

Abstract Template

Characteristics and Determinants of the Presence of Respiratory Symptoms among Sewage Workers in Malaysia

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Abstract

Introduction: The purpose of this study was to determine the relationships of PM 2.5 and H₂S exposure with the presence of work-related respiratory symptoms among sewage workers.

Methods: A cross-sectional study was conducted in eleven sewage plants located in the central region of Peninsular Malaysia. One hundred ninety-one sewage workers were assessed using the British Medical Research Council (BMRC) questionnaire. Area air sampling was performed in three different sewage plants to measure the following parameters: physical air quality and concentration of PM 2.5 and H₂S.

Results: Chronic cough (34.0%) was reported as the most common symptom, followed by chronic phlegm (26.2%), shortness of breath (7.9%), and chest tightness (3.7%). There were five significant determinants of the presence of respiratory symptoms among the sewage workers: shift work (AOR 23.50, 95% CI: 1.90–616.52), working at a sludge treatment facility (STF) (AOR 25.46, 95% CI: 2.06–314.29), a longer duration of working years (AOR 1.21, 95% CI: 1.01–1.44), individual cumulative exposure to PM 2.5 (AOR 9.01, 95% CI: 1.98–83.33), and individual cumulative exposure to H₂S (AOR 1.04, 95% CI: 1.01–1.07). The majority of STF and non-STF workers had higher exposure to PM 2.5 and H₂S concentrations in the air than office workers.

Conclusion: Sewage workers working at non-STFs or STFs reported a significantly higher prevalence of work-related respiratory symptoms and exposure to PM 2.5 and H₂S compared with office workers. Exposure-response relationships were also found in sewage workers' cumulative exposure to PM 2.5 and H₂S and the presence of respiratory symptoms.

Keywords: *Work-related respiratory symptoms, Sewage workers, Particulate matter 2.5, Hydrogen sulfide*