and posttest level of respiratory problems among spinning mill workers. The Mean level of respiratory problem among the participants was 41.14 in pre-test. After the intervention, the mean level of respiratory problem was found to be 24.40 and the mean difference was 16.74 which suggested the improvement in breathing pattern with deep breathing exercise.

N=50

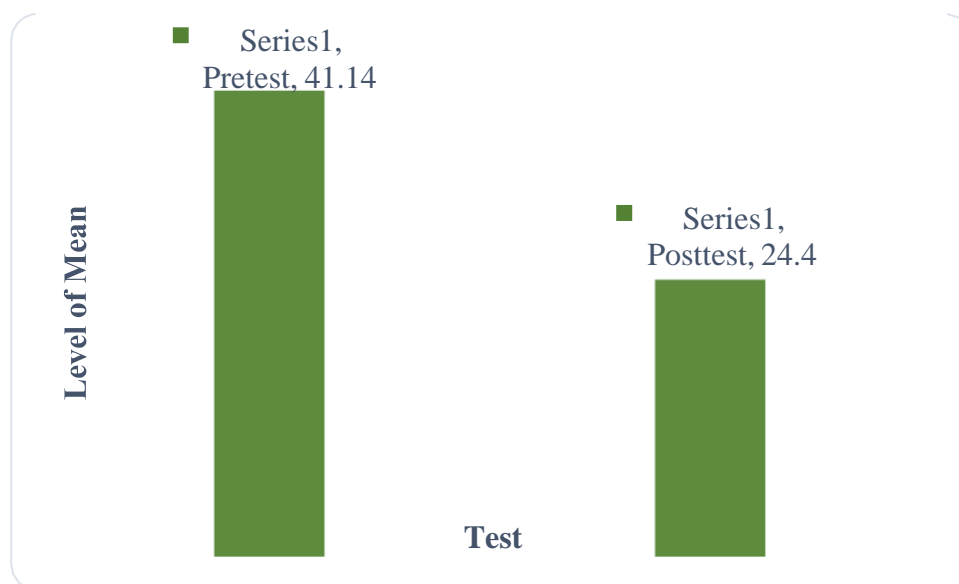


Fig.4.6 :Percentage distribution of mean level of respiratory problems among spinningmill workers in the pre and posttest.

Tab 4.5: Effectiveness of deep breathing exercise on respiratory problems among spinning mill workers.

N=50

| Test | Mean | SD | t value |
|-----------|-------|-----|------------------------------|
| Pre test | 41.14 | 1.8 | 11.52** table value:2.704 |
| Post test | 24.4 | 2.1 | |

***Significant at p>0.01 level**

Tab 4.5 depicts the effectiveness of deep breathing exercise on respiratory problems among spinning mill workers. Student t test was employed to calculate the t value. The t value was significantly high at 0.01 levels which suggested that there was a significant change in respiratory problems among spinning mill workers after the intervention with deep breathing exercise.

CONCLUSION

The findings of the study concluded that there were significant differences found in the mean score of respiratory problems before and after intervention. Hence the formulated hypothesis was accepted based on study findings.

The study indicated that the Deep breathing exercise was simple; cost effective intervention seems to be beneficial for respiratory lung functions. Occupational lung diseases if diagnosed early and treated appropriately significantly reduces morbidity and mortality and will have a significant impact on the patient's outcome.

NURSING IMPLICATION

The implication of the present study has been discussed under the headings as nursing administration, nursing education and nursing research. The nurse as a health care provider should be able to make significant contributions to maintain optimal health of spinning mill workers to save the life of the individual from occupational hazards.

RECOMMENDATION

Based on the research findings the recommendations are as follows:

- ❖ The study can be replicated on a larger samples to generalize the results
- ❖ The comparative study can be conducted with more than one intervention
- ❖ Training programmers for nurses can be given on complimentary therapies
- ❖ A study can be conducted to evaluate the knowledge and attitude of nurses regarding breathing exercise in reducing self reported among large cotton industries

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