UNIVERSITI TEKNOLOGI MARA

EXPOSURE TO PARTICULATE MATTER (PM10) AND RESPIRATORY HEALTH AMONG TRAFFIC POLICEMEN IN SHAH ALAM

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Project paper submitted in partial fulfillment of the requirements for the degree of
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Declaration by Student

Project entitled *"EXPOSURE TO PARTICULATE MATTER (PM10) AND RESPIRATORY HEALTH AMONG TRAFFIC POLICEMEN IN SHAH ALAM, SELANGOR"* is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions. This project was done under the guidance of Mr. Razi Ikhwan Bin Md Rashid as a Project Supervisor. It has been submitted to the Faculty of Health Sciences in partial fulfillment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons).

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ABSTRACT
EXPOSURE OF PARTICULATE MATTER (PM10) AND RESPIRATORY HEALTH AMONG TRAFFIC POLICEMEN IN SHAH ALAM, SELANGOR

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Introduction: Air pollution is a major environmental health problem, which affecting developed and developing countries in the world. Motor vehicle emissions are one of the major sources of air pollution, especially in highly urbanized areas with high population density. Traffic policemen are the high risk group to be affected by health hazards of air pollution. They might be experience respiratory disease due to exposure of air pollutant.

Objectives: 1) To identify the personal exposure level of traffic air pollution (PM10) among traffic policemen in Shah Alam. Specific objectives: 1)To measure the PM10 concentration exposed to traffic policemen in Shah Alam. 2) To identify association between exposure to respirable dust concentration and respiratory problems among traffic policemen. 3) To compare lung function (FVC, FEV1, FVC% predicted and FEV% predicted) among traffic policemen.

Methods: A cross sectional study was conducted among 62 traffic policemen in Shah Alam who exposed to air pollution and who work in the office as control group. Personal exposures to respirable particles (PM10) were collected and lung function test was run using Spirometer. Validated questionnaire based on American Thoracic Society were used to interview the respondents.

Results: The respirable particles (PM10) concentration among both exposed group and control group are below the standard. The median personal exposure level of PM10 among the exposed group was 96.2±30.3 µg/m3 compared to only 29.0 ± 8.08µg/m3 among the comparative group. The prevalence of cough (51.4%) and phlegm (54.3%) were significantly higher in exposed group compared to the control group. The spirometry results show there was a significant difference in FVC, FEV1, FVC% predicted and FEV1% predicted between exposed group and control group. The median of FVC is 4.20±0.51µg/m3 (z= -2.712, p=0.007) for exposed group The median of FEV1 for exposed group was 3.64±0.54 µg/m3(z=-1.981,p=0.048). The median of FVC% predicted and FEV1% predicted for exposed group was 67.00±20.00µg/m3 (z=-3.348,p= 0.001) and 73.00±10.00 µg/m3 (z=-3.144,p =0.002).

Conclusion: The result showed that traffic policemen are at risk of respiratory diseases with the decreased of lung function.

Keyword: Traffic air pollutants, respirable particles (PM10), respiratory symptom, lung function