

STUDY ON THE IMPACT OF CEMENT DUST ON THE HEALTH OF THE CEMENT PORTERS AND SUPERVISORS INVOLVED AT CONSTRUCTION SITES

SAVITA & BHUPINDER KAUR

Department of Fabric and Apparel Science, Institute of Home Economics, Delhi University, New Delhi, India

ABSTRACT

In order to study the impact of cement dust on the health of cement porters, various construction sites of south Delhi were selected. The analysis indicated that frequent cold and cough was founded more among cement porters and supervisors. It may be due to inhalation of cement dust during work at a construction site. Cement porters and supervisors were having problem of skin rashes, itching, infection and redness. It was observed from the result that vision changes, eye itching problems and redness were more common among porters of construction sites. The supervisor reported itching and redness in the eyes. Other problems were also reported by cement porters like headache, stomachache, loss of appetite, nausea, weakness, irritability, backache, nervousness, swelling of arms, leg joints, back ache/pain or stiffness in arms, legs, joints, hair loss problem, bone related problem.

KEYWORDS: Cement, Cement Porters

INTRODUCTION

Cement is produced through a series of processes including quarrying, crushing, milling, blending, and kiln burning to form clinker, cement milling and packaging. Dust is emitted during these processes. Exposure to dust produced during the cement manufacturing process is known to cause chronic respiratory ailments in the form of cough, sputum, wheezing, shortness of breath, chronic bronchitis and adversely alter the pulmonary function indices (Hafiz et al., 2010). Cement porters often work in dusty circumstances with high labour intend sites (Li et al., 2010). Saji et al., (2012) stated that occupational exposure to cement dust may have a deleterious effect on lung, liver and epithelial tissues. Li et al., (2010) found that dry cement powder containing calcium oxide is very hygroscopic and result in desiccation injury. Cement powder reacts with liquid, such as perspiration will form wet cement powder react with exothermic reaction. Wet cement can cause skin reactions from mild irritation to full thickness burn. Exposure to wet cement for one hour has been reported to produce a third - degree burn.

METHODOLOGY

To study the impact of cement dust on the health of cement porters and construction supervisors, they were randomly selected from different construction sites in South Delhi. Considering that they should have been working at construction sites for at least the past two years. Thus, a total of 200 cement porters and 25 supervisors were selected for the investigation. Information was collected regarding health problems faced by cement porters while working at construction sites. This included Respiratory problems, Skin problems, Eyes / Ear problems and other problems.

RESULTS AND DISCUSSION

Personal profile of the cement porters included their age, sex, religion, and educational background. Out of the total sample of 200 cement porters, maximum respondents (87.5%) were male members and belonged to the Hindu community. Hard work with high occupational risk is always done by men (Muema et al., 2015). As far as their educational qualification is concerned, (14.5%) were illiterate, (36%) attained primary education, (42%) was getting secondary education, while (7.5%) were educated at the secondary level. The study also revealed that (28%) of porters had been working for past 10 years in the construction field. About (87.5%) cement porters were working on daily wages and maximum porters were working in 8 hour shift. Supervisors of construction sites were interviewed that covered their personal profile included age, sex, educational background, and type of job. Out of the total sample of 25 respondents, (44%) were between 25-30 years of age, (40%) between 31 to 35 years and (16%) above 35 years of age. Further, all supervisors were males and belonged to the Hindu community. As far as their educational background is concerned, (56%) were graduates about (52%) supervisors were working in the construction field for about 5-10 years. All supervisors were working on contract basis and having 8 hour shift.

Impact of Cement Dust of Health of Cement Porters and Supervisors

In the present research, an attempt was made to study the health problems of the cement porters and supervisors, working at construction sites.

Respiratory Problems

In the present study, the respiratory related problems faced by the cement porters at construction sites, included were cough, dry/sore throat, chest pain, coughing blood, wheezing, running nose and frequent cold. The analysis indicated in (Figure 1) that frequent cold (82.5%) and cough (76%) were found more among cement porters. It may be due to inhalation of cement dust during work at a construction site. The supervisor also comes in contact with cement dust, which causes respiratory problems at work place. Results of present research indicated that (60%) of supervisors had frequent colds and (40%) were having cough. While some of them reported, the problem of running nose, coughing up mucus or blood, dry/sore throat, chest pain and its (Figure 2).

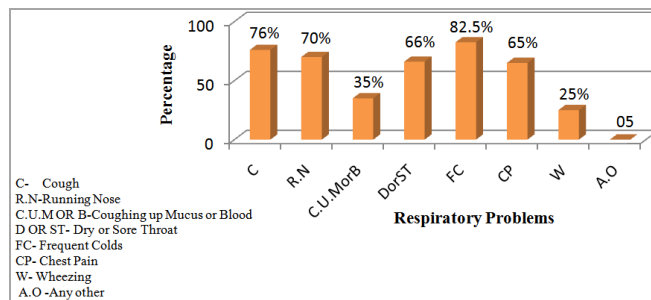


Figure 1: Respiratory Problems in Cement Porters

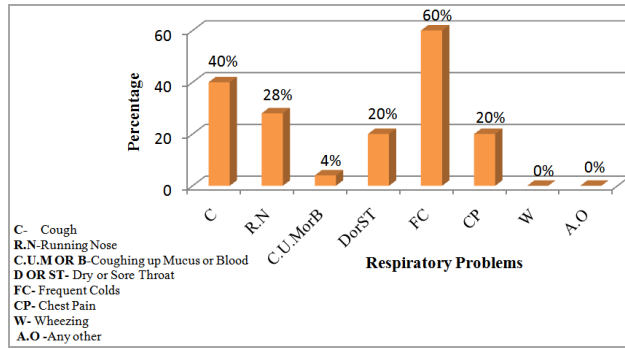


Figure 2: Respiratory Problems in Supervisors

Skin Problems

Employees who work with Portland cement are at risk of developing skin problems. Wet Portland cement can damage the skin because it is caustic, abrasive and absorbs moisture. Dry Portland cement is less hazardous to the skin because it is not as caustic as wet cement. It was found in the present study that (34.5%) cement porters were having problems of rashes, (25%) itching, (14.5%) infection and redness in (12.5%). In the present study, supervisors had also reported skin problems like redness (8%), infection (8%) and rashes (4%) (Figure 3 and 4).

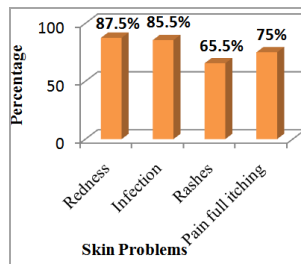


Figure 3: Skin Problems in Cement Porters

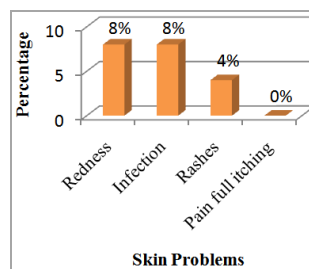


Figure 4: Skin Problems in Supervisors

Studies reported that exposure to cement can cause chronic conjunctivitis, blepharitis, and ulcers with cement can result in dermatitis of the hands, forearms, and feet; this is a primary irritant dermatitis and may be complicated in some instances by a secondary contact sensitivity to hexavalent chromium (U.S Department of Labor, 1978).

Eye Problems

The problems related to eyes faced by the workers of the construction sites, were covered under itching, redness, watering, swelling and vision changes. It was observed from the result that vision changes (81%), eye itching problems (71%) and redness (68.5%) were more common among porters of construction sites (Figure 5). The supervisor reported itching (12%) and redness (16%) in the eyes (Figure 6).

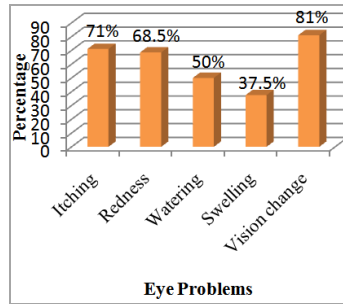


Figure 5: Eye Problems in Cement Porters

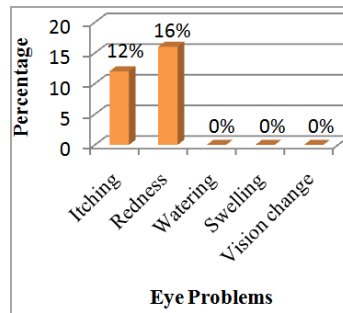


Figure 6: Eye Problems in Supervisors

Ears Problems

The problem related to ear faced by the porters of the construction sites, were covered under hearing, ringing, ear infection and any other. It was found that an ear infection (25%) and hearing problem (25%) were common among the porters (Figure 7). Supervisors reported no problem related to the ears. Ear problems may not common in porters but it could happen with porters due to cement mixture machine which creates noise pollution.

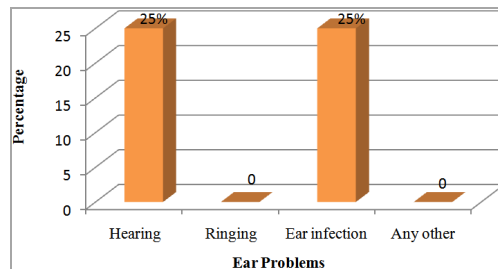


Figure 7: Ear Problems in Cement Porters

Other Problems

Studies had indicated that problems related to central nervous system like irritation, headache, hair loss caused by cement dust. Cement porters are exposed to dust at various manufacturing and production processes, such as quarrying and handling of raw materials, during grinding the clinker, blending, packing and shipping of the finished products which lead to health problems (Ranganathan *et al.*, 2016). In the present research, cement porters were facing various health problems like headache, stomachache, loss of appetite, nausea, weakness, irritability, backache, Nervousness, Swelling of arms, legs joint, Backache/pain or stiffness in arms, legs, joints, Hair loss problem, Bone related problem (Figure 8 & 9). 60% of supervisors had reported headache, drowsiness, and irritability and while (64%) were having hair loss problem due to dust. It was also included dizziness, stomach ache, loss of appetite, nausea, nervousness.

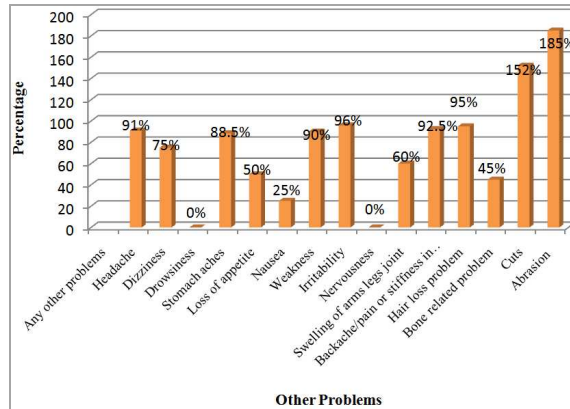


Figure 8: Other Problems in Cement Porters

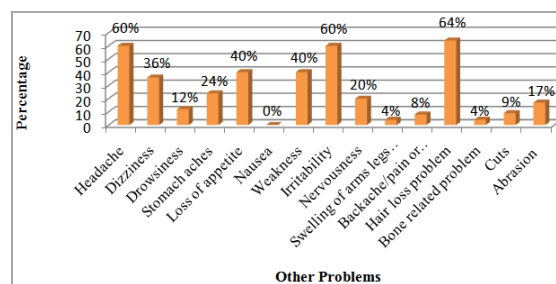


Figure 9: Other Problems in Supervisor

Studies had shown that cement dust cause stomach ache and it has been also reported that Portland cement contains chromium in its hex-valent form, which is an established carcinogen and causes the cancer of the stomach.

Studies conducted by Safe work Australia had indicated that the most common work-related injuries experienced by workers in the construction industry were cuts and open wounds (31%), sprains and strains (21%) and chronic joint or muscle conditions (16%). Work-related injuries experienced in the industry were mainly due to hitting or being hit by an object (31%), lifting, pushing or pulling objects (30%) and falls from height (15%). It was also found as a cut and abrasion where (92.5%) were cut and (7.5%) where abrasion which happened during helping to porters in time of when they were loading goods and any other works.

CONCLUSIONS

The analysis indicated that frequent cold and cough was founded more among cement porters and supervisors. It may be due to inhalation of cement dust during work at a construction site. Cement porters and supervisors were having problem of skin rashes, itching, infection and redness. It was observed from the result that vision changes, eye itching problems and redness were more common among porters of construction sites. The supervisor reported itching and redness in the eyes. Other problems were also reported by cement porters like headache, stomachache, loss of appetite, nausea, weakness, irritability, backache, nervousness, swelling of arms, legs joint, back ache/pain or stiffness in arms, legs, joints, hair loss problem, bone related problem.

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