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Ergonomic Risk Factors for Work-Related Musculoskeletal Disorders Among Oil Palm Harvesters

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Structured Abstract

Background: The oil palm industry remains one of Malaysia's most important economic sectors, employing thousands of workers across plantations nationwide. However, the harvesting process is physically demanding and expose workers to various ergonomic risk factors. Tasks such as cutting fruit bunches using long poles and performing repetitive movements in awkward postures may develop WMSD. Prolonged exposure to these risk factors can result in cumulative musculoskeletal strain if not systematically evaluated. Without advanced evaluation, the risk of injury may remain underestimated.

Methods: This study employed a quantitative observational research design using the Ergonomic Risk Assessment as prescribed in Appendix 6, Guidelines on Ergonomics Risk Assessment at Workplace 2017. The assessment was conducted among 30 oil palm harvesters (n=30) at one of the palm oil plantation fields at Pahang. Data on ergonomic risk factors were collected by direct on-site observation to systematically evaluate nine distinct risk factors known to contribute to WMSD.

Results: The results showed that forceful exertion and repetitive motion exceeded the minimum ergonomic risk threshold among all 30 workers. This indicate that all workers conduct their task in non-ergonomic posture and condition which may affect their body health. This statistic showed that workers involved in high-intensity activities such as lifting and loading fresh fruit bunches (FFBs) and repetitively overbend their neck and lower back part within short period. Next, awkward posture were identified among 19 workers during observation. Some activities that contribute to this risk factor were overreaching FFBs cutting and neck flexion while cutting from palm trees. Nonetheless, the others risk factors which were static & sustained work posture, vibration, lighting, temperature, ventilation and noise did not exceed minimum requirement since none of the workers were exposed to these risk factors.

Conclusion: This study successfully identified the major ergonomic and work-related risk factors contributing to potential WMSDs among oil palm harvesting workers. These results underscore the need for immediate, targeted control measures focusing on decreasing work task that may expose workers to ergonomic risk factors to protect the health and long-term productivity of oil palm harvesting workers.

Keywords: Work-related musculoskeletal disorders, Ergonomic risk factors, Oil palm harvesters, Occupational health.

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