

HUBUNGAN BEBAN KERJA FISIK, IKLIM KERJA, DAN FAKTOR INDIVIDU DENGAN *HEAT STRAIN* PADA BURUH TANI PADI DESA PAOWAN KABUPATEN SITUBONDO

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Abstrak

Desa Paowan yang terletak di Kabupaten Situbondo merupakan wilayah pesisir dengan suhu lingkungan relatif tinggi yang berpotensi meningkatkan risiko *heat strain* pada buruh tani padi akibat paparan panas dan aktivitas fisik selama bekerja. Penelitian ini bertujuan mengetahui hubungan beban kerja fisik, iklim kerja, dan faktor individu dengan kejadian *heat strain* pada buruh tani padi di Desa Paowan, Kabupaten Situbondo. Penelitian menggunakan desain analitik kuantitatif dengan pendekatan *cross-sectional* terhadap 72 buruh tani padi pada masa panen, yang dilaksanakan April–Juni 2026. Beban kerja fisik diukur berdasarkan denyut nadi kerja, iklim kerja menggunakan ISBB Meter QT-32, dan *heat strain* ditentukan menggunakan *Physiological Strain Index* (PSI) berdasarkan suhu tubuh dan denyut nadi. Faktor individu diperoleh melalui pengukuran antropometri, wawancara, dan observasi. Hasil menunjukkan 33 responden (45,8%) mengalami *heat strain*. Beban kerja fisik ($p=0,012$), usia ($p=0,005$), dan konsumsi air minum ($p=0,032$) berhubungan signifikan dengan *heat strain*, sedangkan jenis kelamin ($p=0,135$) dan status gizi ($p=0,159$) tidak berhubungan signifikan. Iklim kerja tidak dapat dianalisis karena seluruh responden terpapar kondisi yang melebihi NAB. Pengendalian risiko perlu dilakukan melalui pengaturan beban kerja, pemenuhan kebutuhan cairan, dan waktu istirahat yang memadai.

Kata kunci: Beban Kerja Fisik, Buruh Tani Padi, Faktor Individu, *Heat Strain*, Iklim Kerja

**THE ASSOCIATION OF PHYSICAL WORKLOAD, WORK
CLIMATE, AND INDIVIDUAL FACTORS WITH HEAT STRAIN
AMONG RICE FARM WORKERS IN PAOWAN VILLAGE
SITUBONDO REGENCY**

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Abstract

Paowan Village, located in Situbondo Regency, is a coastal area with relatively high ambient temperatures that may increase the risk of heat strain among rice farm workers due to heat exposure and physical activity during work. This study aimed to determine the relationships between physical workload, thermal work environment, and individual factors and the occurrence of heat strain among rice farm workers in Paowan Village, Situbondo Regency. This quantitative analytic study employed a cross-sectional design involving 72 rice farm workers during the harvest period and was conducted from April to June 2026. Physical workload was assessed based on working pulse rate, the thermal work environment was measured using an ISBB Meter QT-32, and heat strain was determined using the Physiological Strain Index (PSI) based on body temperature and pulse rate. Individual factors were assessed through anthropometric measurements, interviews, and observations. The results showed that 33 respondents (45.8%) experienced heat strain. Physical workload ($p=0.012$), age ($p=0.005$), and water consumption ($p=0.032$) were significantly associated with heat strain, whereas sex ($p=0.135$) and nutritional status ($p=0.159$) were not significantly associated. The thermal work environment could not be analyzed because all respondents were exposed to conditions exceeding the occupational exposure limit. Risk control should be implemented through workload regulation, adequate fluid intake, and sufficient rest periods.

Keywords: *Physical Workload, Rice Farm Workers, Individual Factors, Heat Strain, Thermal Work Environment*