

Indoor particulate matter 2.5(PM2.5) and lung function among children living near busy road in Cheras Kuala Lumpur.

ABSTRACT

A huge amount of cars in the city, mostly heavy traffic jam during rush hours may cause air pollution. Epidemiological studies have provided evidence that exposure to PM2.5 decreases the lung function among children living near busy road. The aim of this study was to determine the exposure of indoor PM2.5 and lung function among children living near busy road, and comparative group of children living near less busy road in Cheras, Kuala Lumpur. Purposive sampling method was used where the samples selected were those who fulfilled the inclusive criteria for each location studied. Personal and socio-demography background, and other related information were adopted from standardized and structured questionnaire of American Thoracic Society. Air sampling pumps based on gravimetric principle were used to measure indoor PM2.5 in the respondents' house. Lung function was measured using Chest Graph Spirometry. There was a significant difference of indoor PM2.5, lung function abnormality and respiratory symptoms between exposed and comparative group with the value of ($t=-2.496$, $p=0.014$); ($\chi^2 =17.926$, $p=0.000$) and ($\chi^2 =7.259$, $p=0.007$) for predicted FEV% and FVC%; and ($p=0.000$) respectively; however overall lung function status was weakly associated with indoor PM2.5. Children living near busy road have significantly higher indoor PM2.5 concentration than less busy road which makes them at higher risk of respiratory illnesses. However, the specific airborne toxicants that facilitate and promote respiratory effects are still not clearly known. Since population characteristics are specific, the results of this study cannot be generalized.

Keyword: Children; Lung function; PM2.5; Respiratory symptoms.