

ABSTRACT

THE RELATIONSHIP BETWEEN HEAT EXPOSURE AND CONCENTRATION DISORDER AMONG WORKERS AT PT MAHLIGAI INDOCOCO FIBER

By

Bima Adinur Wicaksono

Background: Heat exposure is a common physical factor in tropical industrial environments that impacts worker performance and health. Working temperatures exceeding the Threshold Limit Value (TLV) can potentially lead to increased body temperature, dehydration, fatigue, and impaired cognitive function, including concentration. PT Mahligai Indococo Fiber operates a work area with high heat levels, particularly in the production and drying areas, which poses a risk of reducing worker concentration.

Methods: This analytical observational study with a cross-sectional design involved 70 workers. Heat exposure was measured using the *Wet Bulb Globe Temperature (WBGT)* index through a heat stress monitor under the supervision of the Lampung Occupational Health and Safety Center (*Balai K3 Lampung*), while concentration disturbance was assessed using the *Grid Concentration Test (GCT)*. Data were analyzed using univariate and bivariate methods with the chi-square test at a significance level of $p < 0.05$.

Results: Most workers were exposed to heat exceeding the TLV ($\geq 25^{\circ}\text{C}$), especially in the drying and mixing areas. The GCT results showed that most workers had moderate to low concentration levels. Bivariate analysis indicated a significant relationship between heat exposure and concentration disturbance ($p < 0.05$); workers exposed to heat above the TLV demonstrated lower concentration ability compared to those exposed to heat below the TLV.

Conclusion: There is a significant relationship between heat exposure and concentration disturbance among workers at PT Mahligai Indococo Fiber. High workplace temperatures can reduce workers' concentration ability. Therefore, implementing heat control measures, providing adequate ventilation, and conducting occupational health education are necessary to prevent cognitive decline and improve workplace safety in industrial settings..

Keywords: Heat exposure, Concentration disorder, Industrial workers, WBGT, GCT, Occupational health and safety

ABSTRAK

HUBUNGAN ANTARA PAPARAN PANAS DENGAN GANGGUAN KONSENTRASI PADA PEKERJA PT MAHLIGAI INDOCOCO FIBER

Oleh

Bima Adinur Wicaksono

Latar Belakang: Paparan panas merupakan salah satu faktor fisik yang sering ditemui di lingkungan industri tropis yang memengaruhi performa serta kesehatan pekerja. Suhu kerja yang melebihi Nilai Ambang Batas (NAB) berpotensi menyebabkan peningkatan suhu tubuh, dehidrasi, kelelahan, dan gangguan fungsi kognitif, termasuk konsentrasi. PT Mahligai Indococo Fiber memiliki area kerja dengan tingkat panas tinggi, terutama di bagian produksi dan penjemuran, yang berisiko menurunkan konsentrasi kerja pekerja

Metode: Penelitian observasional analitik dengan desain potong lintang ini melibatkan 70 pekerja. Paparan panas diukur menggunakan indeks *Wet Bulb Globe Temperature* (WBGT) melalui *heat stress monitor* dengan pendampingan Balai K3 Lampung, sedangkan gangguan konsentrasi dinilai dengan *Grid Concentration Test* (GCT). Data dianalisis secara univariat dan bivariat menggunakan uji *chi-square* dengan ($p < 0,05$).

Hasil: Sebagian besar pekerja terpapar panas melebihi NAB ($\geq 25^{\circ}\text{C}$) terutama pada area penjemuran dan adukan. Hasil pengukuran GCT menunjukkan bahwa sebagian besar pekerja memiliki tingkat konsentrasi sedang hingga rendah. Analisis bivariat menunjukkan adanya hubungan yang bermakna antara paparan panas dengan gangguan konsentrasi ($p < 0,05$); pekerja dengan paparan panas di atas NAB lebih banyak mengalami penurunan kemampuan konsentrasi dibandingkan pekerja dengan paparan panas di bawah NAB

Kesimpulan: Terdapat hubungan yang signifikan antara paparan panas dengan gangguan konsentrasi pada pekerja PT Mahligai Indococo Fiber. Paparan panas yang tinggi di lingkungan kerja dapat menurunkan kemampuan konsentrasi pekerja. Diperlukan upaya pengendalian iklim kerja panas, penyediaan ventilasi memadai, serta edukasi kesehatan kerja untuk mencegah penurunan performa kognitif dan meningkatkan keselamatan kerja di lingkungan industri.

Kata Kunci: Gangguan konsentrasi, GCT, K3, paparan panas, pekerja industri, WBGT