

## **Respiratory health symptoms and lung function among road-side Hawkers in Serdang and its association with traffic-related exposures**

### **ABSTRACT**

**Background:** The main objective of this study was to determine the respiratory health symptoms and lung function among roadside hawkers in Serdang, Malaysia and its association with traffic-related exposures.

**Methods:** This cross-sectional comparative study was conducted among 60 roadside hawkers while 60 restaurant workers were included as the comparative group in 2015. A questionnaire was used to collect background information and symptoms of respiratory health. All participants performed lung function tests. Personal exposure to traffic-related fine particulate matter (PM<sub>2.5</sub>) and carbon dioxide (CO) were performed among a representative group of workers. All statistical analysis was performed using SPSS version 22. **Results:** The mean (standard deviation) PM<sub>2.5</sub> exposure among the roadside hawkers was 31.05 (1.62) µg/m<sup>3</sup> while the exposure among the comparative group was 19.41 (1.51) µg/m<sup>3</sup> ( $P<0.05$ ). The mean exposure level of CO among the roadside hawkers was 2.42 (0.29) ppm compared to 1.51 (0.14) ppm among comparative group. FEV1 (litres) ( $z=-1.96$ ,  $P=0.04$ ) of the exposed group was significantly lower than the comparative group. Respiratory symptoms such as wheezing, chest tightness, coughing and phlegm were significantly higher among exposed group ( $P<0.05$ ). There were significant associations between the reporting of wheezing with PM<sub>2.5</sub> (Odds Ratio, OR=10.39, 95% Confidence Interval, CI=2.67-40.41), working duration (OR=13.36, 95%CI=3.13- 57.03) and current smoking status (OR=3.34, 95%CI=1.04-10.67). **Conclusion:** Roadside hawkers are exposed to high traffic-related pollutants, had reduced lung function, and are at risk for increased respiratory health symptoms. The study suggested the importance of preventive management for this specific group of workers.

**Keyword:** Fine particulate matter (PM<sub>2.5</sub>); Carbon monoxide (CO); Respiratory health symptoms; Lung function; Roadside hawkers