



QUASI-EXPERIMENTAL STUDY TO ASSESS THE IMPACT OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING DEEP BREATHING EXERCISE AMONG WORKERS IN JK CEMENT FACTORY OF KHREW KASHMIR.

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ABSTRACT

A growing number of empirical studies have revealed that deep breathing exercise may trigger body relaxation responses and benefit both physical and mental health. Deep breathing exercise is one of the most important and instant of all the vital functions of the body. Coughing is a form of violent exhalation by which irritant particles in the airways can be expelled. It is something that occurs spontaneously, which influences the activities of each and every cell in the body. Normal breathing pattern of an individual becomes altered in certain conditions such as prolonged exposure in work places, respiratory infections, diagnostic procedures and surgery. Deep breathing exercises are used to improve pulmonary gas exchange or to maintain respiratory function. The use of alternative ways of treatment that are as efficacious as the standard treatment is the need of the hour. A quasi-experimental two group pre-test post-test research design study was conducted to assess knowledge of workers regarding deep breathing exercise for which 100 subjects were selected by total enumerative sampling technique. After data collection, an observational checklist was used to assess the knowledge regarding deep breathing exercise among both groups (control and experimental group respectively). The data was analyzed by descriptive and inferential statistics using chi-square and t-test. The findings revealed that majority of the study subjects 43 (86%) had good knowledge, 7 (14%) had average knowledge & 2 (4%) had average knowledge with post-test mean score 19.52 ± 2.1 , median 19.00, and standard deviation 2.11. in experimental group.

Key Words: Assess Impact, structured teaching programme, knowledge, Deep breathing Exercise, workers, cement factory.

INTRODUCTION

The main role of respiratory system is to extract oxygen from the external environment and dispose of waste gases. This requires the lungs to function efficiently in order to maintain the normal body function. If lungs are exposed over long time to irritants for example dusts, gases and infective agents can be damaged which require immediate combined management either medical treatment or any other alternative.¹

Deep breathing helps expand the lungs and forces better distribution of the air into all sections of the lung. The patient either sits in a chair or sits upright in bed and inhales, pushing the abdomen out to force maximum amounts of air into the lung. The abdomen is then contracted, and the patient exhales. Deep breathing exercises are done several times each day for short periods.²

Deep breathing exercise also known as diaphragmatic breathing is defined as efficient integrative body–mind training for dealing with stress and psychosomatic conditions. Deep breathing exercise involves contraction of the diaphragm, expansion of the belly, and deepening of inhalation and exhalation, which consequently decreases the respiration frequency and maximizes the amount of blood gases.³

Deep breathing exercise is done by contracting the diaphragm, a muscle located horizontally between the thoracic cavity and abdominal cavity. Air enters the lungs and the chest rises and the belly expands during this type of breathing. Deep breathing exercise is also known scientifically as eupnea, which is a natural and relaxed form of breathing in all mammals. Some practitioners of complementary and alternative medicine believe that particular kinds of breathing they identify as diaphragm breathing can be used to bring about health benefits. Deep breathing exercises are sometimes used as a form of relaxation, that, when practiced regularly, may lead to the relief or prevention of symptoms commonly associated with stress, which may include dyspnea, asthma, high blood pressure, headaches, stomach conditions, depression, anxiety, and other disorders.^{4,5}

The use of deep breathing exercise is commonly practiced, especially in those patients with chronic obstructive pulmonary disease, to improve a variety of factors such as pulmonary function, cardiorespiratory fitness, respiratory muscle length and respiratory muscle strength. Specifically, diaphragmatic breathing exercise is essential to asthmatics since breathing in these patients is of the thoracic type in association with decreased chest expansion and chest deformity.⁶

According to the national center for complementary and inter health grative 12.7 percent of American adults have used deep-breathing exercises for health purposes which it describes as follows, "Deep breathing involves slow and deep inhalation through the nose, usually to a count of 10, followed by slow and complete exhalation for a similar count. The process may be repeated 5 to 10 times, several times a day."^(10, 11)

According to the University of Texas Counseling and Mental Health Center, "Diaphragmatic breathing allows one to take normal breaths while maximizing the amount of oxygen that goes into the bloodstream. It is a way of interrupting the 'fight or flight' response and triggering the body's normal relaxation response."¹²

Global Initiative for Chronic Obstructive Lung Disease developed a census report on breathing control exercises and different techniques of respiratory muscle training, before conclusive high-quality systematic reviews can be performed. According to the assessment of multiple systematic reviews criteria, three were of high quality (two on respiratory muscle training and one on pursed-lip breathing, diaphragmatic breathing, yoga breathing), three were of moderate quality (respiratory muscle training), and one was of low quality (pursed-lip breathing). In the high-quality systematic reviews, positive effects of performing inspiratory muscle training on breathlessness and quality of quality as well as on fatigue were found in one systematic review. Also one high-quality systematic review reported a positive effect on breathlessness of performing pursed-lip breathing. According to the authors of the systematic reviews, the single randomized control trials included were of variable quality, indicating that more studies are needed. In the low-quality systematic review and the moderate-quality systematic reviews, it has been difficult to fulfill the assessment of multiple systematic review criteria, due partly, for instance, to the

small number of randomized control trial based studies, not including all languages, and not performing publication-biased analysis. Recommended guidelines for writing a systematic review should be followed in order to provide high-quality reviews.¹³

Based on the review of literature and statistics the researcher felt that the workers can improve health if they have adequate knowledge regarding deep breathing exercise for management of respiratory diseases. It is extremely important to make people aware and concerned about health at workplace. Hence the investigator felt that there is need to impart structured teaching program on knowledge regarding deep breathing exercise among workers in JK cement factory of Khrew Kashmir.

OBJECTIVES OF THE STUDY

- To assess the pre-test knowledge of workers regarding deep breathing exercise.
- To introduce the structured teaching programme among experimental group.
- To assess the post-test knowledge of workers regarding deep breathing exercise.
- To evaluate the effectiveness of structured teaching programme by comparing pre-test and the post-test knowledge.
- To find the association between pre-test knowledge with selected demographic variables {age, educational status and duration of exposure}.

MATERIAL AND METHODS

A quasi-experimental two group pretest posttest research study was conducted to assess the knowledge of cement workers. 100 workers were selected by total enumerative sampling technique. Self-structured interview Schedule and Structured Teaching Programme were adopted as tool to collect the information from the participants in JK cement factory of Khrew Kashmir. Pretest was conducted for the experimental and control group on first day followed by Structured Teaching Programme in the experimental group on the same day and posttest was conducted on the 5th day for both the groups. Data was analyzed by using Descriptive and inferential statistics.

RESULTS

Table 1:- Frequency And Distribution of study subjects according to their age.

Experimental Group N=50			Control Group N=50	
Age	Frequency	Percentage	Frequency	Percentage
0-20	19	38	27	54
21-40	21	42	17	34
41-60	10	20	6	12
Total	50	100	50	100

The data presented in table 1 revealed that out of 50 study subjects in experimental group most

Of the subjects were 21 (42%) in the age group of 31-45 years, 19 (38%) were 15-30 years, and 10

(20%) were 46-60 years. While as in 50 subjects of the control group most of the subjects were 27

(54%) in the age group of 15-30 years, 17 (34%) 31-45 years and 6 (12%) were 46-60 years.

Table 2:- Frequency And Distribution of study subjects according to their educational status.

Education	Experimental Group N=50		Control Group N=50	
	Frequency	Percentage	Frequency	Percentage
Illiterate	24	48	28	56
Primary	17	34	16	32
Middle & above	9	18	6	12
Total	50	100	50	100

The data presented in table 2 revealed maximum number of study subjects 24(48%) and 28(56%) were illiterate, 17(34%) and 16(32%) had primary education, 9(18%) and 6(12%) were middle and above standard in experimental and control group respectively.

Table 3:- Frequency And Distribution of study subjects according to their Duration of exposure.

Duration Of Exposure	Experimental Group N=50		Control Group N=50	
	Frequency	Percentage	Frequency	Percentage
0-10	19	38	14	28
11-20	21	42	21	42
21-30	10	20	15	30
Total	50	100	50	100

The data presented in table 3 showed that 19(38%) and 14(28%) of the study subjects had 0-10years, 21(42%) and 21(42%) had 11-20 years, 10(20%) and 15(30%) had 21-30 years of exposure to cement dust in experimental and control group respectively.

Table 4:- Showing mean, median, S.D, range of knowledge score of subjects before and after implementation of structured teaching program in experimental group.

Knowledge Score	Mean	Median	Standard Deviation	Minimum Score	Maximum Score	Range
Pre-test	7.00	7.50	2.25	5	19	14
Post-test	19.52	19.00	2.11	15	25	10

The data presented in table 4 revealed that the mean posttest knowledge score 19.52 ± 2.1 was significantly higher than mean pretest knowledge score 7.00 ± 2.25 with mean difference 12.52 ± 1.31 which indicates that structured Teaching Programme was highly effective in enhancing the knowledge in experimental group.

Table 5:- Showing mean, median, S.D, range of knowledge score of subjects before and after implementation of structured teaching program in control group.

Knowledge Score	Mean	Median	Standard Deviation	Minimum Score	Maximum Score	Range
Pre-test	4.22	4.50	1.59	1	8	7
Post-test	4.70	4.66	1.49	3	8	5

The data presented in table 5 revealed that the mean posttest knowledge score 4.70 ± 1.49 was almost same with the mean pretest knowledge score 4.22 ± 4.50 with mean difference 0.48 ± 0.1 which indicates that no change was observed in the knowledge of control group.

Table 6:- Showing pretest and posttest knowledge score of subjects before and after implementation of structured teaching program in experimental group and control group.

Levels of knowledge	Experimental group N=50		Control group N=50	
	Pretest (%age)	Posttest (%age)	Pretest (%age)	Posttest (%age)
Good (≥ 18)	5(10%)	43(86%)	-	-

Average (13-17)	10(20%)	7(14%)	-	2(%)
Poor (≤ 12)	35(70%)	-	50(100%)	48(96%)

The data presented in table 6 portrayed that in pretest of the experimental group 5(10%) had good knowledge, 10(20%) had average knowledge and 35(70%) had poor knowledge and posttest of the experimental 43(86%) had good knowledge and 7(14%) had average knowledge respectively whereas in the pretest of control group 50(100%) had poor knowledge and in the posttest of control group 2(%) and 48(96%) had poor knowledge.

RECOMMENDATIONS:

On the basis of the findings of present study the following recommendations have been made:

1. A similar study can be conducted on a large sample in order to draw more definite conclusions and generalizations.
2. A similar study can be replicated on large sample with different demographic characteristics.

A similar study can be recommended by using different method of teaching.

A similar study can be recommended to compare effectiveness of structured teaching programme and other methods.

. A comparative study can be conducted between rural and urban areas.

6. A similar study can be recommended in different settings to find the factors responsible for bronchial asthma.

7. Follow up of the study subjects can be done to evaluate long term impact of structured teaching programme on knowledge.

CONCLUSION:-

The findings of the study concluded that the Structured Teaching Programme on knowledge regarding deep breathing exercise was effective in improving the knowledge level of the workers, which emphasizes that educating workers of cement factories will help them to become more aware about the management of respiratory diseases.

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