

## Respiratory symptoms and chronic obstructive pulmonary disease among cement factory workers

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### ABSTRACT

**Objectives:** This study assessed chronic respiratory symptoms and chronic obstructive pulmonary disease (COPD) among workers exposed to cement dust at a Tanzanian cement factory.

**Methods:** A total of 120 exposed workers and 107 controls participated in this cross-sectional investigation. Information on demographics, occupational history, chronic respiratory symptoms, smoking habits, and use of respiratory protection equipment was collected by questionnaire. Ventilatory function testing and measurement of personal total dust exposure were also carried out. COPD was diagnosed for workers with chronic bronchitis who also had spirometric airflow obstruction. Chronic respiratory symptoms and COPD were correlated with cumulative total dust exposure and adjusted for age, pack-years, and education.

**Results:** The exposed workers had more chronic cough [odds ratio (OR) 4.5, 95% confidence interval (95% CI) 1.9–10.4], chronic sputum production (OR 10.8, 95% CI 4.4–26.4.), dyspnea (OR 5.3, 95% CI 1.9–15.2), work-related shortness of breath (OR 4.8, 95% CI 1.6–14.2), and chronic bronchitis (OR 5.5, 95% CI 2.0–15.3) than the controls. Chronic cough, chronic sputum production, dyspnea, work-related shortness of breath, and chronic bronchitis were significantly related to cumulative dust exposure of 20.0–99.9 and  $\geq 100.0$  versus  $<20.0$  mg/m<sup>3</sup>-years. The prevalence of COPD was higher for the exposed group (18.8%) than for the controls (4.8%). The odds ratio for COPD was significantly increased for cumulative dust exposure,  $\geq 100.0$  versus  $<20.0$  mg/m<sup>3</sup>-years (OR 11.2, 95% CI 2.2–56.0).

**Conclusions:** Cement workers seem to be at high risk of developing chronic respiratory symptoms and COPD, probably caused by cumulative total dust exposure independent of smoking habits.

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