

The relationship between vibrotactile perception and chemical exposure among vehicle service technicians in Klang Valley, Malaysia

ABSTRACT

Background: Hazardous chemicals, which give detrimental effect to the central nervous system, are widely used in the vehicle services industry. The use of Vibrotactile Perception Threshold (VPT) as a screening tool for chemical exposure is new in developing country such as Malaysia. Therefore, this study determined the relationship between VPT and chemical exposure among vehicle service technicians in Klang Valley.

Methods: Chemical Health Risk Assessment (CHRA) was conducted in 2014 at Klang Valley Vehicle Service Centers among the technicians using the method from Department of Occupational Safety and Health (DOSH) Malaysia. HavLab Tactile Vibrometer, UK was used to determine the VPT at the fingertip for the assessment peripheral nerve impairment. Questionnaires were used to obtain the respondents' background.

Results: Results showed the Log VPT 31.5Hz & 125Hz for workers exposed to chemicals was significantly higher compared to the non-exposed workers (31.5Hz: $T=4.776$ ($P<0.001$), 125Hz: $T=4.775$ ($P<0.001$)). There was significant relationship between VPT at Log 31.5Hz, Log 125Hz and overall VPT with diesel, mixture of gasoline and benzene, gasoline only, and the use of personal protective equipment.

Conclusion: The overall VPT model demonstrated that the exposure to an organic solvent and the usage of PPE contributed to vibro tactile threshold among vehicle service technicians in Malaysia.

Keyword: Chemical exposure; VPT; Vehicle service technicians