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A study to assess the effectiveness of structured teaching programme on knowledge regarding silicosis among stone mine workers in granite factories at maduravoyal

Dr. Tamilselvi S and Esaivani VD

Abstract

The present study aims to determine the effectiveness of structured teaching programme on knowledge regarding silicosis among stone mine workers in granite factories at Maduravoyal. A quantitative quasi experimental- one group pretest and post-test research design was used for the present study. A total of 30 stone mine workers who fall into the inclusion criteria was selected as samples by using purposive sampling technique. The demographic data was collected, followed by that the pretest was conducted by using structured questionnaire. Structured teaching programme regarding silicosis was given among stone mine workers. Immediately the post test was conducted. The results of the study revealed that there is a significant improvement in the knowledge and awareness regarding silicosis at the level of $p < .0001$ after the intervention of structured teaching programme. Thus, the study proves that structured teaching programme can be used as an effective intervention for improving knowledge and awareness for stone mine workers regarding silicosis and it is a easily applicable technique and also considered as cost effective method.

Keywords: Silicosis, structured teaching programme, stone mine workers

Introduction

Silicosis may be a style of occupational lung disease caused by inhalation of crystalline silica dust. It is marked by inflammation and scarring within the type of nodular lesions within the upper lobe of the lungs. it's a sort of pneumoconiosis. silicosis is acute form characterised by shortness of breath, cough fever and cyanosis (bluish skin). it may be often as misdiagnosed as pulmonary edema (fluid within the lungs).It is an lung disease prevalent among miners furthermore as workers of producing and construction industries. In both developed and non-developed countries it's one in all the most jeopardy. it's a preventable disease caused by the inhalation of the dust containing silica generated during various mining activities.

Silica exists in amorphous and crystalline forms a morpohic silica imparts compatively less toxicity than the crystalline form. Which exhibit polymorphs like tridymite, cristobalite and quartz, Earth crust comprises silica in abundance, mainly composed of quartz dust mining activities like drilling, cutting and rocks containing crystalline silica environment. The inhalation and deposition of lung tissue, reduction within the functional capacity of lungs, silicosis will be categorized as acute silicosis accelerated and chronic on the premise of radiological and findings and length of silica exposure. As silicosis is related to several disorders like tuberculosis and carcinoma, it contributes to occupational morbidity and mortality.

The epidemics of silica associated disorders in common among workers of low and middle income countries like India, china, brazil and republic of south Africa, during a developing country like India, mining is one in all the important occupations with approximately 1.7million workers at a high risk of exposure to repairable silica. As silicosis is that the incurable but preventable disease its one in every of the main global health hazards.it occurs everywhere, but is particularly common in developing countries. From 1991 to 1995, china reported over 24,000 deaths thanks to silicosis annually.it also affect developed

nations, within the U.S. it estimated the between one and two million workers have had occupational exposure to crystalline silica dust and 59,000 of those workers will develop silicosis sometimes course in their lives.

A non-occupational sort of silicosis has been described that's caused by long run exposure to sand dust in desert areas, with cases reported from sahara, libiyan and negev. its also called desert lung disease. This disease is caused by the deposition of dust is within the lung. Desert lung disease could also be associated with AI Eskan disease, a lung disorder thought to be caused by exposure to sand containing organic antigen. Which was the primary diagnosed after the 1990 gulf war. The relative importance of the silica particles themselves and microorganisms that they carry health effects remain unclear. patient with silicosis are particularly susceptible tuberculosis. The reason of increased risk.it is thought that silica damages pulmonary macrophages inhibiting ability to kill mycobacteria. Even workers with prolonged silica exposure, but without silicosis, are at similarly increased risk of TB. pulmonary complications of silicosis also include bronchitis and airflow limitation. Mycobacterium infection, compensatory emphysema and pneumothorax. There are some data revealing an association between silicosis and certain disease including nephritis scleroderma and systemic lupus erythematous especially in acute or accelerated silicosis.

Materials and Methods

After obtaining ethical clearance from the institutional Ethical committee of Saveetha Institute of Medical and Technical Sciences and a formal permission was taken from Mr. Rajendhran, Manager of Marble world Granite Factory in Maduravoyal, this study was conducted. For the present study, a quantitative approach with quasi-experimental research design was adopted. The data were collected using a purposive sampling technique from 30 stone mine workers.

Results and Discussion

Section A: Demographic characteristics

Among 30 samples, that the majority of them are age group of 46-50 years 10(33.3%). Regarding religion Hindus are 9 (30%), Christians are 9 (30%), Muslims 8(26.6%), others 4(13.3%). Regarding education majority them are studied only primary 17 (56.6%), Regarding personal habits most of them are drinking alcohol are 10(33.3%),and consuming tobacco are 10 (33.3%). Regarding work role, majority of them are doing all type of works 10(33.3%). Regarding duration of works below 5 years 2(6.6%), 5-9years 8(26.6%), 10-15 years 10(33.3%), above 15 years are 10 (33.3%). Regarding place of living staying in villages are 7(23.3%), towns are 10(33.3%)

The present study supported by the study of Krittin silanun, *et al.*, (2017) had conducted study. The studied samples were a total of 315 workers in Sikhiu district. The prevalence Of silicosis was 36.1 (80/315) and the majority of them in the stone cutting (33/80).The prevalence of silicosis among workers was 36.1 percent. Criteria for diagnosis silicosis are history of being exposed to silica dust more than 2 years and abnormal chest x-ray reported criteria of silicosis dust exposure is cutting sand stone in the mountain or cutting sandstone at home or cracking stone at home or living in sand stone cutting area; each must last for 8 hours per day of living staying in villages are 7(23.3%), towns are 10(33.3%)

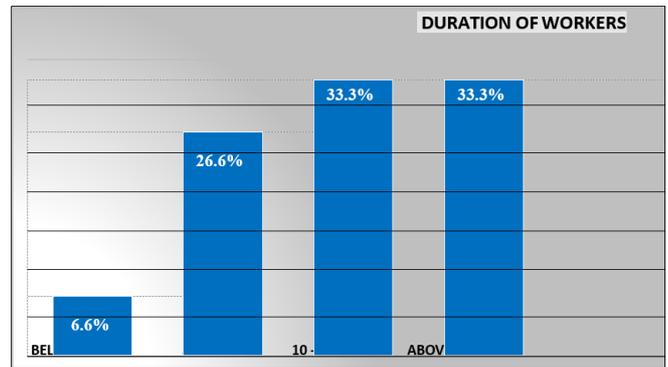
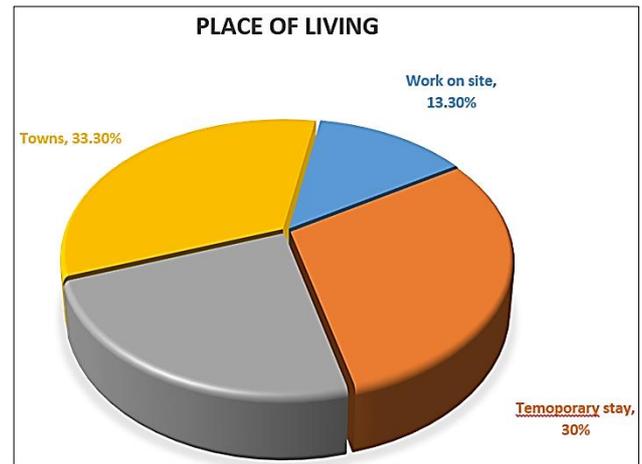


Fig 1: Frequency and Percentage distribution of duration of workers of stone mine workers

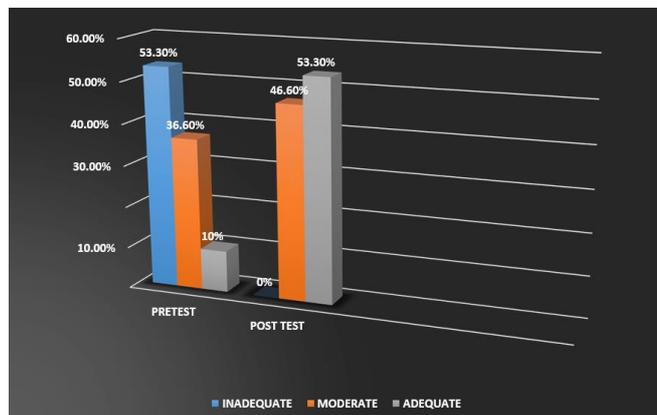


Section B: Frequency and percentage distribution of pre-test and posttest knowledge and awareness about silicosis among stone mine workers in granite factories.

TABLE 3 shows that frequency and distribution level of pretest and posttest knowledge of stone mine workers In pretest most of them are inadequate 16(53.3%), moderate 11(36.6%) and adequate 3(10%) of silicosis awareness among stone mine workers, the post test, most of them are moderate knowledge 14(46.6%), Adequate knowledge 16 (53.3%) after the structure teaching programme of silicosis awareness among stone mine workers.

Test	Inadequate		Moderate		Adequate	
	NO	%	No	%	No	%
Pre test	16	53.3	11	36.6	3	10
Post test	0	0	14	46.6	16	53.3

The present study supported by the study of M. Agniline jad, *et al.*, (2012) had conducted study on silicosis among stone cuter worker. This cross sectional study was performed stone cuter worker in malayer city between 2008 and 2009, Respiratory questionnaire, 10 case were diagnosed by radiographic changes, Among them, 10 worker had exposed for more than 3 years 6 workers were smokers, eleven worker had an abnormal radiographic pattern on their chest x-ray seven worker had obstructive and 4 worker had restrictive spirometric pattern, prevalence of silicosis was high among our under study worker and preventive strategies are required to control. Hence in stone mine workers, the structured teaching programme on silicosis was found to be an effective intervention in knowledge of silicosis awareness



Section C: Frequency and percentage distribution of pre-test and post test knowledge and awareness about silicosis among stone mine workers in granite factories

Test	Mean	SD	Paired 't' value
Pretest	8.4	4.5	t=7.1709
post test	16.3	4.02	P=0.0001,s

For the present study, in the pre test, place of living had shown statistically significant association with pretest level of knowledge at $p < 0.05$ level. The other demographic variables had not shown statistically significant association with pretest level of knowledge among stone mine workers. In the post test, duration of workers had shown statistically significant association with post test level of knowledge score at $p < 0.05$ level. The other demographic variables had not shown statistically significant association with post test level of knowledge among stone mine workers. The present study was supported by the study of Subroto nandi, *et al.*, (2018) had conducted study on assessment of silicosis awareness among stone mine worker of Rajasthan state. It was a personal questionnaire based study conducted among stone mine worker of jodhpur and nagaur district of Rajasthan. The study was conducted during October -2016 was on close ended questions related to silicosis among stone mine workers, the study conducted that the education level of mine worker affected the knowledge of silicosis free seminars, symposiums, and medical camps should be organised to make more awake of silicosis.

Section D: Association between pre-test and post-test knowledge scores of stone mine workers with selected demographic variable.

In the present study the demographic variable place of living had shown statistically significant association with pretest level of knowledge at $p < 0.05$ level. The other demographic variables had shown statistically significant association with pretest level of knowledge among stone mine workers. In the present study demographic variable duration of workers had shown statistically significant association with post test level of knowledge score at $p < 0.05$ level. The other demographic variables had not shown statistically significant association with post test level of knowledge among stone mine workers.

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Authors would like to appreciate participants for their cooperation to complete the study successfully.

Conclusion

From the results of the present study, it was concluded that structured teaching programme on silicosis was found to be an effective intervention in improving the level of knowledge on silicosis among stone mine worker.

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