



The Silent Killer: Agate Workers in Khambhat (Gujarat) Fight Against silicosis

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Abstract: *Khambhat region has gained notoriety for a large number of deaths of agate workers due to silicosis. In India, estimated 3 million workers employed in various types of mines, stone industries, construction sites and so on are occupationally exposed to silica dust and are in extreme danger of being severely affected by silicosis. In this research paper, I showed that most of the agate workers are friend and relatives of the owners of the units. On average, a household unit is composed of 10 to 12 workers. some large units have 30-40 workers who dry, cut grind and polish gemstones that are exported to international market in the Us and Europe. In khambhat, the Process of grinding and polishing of agate is very primitive. The grinding machines are simple devices powered by electric motors which are highly noisy and throw up lots of dust. Agate stone grinders work with bare hands, without any Protective gear and are directly exposed to silica dust arising from cutting, grinding and polishing stones. Significantly large number agate workers in khambhat are treated as family members by their employers. Government officials complain that the owners give wrong information about workers status.*

Keyword: *Silicosis, Agate stones, grinding machine, workers.*

I. INTRODUCTION

Silicosis causes fibrosis and destruction in the lung that Proves fatal in due courses of time. It is one of the world's oldest known disease that continues to kill people in occupations where workers are exposed to reparable fine dust over a long period. In India, an estimated three million workers are exposed to silica in mines and in industries, such as stone cutting, silica milling, agate, slate pencil etc.

Among these, the highest Prevalence of silicosis in the slate pencil industries(54.59.) followed by workers in agate industries(38%).

Studies conducted earlier reveal that the concentration of respirable dust in these house hold in the industries is very high and contain more than 60% free silica in it. Besides high prevalence of silicosis among the workers engaged in this unorganized industry, on occupationally exposed group are also reported to have silicosis (6.8-11.8%) silico tuberculosis(2.8-6.3%),and tuberculosis(18.8-20.1%).

This situation is in khambhat, a coastal city of Gujarat, India. Where several small agate stone polishing units operate from individual houses for many decades and there is no system in place for medical Professionals to document and inform government public health system about the mobility and mortality associated with silicosis.

The agate industry in khambhat is composed of home-based small industrial units, which do not fall in the purview of the factories act. Workers are ineligible for compensation for any accident or injuries that take place at the workplace. Even those seriously affected by silicosis have not received any compensation so far, A well defined employer-employee relationship is totally absent. There is no mechansim to ensure proper wages or timely payment. Thus almost all the workers are completely at the mercy of the employer, and treat workers almost like slaves.

Agate industries in khambhat, male and female workers are equally vulnerable and many workers developed silicosis within a span of four to five year of work.

In spite of several case studies, report and fact-finding missions, the agate workers are still waiting to get any help from the government. Thus; several issues still haunt the dying agate industries. The extremely poor agate workers, who cannot even afford to pay their medical bills, are completely in capable of installing costly machine to control dust. Questions are also raised on the efficacy of these machines to create dust free work environment. Another issue that the workers face is changing their work habits to adapt to the new mechanized work environment. Until this issue is resolved, the poor workers in the agate industry in khambhat will remain victims trapped in the net of silicosis.



II. MATERIALS AND METHODS

People who suspect that they have silicosis should seek medical attention. The Physician asks questions about when or how the patient may have been exposed to silica, They can test lung function with pulmonary function tests.

A chest x-ray can test for scar tissue on x-ray, silica scars appear as small, white spots.

A bronchoscopy may also be conducted. This procedure involves passing a thin, flexible tube down the throat, a camera attached to the tube allows the physician to view the lung tissue. Tissue and fluid sample can also be taken during a bronchoscopy.

III. RESULT AND DISCUSSION

Table 1 Demographic information in agate work.

Description	n(%)
Age	
18-30	102(60.0)
31-40	40(23.5)
41-50	20(11.8)
750	8(4.7)

Exposure duration (yrs)

≤10	90(52.9)
11-20	58(34.2)
>20	22(12.9)

Smoking habits

Non smoker	136(80.0)
Smoker/ex-smoker	34(20.0)

Table 2:Prevalence of respiratory diseases in the studied agate workers.

Disease condition	n(%)
Silicosis	-
Simple	1.8(10.6)
Complicated	4(2.4)
Previously diagnosed chronic	
Bronchitis	20(11.8)
Asthama and asthma like	
Symptoms	8(4.7)
History of tuberculosis	2(1.2)

A total of 170 subjects working in the agate industries was assessed. All the participants were male and most of the agate workers age were 28 years and they were working in this field from last 10 years. Table 1 shows the demographic information of the studied workers. Agate workers usually work for almost 10 hours a day with low level of physical exertion. only 10% of workers were using cotton surgical face mask, no one used wet methods. There was no appropriate ventilation in agate cutting and grinding units studied, only a few units had hand-making ventilation designed by the workers themselves to control dust.

The most common clinical finding were exertional dyspnea(31.8%),cough(21.2%),and sputum production (13.1%).In radiologic evaluation,28(16.4%) of 170 workers had abnormal chest x-rays,22(12.9%)of whom had silicosis and 6(3.5%) had other problems not related to silicosis. silicosis mainly occurred in workers aged >40 years and those with exposure duration >25 years.

In Table -2,Result of (10.6%)workers were simple. But in some cases like(2.4%)workers were complicated also. workers (4.7%) result were found, asthma and asthma like symptoms.

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