

Incidence of Occupational Disease among Mica Workers of Jharkhand

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ABSTRACT This paper attempts to show the incidence of occupational disease among mica workers of Giridih, Jharkhand. Four hundred and twenty mica workers from four villages surrounding Giridih town were surveyed by Sociological Research Unit, Indian Statistical Institute, Giridih relating to the project "Gender and Labour: A Study of Mica manufacturing Industry of Giridih" in 2001-2002, funded by Indian Statistical Institute. Within the mainframe questionnaire, a section on occupational disease was incorporated. Data were fed into SPSS format. It was found that 58 out of 420 mica workers are suffering from various types of problems; of these 33 mica workers are suffering from respiratory problems that includes chronic obstructive airway diseases, cough with breathlessness etc. It is found that mica industry has severely failed to protect the health of the mica workers.

INTRODUCTION

A variety of respiratory diseases are commonly occupational in origin. This study seeks to find out the incidence of occupational disease among mica workers of Jharkhand, India. A study on mica workers by Gangopadhyay et al. (1994) showed that the workers were mainly suffering from respiratory morbidities, which occurred in greater frequency in the exposed workers than in control group. A small percentage also showed pneumoconiotic changes in their chest x-rays. Repeated high exposure to mica dust can irritate the lungs and may cause lung scarring (fibrosis). This causes an abnormal chest X-ray, cough and shortness of breathe. There are about 3 million workers in India at high potential risk of silica exposure. They are employed in various occupations such as mining and quarries (17 lakhs); manufacture of non-metallic products i.e., refractory products, structural clay, glass, mica etc. (6.3 lakhs) and manufacture of basic metals and alloys, i.e. iron and steel, copper, ferroalloys, aluminium, etc. (6.7 lakhs) (Labour Bureau, 1994). The prevalence of silicosis is 34% in mica mines and mica processing industries of Bihar (CAF, 1953). Mica workers are exposed to

the inhalation of a wide variety of dusts, including quartz, feldspar and silicates. In this perspective this study seeks to find out the incidence of occupational disease among mica. This study is an offshoot of the project on "Gender and Labour: A Study of Mica Industry of Giridih", funded by Indian Statistical Institute. During the survey of mica workers related to the project four hundred and twenty workers from four villages surrounding Giridih town were selected wherefrom mica workers commute daily to the mica factories located in Giridih. Giridih is the mica-manufacturing centre of Jharkhand state. Since, we are constrained to survey all the mica workers, we are unable to generalize our findings.

METHODS

Four hundred and twenty workers were asked if they have any problem of occupational disease. Of these 58 (13.81%) persons reported for some sort of problem, mainly cough with sputum, and respiratory problems. These 58 persons were given four different dates when a medical practitioner belonging to our team would examine them and would conduct pathological tests. On those particular days 54 persons appeared for tests. Four did not come due to the fact that factories remain open everyday; thereby non-attendance meant losing one day's wage. Therefore, the findings would remain confined to 54 mica workers (male - 35 + female - 19) who are suffering from some sort of occupational diseases.

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The task in mica includes picking, screening, and cutting, grinding of mica powder, splitting and packing.

RESULTS AND DISCUSSION

Diagnosis of 54 workers shows (Table 1) that 10 mica workers are suffering from pulmonary tuberculosis. Majority that is 33 mica workers are

Table 1: Distribution of occupational disease among mica workers

Disease	Frequency
Pulmonary tuberculosis	10
COAS, RTI, AA, BRON*	33
Dermatitis	01
Carcinoma Larynx	01
Indirect effect (OT, RE)**	02
Unrelated	07
Total	54

*COAS – Chronic Obstructive Airway Disease

RTI - Respiratory Tract Infection

AA – Allergic Alveolitis

BRON – Chronic Bronchitis

**OT – Osteo-arthritis

RE – Refractive error

suffering from respiratory problems, which includes chronic obstructive airway disease, respiratory tract infection, allergic alveolitis, fibrosis of lungs and chronic bronchitis. Other types of directly related problems that are dermatitis and carcinoma larynx are not frequent. There are indirect effects also due to sitting continuously in a particular posture, cutting of mica in poor lighting. 2 mica workers reported osteo-arthritis and refractive error. Sex-wise distribution (Table 2) of occupational disease among mica workers shows that relatively less number of female is affected by either pulmonary tuberculosis or respiratory problems. This may be due to the fact that total number of female patients is much less than male patients. That working in mica industry has adverse effect on health is clearly evident from Table 3, with increasing years in mica, possibility of contracting occupational disease is increasing. Particularly in case of respiratory disease those who have worked for more than 10 years the number of affected workers jumped to 23 from 9 whose tenure in mica is between 4-9 years.

Table 2: Distribution of occupational disease among mica workers by sex

Sex	Name of the Disease						Total
	Pulmonary Tuberculosis	COAS, RTI, AA, BRON*	Dermatitis	Carcinoma Larynx	Indirect effect** (OT, RE)	Unrelated	
Male	6	21	-	1	-	7	35
Female	4	12	1	-	2	-	19
Total	10	33	1	1	2	7	54

*COAS – Chronic Obstructive Airway Disease

RTI - Respiratory Tract Infection

AA – Allergic Alveolitis

BRON – Chronic Bronchitis

**OT – Osteo-arthritis

RE – Refractive error

Table 3: Distribution of occupational disease among mica workers by years in mica

Years in Mica	Name of the Disease						Total
	Pulmonary Tuberculosis	COAS, RTI, AA, BRON*	Dermatitis	Carcinoma Larynx	Indirect effect** (OT, RE)	Unrelated	
1-3 years	2	1	-	-	-	-	3
4-6 Years	1	4	1	-	1	-	7
7-9 Years	1	5	-	-	1	1	8
≥10 years	6	23	-	1	-	6	36
Total	10	33	1	1	2	7	54

*COAS – Chronic Obstructive Airway Disease

RTI - Respiratory Tract Infection

AA – Allergic Alveolitis

BRON – Chronic Bronchitis

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CONCLUSION

Our study confirms the above findings that exposure of workers to mica powder may cause irritation of the respiratory tract, and after several years, nodular fibrotic pneumoconiosis can occur (Bruusgaard, 1983). The study has shown that mica industry has failed to protect the health of its workers. The entrepreneurs lack financial resources, technical know-how and above all good will necessary for the protection of the workers. The workers on the other hand are also not organized and lack the power of collective bargaining against exploitation. The industrial hygiene and epidemiological surveys in samples should be carried out among the population at risk and the more vulnerable groups should be identified. The pre-employment medical examination will provide the baseline data for each individual. Periodical examination is necessary because there exists a small susceptible population, which is hyper-susceptible or otherwise unusually responsive to the toxicants because of genetic factors, age and personal

habits. The success of prevention programme will largely depend upon the active cooperation of the workers at risk and entrepreneurs.

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