

ORIGINAL ARTICLE

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Prevalence of Impaired Lung Function and Quality of Life in Flour Mill Workers in Ahmednagar City: An Observational Study**Miss. Harshali P. Gurli¹, Dr. Arjit K Das², Dr. Abhijit D. Diwate(PhD)³, Dr. Abhaya S. Mahadik⁴**

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ABSTRACT:

Background: A major problem in developing countries is indoor air pollution and in India a major problem is the lack of awareness. A study says that flour mill workers, on average are exposed to such an environment for 8-10 hrs. a day. This prolongs exposure to flour mill dust and poor ventilation leads to respiratory complications. St. George's respiratory questionnaire is one of the reliable methods to quantify health status in patients with chronic airflow limitation and also, peak expiratory flow rate (PEFR) has been proven to be a useful tool in assessing airway obstruction⁹ which is common in flour mill workers. **Procedure:** The 50 flour mill workers was selected for study according to the inclusion and exclusion criteria. The PEFR values and St. George Questionnaire was taken and the domains affected were seen. **Result:** The prevalence of respiratory problems in flour mill workers was 71%. **Conclusion:** There is a higher prevalence of respiratory problems in flour mill workers due to prolonged exposure to flour mill dust and poor ventilation.

Key words: Flour mill workers, Respiratory problems, PEFR, St. George Questionnaire.

Received 18^h Dec 2019, Accepted 21st Dec 2019, Published 26^h Dec 2019www.vimsptcr.in**CORRESPONDING AUTHOR****Miss. Harshali P. Gurli**DVVPF'S College of Physiotherapy,
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INTRODUCTION

A major problem in developing countries is indoor air pollution. This indoor air pollution is increasing day by day due to swift in industrialization and unproductive pollution control measures. A major problem with developing countries like India is lack of awareness. This leads to an increased impact of indoor air pollutants on human health. Flour mill workers are one victim of indoor air pollutants. The American Conference of Governmental Industrial Hygienists (ACIGH) defines 'flour' as organic dust containing cereals.¹ Flour mills produce a large amount of flour dust. A study says that flour mill workers, on average are exposed to such an environment for 8-10 hours a day. This leads to poor ventilation leading to the accumulation of flour dust in the workplace environment. This prolongs the exposure of workers to fine dust leads to respiratory and pulmonary problems.² The most sensitive amongst this population includes individuals with COPD, CVD and ones suffering from influenza and asthma.^{2,3,4}

Chronic lung problem is a result of prolonged exposure to dust.⁵ Hence, in order to investigate the health effects of flour dust exposures, it is necessary to predict the risk factors that can cause asthmatic response.⁶ There are various measures available for measuring discomfort experienced amongst these workers. St. George's respiratory questionnaire is one of the reliable method to quantify health status in patients with chronic airflow limitation.⁷ which has various domains like-dyspnea, fatigue and persistent cough with excessive sputum⁸.

Also, peak expiratory flow rate (PEFR) has been proven to be a useful tool in assessing airway obstruction⁹ which is common in flour mill workers.⁹

NEED FOR STUDY: The poor ventilation leading to the accumulation of flour dust in the workplace environment. Long-term exposure of workers to this flour mill dust leads to respiratory and pulmonary problems so this study was conducted to find out the impaired lung function and quality of life in flour mill workers. So the main of the study was to find the prevalence of impaired lung function and quality of life in flour mill workers.

MATERIAL AND METHODOLOGY: This observational study was conducted on 50 flour mill workers in Ahmednagar. The workers who had to work in a flour mill in the last

5 years for 8-10 hours per day, 6 days in a week were selected and the workers who had using protective measures against flour mill dust were excluded. The PEFR values were taken by using the peak flow meter and St. George Questionnaire was filled by the workers and data were collected for the analysis.

RESULT: The study was conducted on 50 flour mill workers. The unpaired t test was used and p-value <0.001 is considered statistically significant. This study shows p-value greater than 0.01 i.e. 0.69 so it not statistically significant but the clinically study shows reduce values of PEFR in the flour mill workers.

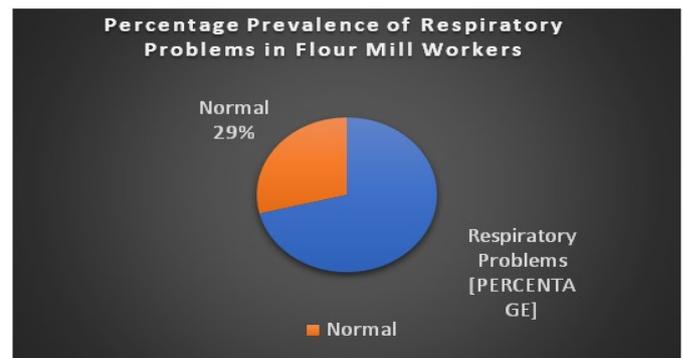


Fig 1: Prevalence of Resp. problems in flour mill workers

DISCUSSION: The present study shows reduce values of PEFR and affected domains of the St. George questionnaire. In the present study, the flour mill workers showed respiratory problems due to the prolonged exposure of flour dust. The C. Gimenezallet al. in 1995 said that respiratory symptoms were more prevalent among flour mill workers^{10,11,12} and flour mill workers have been reported to exhibit a variety of clinical manifestations, including conjunctivitis, allergic and baker's asthma, wheezing, febrile reactions, grain fever, lung fibrosis, rhinitis, allergic alveolitis, impairment of lung function, and chronic obstructive pulmonary disease.¹³

The mechanism of these respiratory problems was suggested by J. Minov et al. in 2006. He said that the flour dust particles easily enter the respiratory tract of an exposed person. These particles attach to the inner wall of the respiratory tract and disturb the process of inhalation and exhalation of air. The inner cell wall of the respiratory tract does not accept the foreign particles (flour dust), causing a slight irritation in the respiratory tract.¹⁴

CONCLUSION

There is a higher prevalence of respiratory problems in flour mill workers due to prolonged exposure to flour mill dust and poor ventilation.

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CONFLICT OF INTEREST: None

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