

A study to Assess the Effectiveness of Structured Teaching Programme on Knowledge Regarding Prevention of Selected Respiratory Diseases among Cement Factory Workers Attending ESI Dispensary at Bagalkot, Karnataka

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Abstract:-

➤ Aims

The aims of this study are as follows: (1) To assess the existing level of knowledge regarding prevention of selected respiratory diseases among cement factory workers (2) To determine the effectiveness of structured teaching program on knowledge regarding prevention of selected respiratory diseases among cement factory workers and (3) To find out the association between post-test knowledge scores regarding prevention of selected respiratory diseases with their selected socio demographic variables.

➤ Materials And Methods: Study Approach

This was a pre-experimental, i.e. one group pre-test post test design was adopted for the present study. The sample includes 50 cement factory workers from E.S.I. dispensary at Bagalkot, Using simple random probability sampling technique. Data collected using structured knowledge questionnaire & analyzed using descriptive and inferential statistics.

➤ Results:

The mean percentage of knowledge scores of cement factory workers in pre-test knowledge was 44.2 % score (17.68±4.310). Whereas the mean percentage of knowledge scores in post-test was 84.15% of total score with mean and SD (33.66±3.42). Further effectiveness was tested using the paired 't' test showed the significant difference in the knowledge of cement factory workers

regarding prevention of selected respiratory diseases after the administration of STP ($t_{49}=20.52$, $p<0.05$).

A finding reveals that there is No significant association between post-test knowledge scores of the cement factory workers with socio demographic variable.

➤ Interpretation And Conclusion:

There was significant difference was found between the pre-test and post-test knowledge of cement factory workers after the administration of STP. Therefore study showed that STP was highly effective in improving the knowledge of cement factory workers on prevention of selected respiratory diseases.

Keywords:- Effectiveness, Cement Factory Workers, Selected Respiratory Diseases, Knowledge, Socio-Demographic Variables.

I. INTRODUCTION

Respiratory health is important for human wellbeing. Unfortunately the industrialized world is distressful with many respiratory diseases, both acute and chronic. The ratio of death due to respiratory diseases is increasing day by day. They are the third most frequent cause of death worldwide, accounting for 8 % of all deaths. Respiratory diseases mainly affect older people: 9 out of 10 deaths from them occur after the age of 65. Diseases like asthma, chronic obstructive pulmonary disease, bronchiolitis etc are most

commonly found all over the world. WHO estimates, Chronic Obstructive Pulmonary Disease (COPD) will elevate to the third place among the top ten killers by 2020.¹

Respiratory disease is a medical term that encompasses pathological situation disturbing the organs and tissues that make gas exchange possible in higher organisms, and involves the surroundings of the lower respiratory organs i.e. trachea, bronchi, bronchioles, alveoli, pleura and pleural cavity, and the nerves and muscles of breathing. Respiratory diseases are ranges from mild and self-limiting, such as the common cold, to life severe entities like bacterial pneumonia, pulmonary embolism, and lung cancer. The respiratory tract is frequently bare to microbes due to the widespread surface area, which is why the respiratory structure includes a lot of mechanisms to protect it and stop pathogens from inflowing the body.²

Classification of respiratory diseases

- ❖ Emphysema, bronchitis, asthma attacks are obstructive conditions
- ❖ fibrosis, sarcoidosis, alveolar damage, pleural effusion are restrictive conditions
- ❖ pulmonary edema, pulmonary embolism, pulmonary hypertension are due to vascular diseases
- ❖ pneumonia, tuberculosis, asbestosis, particulate pollutants, these are comes under environmental and other diseases

Coughing is of main significance, because it is the one of major method to remove dust, mucus, saliva, and other debris from the human lungs. Failure to cough can take us to infection.²

According to the WHO, worldwide position statement on NCDs 2010, smoking is estimated to cause about 71% of all lung cancer deaths and 42% of chronic respiratory disease universally. World Health Organization stated in 2012 that universal non-communicable diseases are the foremost reason of death which accounts for 82 % of deaths and between those non-communicable diseases chronic respiratory diseases, asthma and chronic obstructive pulmonary diseases accounted for 40 lacks or 10.7 % deaths.

As information of the Centres for Disease Control and Prevention (CDC), COPD is the 4th leading reason of death in the USA. Its occurrence increases with period. Males are additional probable to boast the disease, but the death rate for male and female is about the similar. In urbanized country the occurrence of life intimidating acute respiratory infections has dropped over the last 50 years. This is possibly due to enhanced livelihood surroundings and wellbeing care. Within Europe, there tends to be additional asthma and allergy in the West and more infectious diseases in the East.⁴

India is the IInd largest cement producing nation, respiratory disease accounted for 17% of the 1.1 crores work-related diseases and COPD are accountable for 87 % of work related respiratory disease death.⁵

Bronchitis and asthma are recorded as important reason of respiratory disorders. Pneumonia and tuberculosis of the lungs are marked one of the five main reasons of decease in rural India. Asthma and bronchitis occurrence rates in Karnataka, Gujarat, Haryana, Uttar Pradesh, Kerala and Madhya Pradesh are over nationwide common. Estimates indicated that India stands for 2.5 crores asthma and 1.5 crores COPD patients which means that India accounts for 8 - 9 % of total global asthma and COPD burden.⁶

A quasi experimental study was carried out at kaladagi cement factory in Bagalkot district to evaluate the knowledge about avoidance of lung cancer amongst cement factory workers and also to calculate the efficiency of premeditated education programme about prevention of lung cancer. They accomplished that premeditated education programme on prevention of lung cancer among cement factory employees was systematic, rational and price useful approach.⁷

So, the investigator felt that there is a need to assess the knowledge regarding prevention of respiratory diseases among cement factory workers and to provide interventions using structured teaching programme on promotion of good health. So that the structured teaching program can improve knowledge and helps to prevent the respiratory diseases among cement factory workers.

Aims

The aims of this research work are as below:

- To assess the present stage of information about prevention of chosen respiratory diseases amongst cement factory workers
- To determine the effectiveness of structured teaching program on knowledge regarding prevention of selected respiratory diseases among cement factory workers.
- To discover the relationship among post-test knowledge scores regarding prevention of selected respiratory diseases through their chosen socio demographic variables.

II. MATERIALS AND METHODS

The present study was conducted on a pre-experimental one group pre-test and post-test without control group design. The target population for this study was cement factory workers in Bagalkot district. Accessible population was cement factory workers attending at ESI Dispensary, Bagalkot. Subjects were selected by a convenient sampling technique and 50 cement factory workers were selected. The data were collected by structured closed ended knowledge questionnaire. Data analysis and interpretation were performed using descriptive such as frequency distribution, mean, median, percentage, and inferential statistics such as Chi-square, Fisher's exact test.

III. RESULTS

The collected information was organized and presented in 4 sections as follows:

Section I: Description of socio-demographic characteristics of samples.

Table: 01 N=50

S.No	Demographic Variables	Frequency	%
1	Age (in years)		
	20 - 30years	08	16%
	31 - 40Years	14	28%
	41 - 50Years	20	40%
	51 Years And Above	08	16%
2	Gender		
	Male	46	92%
	Female	04	08%
3	Religion		
	Hindu	30	60%
	Muslim	11	22%
	Christian	06	12%
	Others	03	06%
4	Educational Status.		
	No formal education	10	20%
	Primary education	19	38%
	Secondary education	15	30%
	Graduation and above	06	12%
5	Marital status.		
	Married	36	72%
	Unmarried	14	28%
6	Working department		
	Finishing department	11	22%
	Packing department	13	26%
	Crusher department	16	32%
	Other department	10	20%
7	Family Monthly Income.		
	Below-10,000	05	10%
	10,001 - 15000	21	42%
	15,001-20,000	18	36%
	20,000 and above	06	12%
8	Years of Working Experience.		
	Below 5 years	09	18%
	6 - 10 years	14	28%
	11-15 years	17	34%
	15 years and above	10	20%
9	Source of information regarding Prevention of respiratory diseases		
	Mass media	15	30%
	Health worker	16	32%
	Family and friends	09	18%
	Others	10	20%

Section II: Assessment of knowledge regarding prevention of selected respiratory diseases in pre-test.

Table: 2 N=50

Test	Level of knowledge	Number(f)	Percentage (%)
Pre-test	Excellent	0	0%
	Good	3	6%
	Average	19	38%
	Poor	28	56%
	Very poor	0	0%

Assessment of cement factory workers knowledge in pre-test reveals that out of 50 cement factory workers, highest percentage (56%) of cement factory workers had poor knowledge, (38%) of cement factory workers had average knowledge, (6%) of cement factory workers had good knowledge, and no one had got excellent knowledge, and very poor knowledge. (Table: 2)

Percentage wise distribution of cement factory workers according to levels of knowledge in post test.

Table: 3 N=50

Test	Levels of knowledge	Number(f)	Percentage (%)
Post test	Excellent	29	58%
	Good	21	42%
	Average	00	00%
	Poor	00	00%
	Very poor	00	00%

Percentage distribution of cement factory workers in post-test reveals that out of 50 cement factory workers, highest percentage (58%) of cement factory workers had excellent knowledge followed by lowest percentage (42%) of cement factory workers with good knowledge. No cement factory workers had average, poor and very poor knowledge regarding prevention of selected respiratory diseases. (Table: 3)

Section III: To evaluate the effectiveness of the Structured Teaching Programme on knowledge regarding prevention of selected respiratory diseases.

Part-1 Comparison of knowledge level of cement factory workers in pre-test and post-test.

Table: 4 N=50

Level of Knowledge	Pre-test		Post-test	
	No. of respondents	Percentage (%)	No. of respondents	Percentage (%)
Excellent	0	0 %	29	58 %
Good	3	6 %	21	42 %
Average	19	38 %	0	0 %
Poor	28	56 %	0	0 %
Very Poor	0	0 %	0	0 %
Total	50	100	50	100

Knowledge wise comparison of cement factory workers in pre-test reveals that the following results. In pre-test, out of 50 cement factory workers, highest percentage (56%) of cement factory workers had poor knowledge, 38% of cement factory workers had average knowledge, followed by lowest percentage (6%) of cement factory workers with good knowledge. No one have excellent and very poor knowledge regarding prevention of selected respiratory diseases.

However after Structured Teaching Programme (STP) (post-test) highest percentage (58%) of cement factory workers had excellent knowledge followed by lowest percentage (42%) of cement factory workers with good knowledge. No cement factory workers had average, poor and very poor knowledge regarding prevention of selected respiratory diseases. (Table: 4)

Part-II: Area wise effectiveness of STP on knowledge of cement factory workers regarding prevention of selected respiratory diseases.

Area wise comparison of mean and standard deviation of the knowledge scores of the pre-test and post-test reveals an increase in the mean knowledge score of cement factory workers after Structured Teaching Programme.

Comparison of area wise mean and SD of the knowledge scores in the area of general information about lungs shows that the highest post-test mean of knowledge score in this area was 7.16 with SD ±0.8335 which was 89.5% of total score where as lowest pre-test mean knowledge score was 3.48 with SD ±1.316 which was 43.5% of total score (Table 6.4). The effectiveness of STP in this area was mean knowledge score of 3.33 with SD ± 1.37 which was 41.62% of total score.

In the area of knowledge on causes, signs and symptoms of selected respiratory diseases shows that highest post-test mean knowledge score was 8.8 with SD ±1.81 which was 80% of total score whereas lowest pre-test mean knowledge score was 4.66 with SD ±1.87 which was 42.36% of total score (Table 5.4). The effectiveness of STP in this area was mean knowledge score of 4.14 with SD ± 2.0100 with which was 37.63% of total score.

In the area of knowledge on management and prevention of selected respiratory diseases shows that highest post-test mean knowledge score was 17.7 with SD ±2.071 which was 84.28% of total score whereas lowest pre-test mean knowledge score was 9.18 with SD ±2.23 which was 43.71% of total score (Table 5.4). The effectiveness of STP in this area was mean knowledge score of 8.52 with SD ± 2.655 with which was 40.5 % of total score.

The overall findings reveal that cement factory workers gained more knowledge in area of management and prevention of selected respiratory diseases than others areas. The overall findings reveal that the post-test knowledge score (33.66±3.42) which was 84.15% of total score was more when compared to the pre-test knowledge score (17.68±4.310) which was 44.2 % of total score. The effectiveness of STP on prevention of selected respiratory diseases, mean knowledge score of 15.58 with SD ± 4.42 which was 38.95 % of total score. Hence it indicates that the STP was effective in enhancing the knowledge cement factory workers.

Part-III: Testing of Hypothesis:

To evaluate the effectiveness of Structured Teaching Programme, a research hypothesis was formulated.

H₁: There is a significant difference between pre-test and post-test knowledge scores of cement factory workers regarding prevention of selected respiratory diseases.

Paired ‘t’ test was used to find out the differences between the pre-test knowledge and post-test knowledge scores of cement factory workers regarding prevention of selected respiratory diseases.

Table 5.6: Significant difference between the pre-test knowledge and post test knowledge scores of cement factory workers .

					N=50
Test	Mean	Mean Diff	SD Diff	Paired t- value	Table value
Pre-test (O ₁)	17.68	15.98	0.82	20.52	1.96
Posttest (O ₂)	33.66				

As the calculated ‘t’ value (20.52) was much higher than table ‘t’ value (1.96) for the Hypothesis: H₁:

There is a significant difference between pre-test and post-test knowledge scores of cement factory workers regarding prevention of selected respiratory diseases.

Hence it is clear that there is a statistically significant difference between pre-test and post-test knowledge scores of cement factory workers indicating the effectiveness of STP in enhancement of knowledge of cement factory workers, Hence the Structured Teaching Programme proved to be effective. (Table 5)

Section IV: Association between post-test knowledge scores and selected socio demographic variables.**Table: 6****N=50**

SL. NO	Socio demographic variables	Df	Chi-square	Table value	P value	Association
1.	Age	1	0.3247	3.84	0.05	Insignificant
2.	Gender	1	0.2717	3.84	0.05	Insignificant
3.	Religion	1	0.542	3.84	0.05	Insignificant
4.	Educational status	1	0.7389	3.84	0.05	Insignificant
5.	Marital status	1	1.5873	3.84	0.05	Insignificant
6.	Working department	1	0.3205	3.84	0.05	Insignificant
7.	Family monthly income	1	2.8846	3.84	0.05	Insignificant
8.	Years of working experience	1	0.0805	3.84	0.05	Insignificant
9.	Source of information	1	0.764	3.84	0.05	Insignificant

Chi-square test was used to find out the involvement between post test knowledge scores of cement factory workers with their chosen socio demographic variables by using contingency table.

Calculated Chi-square value is lesser than table value for socio demographic variables age ($\chi^2=0.3247$, P= 0.05), Gender ($\chi^2=0.2717$, P= 0.05), religion ($\chi^2= 0.542$, P= 0.05), educational status ($\chi^2= 0.7389$, P= 0.05), Marital status ($\chi^2= 1.5873$, P= 0.05), Working department ($\chi^2= 0.3205$, P= 0.05), family monthly income ($\chi^2= 2.8846$, P= 0.05) Years of working experience ($\chi^2= 0.0805$, P= 0.05), type of family ($\chi^2= 3.509$, P= 0.05), source of information ($\chi^2=0.764$, P= 0.05), in post test calculated Fisher's Exact Probability value is lesser than the table value for socio demographic variables, therefore H_2 : is rejected for all socio demographic variables. (Table. 6)

IV. DISCUSSION

After reviewing many studies related to cement factory worker's knowledge regarding prevention of respiratory diseases and a broad it has immensely influenced me to take up the present study. The studies influenced me to conduct this present study as follows.

A similar cross-sectional study was carried out by **Ahmed HO, and Abdullah AA**, (2012) suggested that control measures be adopted to decrease the dust and workers should be expectant to use respiratory protection plans during their working hours.

The current study was supported by similar evaluative study was conducted by **Arshad H. and Rahmani AhmadAlmatroudi**, in 2018. They accomplished that the cement particle contact or breathing causes respiratory complications and its gathering in the lung causes epithelial harm and cause inflammation.

V. CONCLUSION

After thorough analysis of the data, it is understood that only after Structured Teaching Programme (STP) in post-test reveals that out of 50 cement factory workers, highest percentage (58%) of cement factory workers had excellent knowledge followed by lowest percentage (42%) of cement factory workers with good knowledge. Hence

more study can be conducted by using different method of teaching to achieve optimal knowledge related to prevention of respiratory diseases among cement factory workers.

RECOMMENDATIONS

- There is a need to conduct more research studies on specific areas to include the knowledge regarding prevention of selected respiratory diseases.
- Research studies may be conducted continuously on prevention of selected respiratory diseases among cement factory workers
- Based on the study results cement factory workers can be educated as per their learning needs.
- Dissemination of research knowledge helps to improve the general health status of the cement factory workers.

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