ABSTRAK

ANALYSIS OF THE RELATIONSHIP BETWEEN PHYSICAL WORKLOAD, HYDRATION STATUS, SLEEP QUALITY ON WORK FATIGUE AMONG PRODUCTION WORKERS AT CRACKER FACTORY BAROKAH JAYA PARE, KEDIRI

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Work fatigue refers to the deterioration of workers' physical and mental functioning, which may lead to reduced work performance and a higher likelihood of workplace accidents. A preliminary investigation at Barokah Jaya Cracker Factory revealed that the majority of sampled workers suffered from moderate fatigue, largely driven by physically demanding semi-manual production processes and heat exposure. This study sought to simultaneously analyze the influence of physical workload, hydration status, and sleep quality on work fatigue. A quantitative correlational cross-sectional approach was applied to 60 randomly selected production workers. Physical workload was assessed via %CVL, hydration through urine color and 24-hour food recall, sleep quality using the PSQI, and fatigue using the IFRC questionnaire, with all data processed through SEM-PLS in SmartPLS. Findings indicated that 40% of workers carried a moderate workload, over three-quarters reported poor sleep quality, and more than half consumed insufficient daily fluid intake. Physical workload and sleep quality were significantly associated with work fatigue ($p = 0.001$ and $p = 0.002$), while hydration status was not ($p = 0.108$), together explaining 50.7% of fatigue variance ($R^2 = 0.507$). Physical workload was the strongest predictor ($f^2 = 0.286$), followed by sleep quality ($f^2 = 0.189$), whereas the non-significant hydration finding was likely due to measurement constraints and mild-to-moderate dehydration levels. These results highlight the importance of task rotation, structured rest periods, and sleep hygiene education as key interventions in managing occupational fatigue within the food processing sector.

Keywords: *Physical Workload, Hydration Status, Sleep Quality, Work Fatigue, SEM-PLS, Cracker Factory*