UNIVERSITI TEKNOLOGI MARA

ASSOCIATION OF HAND ARM VIBRATION AND HAND GRIP STRENGTH FORCE AMONG THERMAL FOGGING OPERATORS

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DECLARATION BY STUDENT

Project entitled “Association of Hand Arm Vibration and Hand Grip Strength Force among Thermal Fogging Operator” is a presentation of my original research work. Whenever contributions of others are involved, every effort is made to indicate this clearly, with due reference to literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Project Supervisor Dr Abdul Mujid bin Abdullah. It has been submitted to the Faculty of Health Sciences in partial fulfilment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons).

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In the name of Allah, The Most Gracious, The Most Merciful.

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ABSTRACT

Background The reduction of hand grip strength force has been increased tremendously among thermal fogging operator especially developing country. Hand arm vibration syndrome may be caused by prolonged and intensive exposure that is associated with an increased occurrence of symptoms and signs in the vascular, neurological and musculoskeletal. **Objectives** To identify the associations of hand arm vibration and hand grip strength force among thermal fogging operator. **Methodology** A cross-sectional study was conducted on 21 thermal fogging operators using simple random sampling. The inclusion and exclusion criteria were selected. Vibration meter was used to measure the HAV frequency and data collection sheet was used demographic data among operator. A t-test was performed to identify the mean of hand grip reduction before and after work. Meanwhile, a pearson correlation was performed to identify the correlation between HAV and hand grip reduction. **Results** of 21 participants, 20 participants have shown the reduction of the hand grip strength after works. There was a significant association between HAV and hand grip strength force with $p<0.001$. The Daily Vibration Exposure A(8) are ranging from $0.32ms^{-2}$ to $0.68\ ms^{-2}$ where it still below the Exposure Action Value. **Conclusion** Although hand grips reduction caused by multiple risk factors, but HAV may one of the contributing factors. In order to reduce the HAV, the management should consider the duration of work and the frequency of fogging machine maintenance and services.

Keywords *Thermal fogging operator, Hand Arm Vibration, Hand grip strength force*