

The Small Scale Chemical Based Industries In Thoothukudi Posed A Health Threat To Their Workers

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Abstract: The paper investigates the health issues faced by workers who have worked at the small scale chemical industries. The small scale chemical based industries mainly consists of cleaning products, safety matches and wax splints, Vipoothi, Agarbathi and camphor tablets and Plaster of Paris, chamber bricks, grill works and so on. The main objective of study is to ascertain the health problems posed to workers at small scale chemical based industries in Thoothukudi. Based on the study suggestions are given to combat the health issues. The researcher collected the primary sources of data collected from the workers in different types of small scale based chemical industries in Thoothukudi. A random selection of 100 workers who work at 35 different small scale chemical based industries in Thoothukudi. On questionnaire style the health problems of the workers have been classified. in to 3 heads: nature of the health problems, categories of health problems and discomfort in different parts of body. Based on the findings of the health issue, some significant suggestions are given to the workers to take preventive measure while working: the skin related ailments could be prevented by wearing chemical appropriate gloves, aprons and proper footwear; and eye related disease/accidents could be avoided using safety goggles. Diseases mainly caused by soft material particles by inhalation could be contained by wearing face masks. In case of poisonous or toxic chemical exposure, periodic checkup/monitoring for the exposure limit should help in reducing health hazards.

I. INTRODUCTION

Industrial growth is generally considered as an indicator of development. Development implies improvement in quality of life. Therefore, the emphasis must be as much on social wellbeing as on economic progress. The need for good health thus becomes one of the primary objectives of development especially in the developing countries.

In developing countries, great efforts are directed towards the development of small scale industries as the engine for their economic growth. The small scale chemical based industry of India is one such industry which has provided ample opportunity of employment for the rural people especially for low socio economic class.

An industry is defined as small scale if it employs five to nine workers which may include proprietor and his family members or hired labour on wages. The definition of small scale industries defers from country to country. All the definitions are based on certain factors like numbers of persons employed, amount of investments, inputs, production/

turn-over, locations, technology etc. In India, Sri Lanka, Indonesia and Malaysia, investment is taken as the basis for defining small scale industries. The investment limit is below two lakhs rupees.

The small scale industry workers constitute a significant proportion of the total population of any industrial area. The health of this population is reflected in the health of the society in the given area. Thus an understanding of health situation of workers employed in small scale chemical based industry can be of considerable significance in explaining the spatial differentiation in health and disease pattern. Some studies pertaining to problems in specific industries carried out by researchers in various disciplines. The health problems associated with different small scale chemical based industries depend on prevailing industrial structure, duration of working hour, work place environment, year of exposure and prevailing socioeconomic condition.

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Of the 100 samples, 40% workers are engaged in plaster of Paris, 20% in cleaning products, cleaning products producing units absorbs 18%, while 12 % and 8% employees are employed in chamber bricks and grill works respectively, and safety matches and wax splints accounted for 2%.

The general condition of health and health care of small scale chemical based industries are unsatisfactory. Problems such as impaired sense of smell and taste, respiratory disorders, skin disease, heart and lung diseases, reproductive issues have been detected among workers in specific industry. In the absence of adequate diagnosis and treatment facilities occupational diseases have a serious consequences on the social and economic conditions of workers of their families.

Occupational health care is a multidisciplinary field concerned with the safety, health, and welfare of people at work.

"The main focus in occupational health is on three different objectives: (i) the maintenance and promotion of workers' health and working capacity; (ii) the improvement of working environment and work to become conducive to safety and health and (iii) development of work organizations and working cultures in a direction which supports health and safety at work and in doing so also promotes a positive social climate and smooth operation and may enhance productivity of the undertakings. The concept of working culture is intended in this context to mean a reflection of the essential value systems adopted by the undertaking concerned. Such a culture is reflected in practice in the managerial systems, personnel policy, principles for participation, training policies and quality management of the undertaking."

— Joint ILO/WHO Committee on Occupational Health

Those in the field of occupational health come from a wide range of disciplines and professions including medicine, psychology, epidemiology, occupational medicine, human factors and ergonomics.

Medicine encompasses a variety of health care practices evolved to maintain and restore health by the prevention and treatment of illness.

The psychological knowledge is often applied to the assessment and treatment of mental health problems, it is also directed towards understanding and solving problems in several spheres of human activity. By many accounts psychology ultimately aims to benefit society.

Epidemiology is the study and analysis of the patterns, causes, and effects of health and disease conditions in defined populations. It is the cornerstone of public health, and

shapes policy decisions and evidence-based practice by identifying risk factors for disease and targets for preventive healthcare.

Occupational medicine, especially until 1960 called industrial medicine, is the branch of medicine which deals with the maintenance of health in the workplace, including the prevention and treatment of diseases and injuries, and also promotes productivity and social adjustment

Human factors and ergonomics is concerned with the "fit" between the user, equipment and their environments. Ergonomics is the physiological link between the worker and his environment. This would have an effect on the worker's body and the relative increase of discomfort in various parts of the body. It indicates the effects of varied working condition which led to the occurrence of health related problems. The various systematic problems that are investigated are respiratory systems, cardiovascular system and skin. The psychological problems are examined in terms of stress and sleep.

Each of chemical based industries gives different physical ailments and serious health problems. Most common and significant health related issues are discussed below.

Nature of the health problem	Cleaning products	Safety matches & wax splints	Vipoothi, Agarbathi & Camphor tablets	Plaster of Paris	Chamber Bricks	Grill works	Total
Impaired sense of smell and taste	2.5	2.2	5.5	6.3	3.5	3.2	23.2
Respiratory disorders	3.2	2.1	3.5	5.9	4.3	-	19
Skin disease	5.5	1.3	2.4	4.7	3.4	2.4	19.7
Heart and Lung diseases	4.4	2.2	3.4	2.4	4.6	2.2	19.2
Reproductive Issues	4.5	4.2	1.4	2.5	4.1	2.2	18.9
Total	20.1	12	16.2	21.8	19.9	10	100

Source: Primary data

Table 1.1: Nature of the health problems caused by the small scale chemical based industries(%)

The highest number of workers who are affected by impaired sense of smell and taste is 23.2%. The lowest among the other ailments is respiratory disorders, i.e., 19%. Skin disease, heart and lung disease and reproductive issues and 19.7%, 19.2% and 18.9% respectively.

Categories of health problems	Cleaning products	Safety matches & wax splints	Vipoothi, Agarbathi and Camphor tablets	Plaster of Paris	Chamber Bricks	Grill works	Total in %
Asthma	3.8	1.9	3.3	2.2	1.9	0.4	13.5
Bronchitis	3.2	0.8	3.2	1.3	1.9	1.2	11.6
Laryngitis	2.8	1.1	2.3	1.6	2.6	0.9	11.3
Rhinitis	3.2	1.6	1.7	3.1	3.3	0.8	13.7
Eczema	0.3	1.9	3.4	1.6	0.6	1.2	9.0
Phassy Jaw	2.0	4.7	1.3	0.8	1.2	1.0	11.0
Cancer	2.2	1.8	2.8	3.0	1.9	1.7	13.4
Infertility	2.6	1.9	1.8	2.8	3.6	3.8	16.5
Total	20.1	15.7	19.8	16.4	17	11	100

Source: Primary data

Table 1.2: Categories of health problems(%)

The above table 1.2 is self-explanatory- vide table 1.1

Discomfort in body parts	Cleaning products	Safety matches & wax splints	Vipoothi, Agarbathi & Camphor tablets	Plaster of Paris	Chamber Bricks	Grill works	Total
Eyes	0.5	1.0	0.2	0.3	2.1	4.2	8.3
Nose	4.9	2.3	3.0	1.4	3.0	-	14.6
Skin	7.6	3.8	4.6	4.4	1.0	3.2	24.6
Throat	6.8	1.2	2.4	1.8	1.5	-	13.7
Lungs	8.6	4.2	4.4	2.2	0.6	-	20.0
Heart	3.4	1.1	1.4	1.8	-	0.6	8.3
Reproductive	1.1	0.6	-	0.6	2.4	3.8	8.5

Organs							
Multi-organs disorders	0.5	0.3	0.2	0.6	0.2	0.2	2.0
Total	33.4	14.5	16.2	13.1	10.8	12	100

Source: Primary data

Table 1.3: Discomfort in different parts of body (%)

The above table 1.3 is self-explanatory- vide table 1.1

The study reveals that the chemicals can harm the health of adults, children, and the unborn. Several of these chemicals are not only toxic but also possess other troubling hazardous properties such as being long-lived in the environment (persistent). Most of these chemicals that enter our environment are manufactured by the chemical industry and added to the thousands of items in daily commerce that support our modern lifestyle.

The skin related ailments could be prevented by wearing chemical appropriate gloves, aprons and proper footwear. Eye related disease/accidents could be avoided using safety goggles. Diseases mainly caused by soft material particles by inhalation could be contained by wearing face masks. In case poisonous or toxic chemical exposure, periodic checkup/ monitoring for the exposure limit should help in reducing health hazards.

At micro level, the following issues can be addressed with time and cost effective management: a) Cottage industry workers should be made aware of work related health problems through media or door-to-door campaigns by non-governmental agencies b). The workers must enforce the use of safety devices against pollution and other chemicals especially weavers should use cloths to cover their hand to avoid effect of dye. c) The poor facilities and bad environmental conditions will affect the worker's health and consequently production repeatedly. There should be proper

ventilation in the workplace. d). Stress management should be introduced in the organisation and interaction could help in better occupational adjustment and e) to understand how individual factors such as species, age, and length of exposures.

Our single-minded focus is to move forward and address the problems with pragmatic approach. The precautionary steps taken to achieve maximum safety that usually always go hand in hand with the improvements in the quality of life.

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