

Work – related Morbidities among Cement Block Workers: A cross-sectional study

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Abstract

Background: Cement is a very important material to improve infrastructure in any developing country, India is no exception to this. Majority of new buildings use cement blocks. Work in the cement block industry is also associated with a high risk for musculoskeletal disorders and injuries. Cement block workers are exposed to substances which are potentially hazardous which include cement dust, environmental dust, changes in climate and their life style have an influence on their respiratory system.

Methods: Study was conducted in the field practicing area during July 2011 till October 2011. All the cement block factories which come under the purview of our field practicing area were included in the study. A pre-structured questionnaire was used, which included information on the musculoskeletal, respiratory system, skin, eye, anthropometric measurements, performance of peak expiratory flow rate (PEFR) and usage of safety devices.

Results: In our study there were 64.6% males and 35.4% females, majority(50%) of them were in the age group of 15-25 years.37.4% were suffering from musculoskeletal disorder, 26.2 % from respiratory morbidity followed by 18.2% had skin problems.37.4% had PEFR between 150-300ltr/min.

Conclusion: It was found out that majority of the workers were not using safety devices. Hence it is recommended that awareness be created about the use of safety gadgets and health education with frequent health checkup be conducted for these workers which can reduce these morbidities.

Key words: Cement block workers, musculoskeletal disorders, respiratory morbidity, peak expiratory flow rates (PEFR).

Introduction

Advanced technology with induction of sophisticated machinery has eased human beings in most sectors of working life. But, cement block work is still labour- intensive. Majority of new buildings use cement blocks[1]. In developing countries, most cement block workers have to perform high risk work for meagre wages[2].

Work in the cement block industry is associated with high risk of musculoskeletal disorders and injuries[3]. Workers are also exposed to different dust particles which also affects their respiratory system and skin[4]. Apart from this they live in poor environment near cement block factories which have adverse effects on their health .Hence, we have focused on the morbidities of the cement block workers.

In our study, the PEFR test was chosen as an indicator of respiratory morbidity. Portability of the Peak flow meter and the simplicity of the Peak expiratory flow rate test makes it particularly suitable for epidemiological studies of respiratory function[5].

Materials and methods

The present cross-sectional study was carried out from July 2011 till October 2011 in our field practicing area UHC, Agara. A total of 11 cement block factories which fell in purview of UHC, Agara were included in the study. Prior permission was taken from all factory managements. After due consent from the workers who were interested were included in the study. Data was collected using a pre-structured questionnaire which included general information on musculoskeletal, respiratory system, skin, eye etc., anthropometric measurement were recorded. Information on their habits, duration of work, usage of safety devices and working environment were also recorded. PEFR was performed. Each worker was asked to perform 3 PEFR manoeuvres and the highest values were recorded. Data was analyzed using SPSS package version 16.

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Table 1. Age and sex distribution among cement block workers

Age (yrs)	Males (%)	Females (%)	Total(%)
15-25	23(51.1)	22(48.8)	45(100)
25-35	30(81.1)	07(18.9)	37(100)
35-45	09(75)	03(25)	12(100)
>45	02(40)	03(60)	05(100)
Total	64(64.6)	35(35.4)	99(100)

Table 1 shows that 64.6% were males and 35.4% were females. 50% of subjects were in the 15-25 year age group. Majority of the workers were illiterates and they belonged to low socioeconomic status based on modified B.G. Prasad classification.

Table 2. Correlation between work experience and musculo-skeletal disorders

		Work experience in no. of Years	Musculoskeletal Disorders
Work experience in no. of Years	Pearson Correlation	1.000	-.189*
	Sig (1-tailed) N		.032 97
Musculoskeletal Disorder	Pearson Correlation	-.189*	1.000
	Sig (1 tailed) N	.032 97	98.000

*Correlation is significant at the 0.05 level (1-tailed).

Table 2 shows that there is a correlation between number of years of working and their musculoskeletal disorders, which is statistically significant at 0.05 level(1-tailed) by Pearson's Correlation test, workers with more than 5 years experience in this industry complained of low back ache followed by knee joint pains. Female workers complained mostly of low back ache.

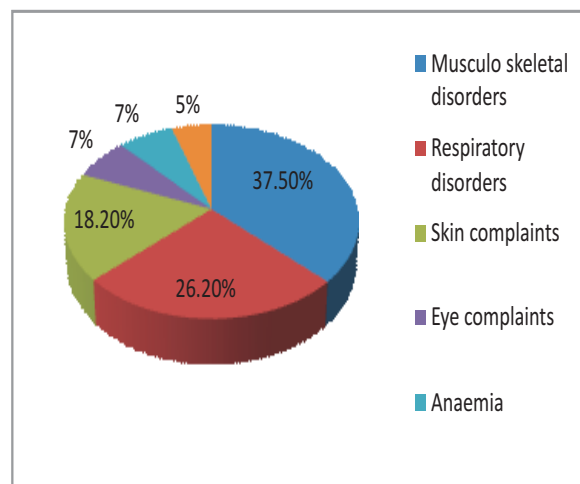
Table 3. Correlation between work experience and respiratory morbidities

		Work experience in no. of Years	Respiratory morbidities
Work experience in no. of Years	Pearson Correlation	1.000	.048*
	Sig (1-tailed) N		.0319 97
Respiratory morbidities	Pearson Correlation	.048*	1.000
	Sig (1-tailed) N	.0319 97	97.000

*Correlation is significant at the 0.05 level (1-tailed)

Table 3 shows that respiratory morbidities were more common among the workers working for more than 5-7 years, which was statistically significant at 0.05 level (1-tailed) by Pearson's correlation test. Workers also gave the history of on and off cough with productive sputum. This is indicative of chronic respiratory

morbidity. Figure 1 shows that among the 99 workers, Musculoskeletal disorder was the commonest morbid condition (37.4%), 26.2% had respiratory morbidity. 18.2% suffered from skin problem, 7% each had eye problem and anemia and 5% of them were suffering from gynaecological problem.

**Figure 1. Morbidities among cement block workers**

Discussion

Our study showed 37.4% of workers were suffering from musculoskeletal disorders and 26.2% of them from respiratory morbidity and 18.2% with skin problems whereas Mehta et al in their study found 24.9% had musculoskeletal disorders and 17.1% respiratory morbidity followed by 12.7% with digestive system disorder[1]. Shah C K et al[2] found overall injuries in workers was about 25.42%. When correlated with years of work experience, workers with 1-4 years showed 27.21% which reduced to 13.33% in workers with more than 4 years of work experience. David Gold Sheyder[3] et al found 77% of laborers experienced at least one musculoskeletal disorder, Low back pain was reported as the most frequently experienced symptom in 66% of the subjects. D. Rothenbacher et al[4] in their study found prevalence of a reduced FEV₁ (<70% of predicted value) ranging from 4.5% to 12.9% which was diagnostic of chronic respiratory disease. E. Meijer et al[5] also found significant association between exposure to concrete dust and reduced lung function (FEV₁/FVC ratio, MMEF) were found, independent of smoking habits and history of allergy.

Conclusion and recommendations

Our study showed that musculo-skeletal disorders and respiratory morbidities increased with longer work experience. Musculo skeletal disorders could be prevented by mechanizing the transport of these cement blocks and also by restricting the number of working hours in a day. Respiratory morbidities can be prevented by proper training and usage of safety masks.

All industrial programs should incorporate personnel protection, safe work practices, sound ergonomic principles and hazard recognition[1]. Provision of thick gloves and rubber boots would alleviate the skin problems. The paradigm of Basic occupational health services (BOHS) emphasizes on the following four elements namely policy, infrastructure, good practices and availability of human resources. As cement block industry is an unorganized sector, these elements need to be enforced in this sector too. Hence legislation needs to be passed to prevent these morbidities among these workers.

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