

ANALISIS PENGARUH *MOTION SICKNESS* TERHADAP *HUMAN PERFORMANCE* PELAUT MELALUI *SITUATIONAL AWARENESS* PADA OPERASIONAL KAPAL PENUMPANG

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ABSTRAK

Tingginya angka kecelakaan pelayaran yang didominasi oleh faktor manusia menunjukkan pentingnya memahami faktor fisiologis dan kognitif yang memengaruhi kinerja pelaut. Salah satu faktor yang berpotensi menurunkan performa adalah *motion sickness* yang dapat mengganggu konsentrasi dan pengambilan keputusan selama operasional kapal. Penelitian ini bertujuan menganalisis pengaruh *motion sickness* terhadap *human performance* pelaut melalui *situational awareness* pada operasional kapal penumpang. Penelitian menggunakan pendekatan kuantitatif eksperimental dengan melibatkan 35 pelaut yang mengikuti simulasi menggunakan *Full Mission Bridge Simulator 360°*. Data *motion sickness* diukur menggunakan *Simulator Sickness Questionnaire (SSQ)*, *situational awareness* menggunakan *Situational Awareness Rating Technique (SART)*, sedangkan *human performance* diukur melalui *error per menit* dan *task completion time*. Analisis data dilakukan menggunakan metode SEM-PLS. Hasil penelitian menunjukkan bahwa *motion sickness* berpengaruh signifikan terhadap *human performance* pada kedua skenario simulasi. *Motion sickness* berpengaruh signifikan terhadap *situational awareness* pada skenario pertama, namun tidak signifikan pada skenario kedua. Selain itu, *situational awareness* berpengaruh signifikan terhadap *human performance*, tetapi tidak terbukti memediasi hubungan antara *motion sickness* dan *human performance*. Hasil penelitian dapat dimanfaatkan sebagai dasar perancangan program adaptasi vestibular, peningkatan *situational awareness* berbasis simulator, dan protokol intervensi operasional pada kondisi cuaca ekstrem guna meningkatkan keselamatan serta kinerja pelaut.

Kata Kunci: *Motion Sickness*, *Human Performance*, *Situational Awareness*, Simulator Kapal, SEM-PLS

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ABSTRACT

The high number of maritime accidents caused by human factors highlights the importance of understanding physiological and cognitive factors affecting seafarers' performance. One factor that may reduce performance is motion sickness, which can impair concentration and decision-making during ship operations. This study aims to analyze the effect of motion sickness on seafarers' human performance through situational awareness in passenger ship operations. A quantitative experimental approach was employed involving 35 seafarers participating in simulations using a 360° Full Mission Bridge Simulator. Motion sickness was measured using the Simulator Sickness Questionnaire (SSQ), situational awareness was assessed using the Situational Awareness Rating Technique (SART), and human performance was evaluated through error per minutes and task completion time. Data were analyzed using the SEM-PLS method. The results indicate that motion sickness significantly affects human performance in both simulation scenarios. Motion sickness significantly affects situational awareness in the first scenario but not in the second scenario. Furthermore, situational awareness significantly affects human performance, yet it does not mediate the relationship between motion sickness and human performance. The findings can be used as a basis for designing vestibular adaptation programs, simulator-based situational awareness training, and operational intervention protocols under extreme weather conditions to improve seafarers' safety and performance.

Keywords: *Motion Sickness, Human Performance, Situational Awareness, Ship Simulator, SEM-PLS*