

European Respiratory Society Annual Congress 2012

Abstract Number: 1746

Publication Number: P1028

Abstract Group: 6.2. Occupational and Environmental Health

Keyword 1: Occupation **Keyword 2:** Lung function testing **Keyword 3:** Environment

Title: Case control study to assess the prevalence of obstructive airway disease in flour mill workers

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Body: In India, the grain flour required for household cooking is made by grinding grains in machine operated flour mills, which are usually small sized unventilated rooms. These machines are operated by a single unskilled worker who works in shift duties of 6 hours. During operation, the machine generates large amount of flour or grain dust and produces clouds of flour that surrounds the worker thus predisposing him to obstructive airway disease. 46 flour mills in the city were visited. Customers of the mills with short exposure to flour dust served as controls who were matched for age and sex. Those with active lung infection or scarring and tobacco smokers were excluded from both groups. On site measurement of PEFr was done, using Mini Wright's peak flow meter for a total of 44 workers and 44 controls. The intention of using a peak flow meter instead of spirometry was to evaluate usefulness of this simple modality which can be easily applied in villages where flour mills are more common and spirometry is not available. The peak flow readings between >100%, 80-99%, 50-79% and <50% predicted value were labelled as normal, green, yellow and red zone respectively. 22/44 workers had normal PEFr as against 38/44 controls. 19 and 3 workers were in green and yellow zone respectively whereas 6/44 controls were in green zone. 19/27 workers using a face mask had normal PEFr as against only 3/17 not using the mask (P<0.0001). Only 1/46 mills had enclosed machine with dust filter and the worker was in green zone even after 15 years of work duration. The study indicates a potential occupational hazard to the flour mill workers. Use of face mask or enclosure of machine can potentially reduce the risk.