



Occupational Health Hazards in Cement Plant Workers

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ABSTRACT:-

The paper deals with the occupational health hazards among the mini cement plant workers of kalburagi district. The health status data of 300 workers were obtained from five different mini cement plants. During investigations, the results obtained indicated that the workers who have been working continuously for more than five years in this environment were suffering from respiratory, skin, eye and heart diseases with chest and stomach pain. It was also noticed that the percentage frequency of affected persons depend upon their age, work experience and sensitivity. It was also noticed that cement plants act as an aging factor for the workers. A few suggestions have been given for protection of health by these workers.

Key Words: Cement plant workers Cement dust Occupational health hazard

INTRODUCTION :-

Shelter is one of the fundamental necessity of human beings. To build their shelter, building materials like bricks, stone of various size, marbles and concrete are required. Concrete is the mixture of sand, cement, small stones and water. It is used for making roads, bridges, septic tanks, floors, houses and apartments. Due to urbanization and population bloom, the rate of construction of concrete houses and apartments is increased resulting in more demand of building materials. These building materials are manufactured in mini or mega cement industries and stone crushers. These factories or plants or crushers fulfill the demand of people and play an important role in the development of structure of this advanced and modern world at one side but they pollute the environment by releasing particulate matter of dust at other side. Millions of peoples are engaged

daily in such type of dusty plants and industries, and have to face different types of health hazards like fumes, gasses and dust which are risk factor in arising occupational diseases. The dust particles less than 2µ are trapped in the lung and their settling may affect the physiology of lungs (Junge 1966). The effect of dust on the body varies with nature and duration of exposure as well as age of the persons (Rajappa & Ravikumar 2003). Silica dust causes pneumoconiosis, and skin diseases are strictly of occupational origin (malamma & Gundappa 2004). Development of cancer in Danish stone industries workers, Vermont granite shade and quarry workers due to silica exposure have been reported (Gue'ne'l et al. 2002).

Allergic manifestation such as respiratory asthma (pulmonary and bronchitis) with fever and skin allergy in the form of formation of rash and severe skin ulcer may result from exposure to tobacco dust are reported by earlier investigators. Particulate air pollution has been associated with the incidence and severity of respiratory disorder (Pope & Dockery 1999, Near et al. 2003, Peters et al. 2008)

Cement dust is one of the major air pollutants. It consists of hazardous materials such as:

1. Alkaline compound (lime) that are corrosive to human tissue,
2. silica that is abrasive to skin and causing damage to lung (silicosis), and
3. chromium that can cause allergic reaction (pulmonary as well as skin)..

MATERIALS AND METHODS:-

The investigations are based upon the health hazards among mini cement plant workers of Kalaburagi district, Karnataka, India. Kalaburagi is a small town with many cement and sponge iron plants are located in and around it. For this study, workers of varied age and work experience were selected from five different mini cement plants. The occupational diseases among the workers were investigated by inquiry through short questionnaires and also on the basis of their previous medical reports provided by the hospitals. The health status data, thus, obtained were screened to confirm their occupational diseases with relevance to dust pollution arising from mini cement plants.

RESULTS AND DISCUSSION :-

After data collection of the health status of cement workers, it was noticed that risk of injuries depend on the duration, level of exposure, individual age and sensitivity as also reported by earlier workers (Chandran & Rajkumar 2002). During investigations many diseases like skin, respiratory, eye, nose and throat irritation, rising blood pressure, cardiac disease, and chest and stomach pain were identified among workers. The percentage of total affected people in mini cement plants was found 80%. Some diseases like rashes and dryness of skin, eyes reddening, nail hardening and dry cough were identified as common among workers having five years work experience. However, the level of virulence is low in persons with low work experience than that of long time work experience people

Health Hazards OF cement And it.s Remedies**Table 1: percentage of affected persons in mini cement plants with respect to their age**

Age of people yrs	Total number of examined persons	Number of affected presons	percentage of affected persons
25-30	18	7	38.66
31-35	50	26	53.00
36-40	80	55	66.7
41-45	95	81	85.71
46-50	70	43	89.12
51-55	48	72	91.25
56-60	79	57	94.00

Table 2: Percentage of affected people in mini cement plants with respect to their work experience

Lenth of work Experience(yrs)	total number of examined persons	number of affected persons	percentage of affected persons
1-5	50	16	32.00
6-7	95	60	63.15
11-15	75	65	86.66
16-20	105	92	90.19
22-25	90	83	92.22
26-30	30	22	93.33
31-35	23	34	95.22

Data given in the Table 1 focuses the percentage figure of affected person with respect to their age. It shows that the percentage of affected persons increase with their age. In low age group people (20-25 years) the percentage figures of affected persons was low (38.8%) than with high age group (50-60 years) of 94%. The data in Table 2 represents the percentage of affected person with respect to their work experience. It is clear from the data that as the work experience of workers increases, the percentage of affected workers also increased. Both variables are positively correlated with each other. In short time work experienced workers (1-5 years) the percentage was low (32%) than that of long term experienced workers (97.14%). Long term exposure to high level of particles has been associated with an increase with the risk of death from lung cancer and heart attack (Koskela et al. 1994). Besides these findings in present study, it was also noticed that cement plant acts as an aging factor to induce the aging among the workers. The workers with 10-12 years work experience looked overage due to reaction of dust particles

SAFETY MEASURES :-

To get protected from cement and cement mixture, workers should take following precautions.

1. First of all, it is utmost important to prevent the skin exposure from cement dust. Every company should provide cotton boilersuits to their workers as per ILO. But very few of them provide such boiler suits, so

workers should take care of their own by wearing long sleeves and trousers(preferably cotton) to reduce skin exposure from cement dust.

2. Workers should wear alkali resistant gloves

3. Workers should wear safety goggles to protect the eyes.

4. Suitable respiratory protective equipment such as P, N or R95 respirator when cement dust can not be avoided.

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