

## **EXPOSURE TO INDOOR PARTICULATE MATTER 2.5 (PM<sub>2.5</sub>) AND VOLATILE ORGANIC COMPOUNDS (VOCs) AMONG PRESCHOOL CHILDREN AT AN INDUSTRIAL AREA IN PETALING JAYA, SELANGOR**

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### **ABSTRACT**

This study was conducted to determine the exposure of (PM<sub>2.5</sub>) and Volatile Organic Compounds (VOCs) and their association towards respiratory health among preschool children in an industrial area. 100 preschool children aged between 5-6 years old were involved in this cross sectional study with the exposed group consisting of 50 children who live near the industrial area, while the comparative group consisting of 50 children who live far from industrial area. The questionnaires adapted from American Thoracic Society questionnaire were filled by their parents. Lung function test was done using MM-SPOO4 Tabletop Portable Spirometer. Gillian Air Pump and Pbbrae Portable VOC Monitor (Pbbrae 3000) were used to measure the amount of PM<sub>2.5</sub> and Volatile Organic Compounds (VOCs) respectively. There was a significant difference between exposed and comparative group for lung function test and lung function abnormality. Besides that, there was also a significant difference for prevalence of reported between studied and comparative groups for cough, phlegm and wheezing with 3 times more likelihood of getting cough for studied group (PR= 3.451, 95% CI =1.22-9.76). There was a correlation between PM<sub>2.5</sub> with FEV<sub>1</sub>/FVC of all respondents involved in this study. Exposed group has an increased risk for respiratory symptoms and reduction of lung function from exposure to indoor PM<sub>2.5</sub> and VOCs but not statistically significant. The findings conclude that there was a significant difference between exposed and comparative group for lung function test. Plus, respondents living near an industrial have a risk of getting lung function abnormality and respiratory problem.

**KEYWORDS:** Indoor Air Pollutants, Particulate Matter<sub>2.5</sub>, VOCs, Respiratory Health, Industrial Area