

Assessment of Heat Stress Exposure and Health Symptoms Among Construction Workers in Puchong, Selangor

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Structured Abstract:

Background: Construction workers are increasingly important to the global economy, thus tackling their occupational heat stress hazards is crucial. Heat waves caused by climate change make these workers uncomfortable and less productive. They work long hours in harsh heat without shade or water worldwide. Malaysian heat-related diseases and deaths demonstrate the problem. Heat exposure can cause cramping, deaths, and diminished enthusiasm and focus, so this vital labour must be protected. Construction sites are often much hotter than the surrounding air, increasing these risks.

Methods: This cross-sectional study was conducted to assess the construction workers' heat strain score index. Wet-bulb globe temperature (WBGT), which integrates the globe temperature, wet-bulb temperature, dry-bulb temperature, and humidity levels, is measured using the QUESTemp^o34 device. The study concludes by attempting to compare the measured heat exposure levels with the Guidelines on Heat Stress Management at Workplace 2016.

Results: From the heat strain index score, 70.45% (N=31) of workers were categorized in the green zone with mean 12.25 ± 1.12 , while 29.55% (N=13) of workers were in yellow zone with mean 14.49 ± 1.35 . The average value for WBGT for day 1, day 2 and day 3 were $30.7^{\circ}\text{C} \pm 1.1$, $31.9^{\circ}\text{C} \pm 2.04$, $28.7^{\circ}\text{C} \pm 1.34$, respectively. The results show that the WBGT exceeded the safe exposure level of action limit and threshold limit value which are 25.5°C and 30.9°C . The control measure has been recommended based on guideline.

Conclusion: In conclusion, safeguarding the health and safety of employees requires a comprehensive approach to heat stress management. Administering administrative controls like close supervision and group work facilitates early detection of heat-related concerns, while technical controls like mechanical assistance and insulating hot surfaces decrease exposure to heat hazards. Employers may foster a safer work environment and increase employee productivity and well-being by using these techniques.

Keywords: Heat stress, wet-bulb globe temperature (WBGT), heat strain

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