

Prevalence of Respiratory Diseases among the Worker of Wooden Saw Mills

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Abstract: *Rapid industrialisation is taking place in every country for fulfilling the domestic and international requirement and to create employment opportunities in every areas without considering the pollutional load on surrounding environment and its effects on the workers of the industries. Air pollution is becoming challenge for every government along with the industries. We are continuously inhaling the air for survival and particulate matter present in the air are also going in the respiratory system and get deposited at various places. The toxicological effects depend upon the chemical composition of particle, size of particle and place of deposition. In this study an attempt was made to assess the prevalence of various respiratory disease among the workers which are exposed to air pollutants.*

Keywords: *Respiratory system, Dyspnoea, Cough, Toxicology*

1. INTRODUCTION

In the present time many development are taking place to enhance the well beings of human life and to create employment opportunities in every country. Unfortunately, we are not considering the contribution of pollutional load on the surroundings and its effect on the human being exposed to that pollution. Millions of people suffers every year from various respiratory diseases due to air pollution. Fine particulates are generally man-made and result from various industrial process, transportation and fuel burning etc. Fine particulates are the complex mix that contains disproportionate amount of harmful substances associated with the human respiratory diseases. Unfortunately the harmful fraction of airborne particulate matter is largely ignored even by present monitoring and control system. The effect particulate matter on human health can be divided into acute and chronic effects.

Although all the particulate matter which are capable of reaching in the lungs are harmful but toxicity depend upon the chemical composition of particle, size of particle and place of deposition. Certain compounds or chemical agents possess inherent toxicity and have been directly linked to health effects. Some particles are chemically inert but its physical presence in the lungs may interfere with and retard the clearance of toxic material present in other deposited particles. Some particulate matter can act as carrier for gases pollutants and therefore produces synergistic effects.

Objective of the study

Saw mills units, which uses big motorised saw (popularly called as Aara Machine) are quite common in the Indian cities. There are more than 150 units are working in the Jodhpur City. The machine produces much of saw dust. The wood which is cellulose chemically, have severe ill effects on upper respiratory tract. Hence present study was carried out. Under this

study, a survey has been made to ascertain the adverse effects of various kinds on workers exposed to air pollution during working hours of wood saw mills along with the measurement of concentration of particulate matter at work place.

2. METHODOLOGY

- Personal air sampler was used to measure the concentration of particulate matter
- Saw mills were identified for sampling
- The workers were selected and categorised on the basis of exposure duration, smoking habits and age. The workers having hereditary respiratory diseases were excluded from the study. Total 160 workers were included in the study with same social and economic background.

Observations & Analysis:

The observation are tabulated in table-1 for Non- Smoker and table-2 for smokers.

Table-1: For Non- smokers

Average Concentration of particulate matter ($\mu\text{g}/\text{m}^3$)	Age Group (Yrs)		Dyspnoea Patient		Cough Patient		Year of working (Yrs)
	20-30	30-45	20-30 (Yrs)	30-45 (Yrs)	20-30 (Yrs)	30-45 (Yrs)	
2216.6	15	10	1	5	2	5	0-5
2216.6	20	15	10	10	15	12	5-10
2216.6	0	10	0	7	0	8	>10

Table-2: For smokers

Average Concentration of particulate matter ($\mu\text{g}/\text{m}^3$)	Age Group (Yrs)		Dyspnoea Patient		Cough Patient		Year of working (Yrs)
	20-30	30-45	20-30 (Yrs)	30-45 (Yrs)	20-30 (Yrs)	30-45 (Yrs)	
2216.6	19	17	6	7	8	9	0-5
2216.6	28	19	16	13	22	14	5-10
2216.6	2	15	1	14	1	13	>10

It is clear from the observations that in age group of 20-30 years of exposure duration less than 5 years in case of non-smokers, the patient suffering from dyspnoea and cough are 6.7% & 13.3 % respectively whereas in the age group of 30-45 years it reaches to 20% and 50 % respectively.

For age group of 20-30 years of exposure duration 5-10 years in case of non-smokers, the patient suffering from dyspnoea and cough are 50 % & 75 % respectively whereas in the age group of 30-45 years it reaches to 66.7 % and 80 % respectively.

For age group of 30-45 years of exposure duration More than 10 years in case of non-smokers, the patient suffering from dyspnoea and cough are 70 % & 80 % respectively.

For age group of 20-30 years of exposure duration less than 5 years in case of smokers, the patient suffering from dyspnoea and cough are 31.6 % & 42.1 % respectively whereas in the age group of 30-45 years it reaches to 41.2 % and 53 % respectively.

For age group of 20-30 years of exposure duration 5-10 years in case of smokers, the patient suffering from dyspnoea and cough are 57.1 % & 78.6 % respectively whereas in the age group of 30-45 years it reaches to 68.4 % and 89.5 % respectively.

For age group of 20-30 years of exposure duration more than 10 years in case of smokers, the patient suffering from dyspnoea and cough are 50 % & 50 % respectively whereas in the age group of 30-45 years it reaches to 93.33 % and 86.6 % respectively.

Hence it indicates that exposure duration and age along with habit is responsible for respiratory disease. As exposure duration increases number of patient suffering from various diseases increases. Similarly As age of worker is more, he has more chances of adverse health effects. The smoking habit has significant impact and more workers are suffering from respiratory problem.

3. CONCLUSION

The workers working in the Saw Mills have chances to have respiratory problem within 5 years of working and observations are giving clear indication that if exposure duration is more than 10 years then most of the workers may suffer at least one kind of respiratory problem. Hence there is need to use personal protective devices by the workers and control the concentration of particulate matter in the working area.

4. REFERENCES

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