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Ergonomic Risk Assessment on Assembly Line Workers of Automotive Industry in Shah Alam, Selangor

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Structured Abstract

Background: The Musculoskeletal disorder (MSDs) is a major cause of lost workdays in industries field that affect economic cost associated with considerable amount of disability, sick leave and loss of productivity. Therefore, this study aimed to determine the ergonomic risk factors and musculoskeletal disorder in selected automotive industry in Malaysia. This this study is crucial as musculoskeletal disorder is the third leading health issue in Malaysia and represents one of the causes of injury in occupational settings related to ergonomics and disability in the developing countries including Malaysia.

Methods: This cross-sectional study was conducted in 2024 in one sampling location located at Shah Alam, Selangor. Cornell musculoskeletal discomforts questionnaire (CMDQ) was used in this study to assess the prevalence of musculoskeletal symptoms among 64 respondents. This determination of risk factors was assessed by Initial Ergonomic Risk Assessment (ERA) based on Guideline of Ergonomic Risk Assessment at Workplace 2017 and the Rapid Upper Limb Assessment (RULA) was used to determine the work risk posture of the respondents. Moreover, the hand grip strength also being assessed. The welding workstation was selected to be assessed in this study.

Results: It is found that neck was the highest affected area with 57.81% N=37. Awkward posture was the main ergonomic risk factor in this study with a score of 6. Moreover, continuous welding in the welding process has a Rapid Upper Limb Assessment (RULA) score of 7 which indicates very high risk according to the interpretation of RULA. Furthermore, an individual who is older tends to get weak results for both hands. The respondents in the age group of 50-54 and 55-59 have weak results for right and left hand.

Conclusion: In conclusion, CMDQ provides a simple early screening evaluation prior to executing the MSD risk examination, the main ergonomic risk factors, give insight on risk of working posture and the significance of hand grip strength

Keywords: Musculoskeletal disorder, ergonomic risk factors, welding activities, rapid upper limb assessment

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