ABSTRAK

Perkembangan mobil listrik menuntut desain kabin yang tidak hanya efisien, tetapi juga ergonomis untuk meningkatkan kenyamanan dan mengurangi risiko gangguan muskuloskeletal pada *driver*. Penelitian ini bertujuan menganalisis pengaruh variasi posisi duduk *driver* mobil listrik BHARATA terhadap kenyamanan dan risiko kerja menggunakan metode *Rapid Upper Limb Assessment* (RULA). Kajian penelitian didasarkan pada teori ergonomi yang menekankan kesesuaian antara manusia dan lingkungan kerja guna meminimalkan risiko cedera, serta metode RULA sebagai alat evaluasi postur kerja tubuh bagian atas. Penelitian menggunakan metode kuantitatif deskriptif dengan variasi jarak antara kursi dan setir sebesar 42 cm, 37 cm, 32 cm, dan 27 cm. Data diperoleh melalui pemodelan kabin menggunakan perangkat lunak *SolidWorks* dan analisis postur menggunakan CATIA V5 yang selanjutnya dievaluasi dengan metode RULA. Hasil penelitian menunjukkan bahwa jarak 42 cm, 37 cm, dan 32 cm menghasilkan skor RULA sebesar 4 yang termasuk kategori risiko sedang, sedangkan jarak 27 cm menghasilkan skor RULA sebesar 5 yang menunjukkan risiko ergonomi lebih tinggi dan memerlukan tindakan perbaikan. Berdasarkan perbandingan seluruh variasi, jarak 37 cm merupakan posisi duduk paling ergonomis karena menghasilkan distribusi skor postur yang paling seimbang. Dengan demikian, penerapan metode RULA efektif dalam mengidentifikasi tingkat risiko ergonomi dan menjadi dasar pengembangan desain kabin mobil listrik yang lebih nyaman dan aman.

Kata kunci: Mobil listrik, ergonomi, RULA, risiko kerja

ABSTRACT

The development of electric vehicles requires cabin designs that are not only efficient but also ergonomic to enhance driver comfort and reduce the risk of musculoskeletal disorders. This study aims to analyze the effect of variations in the seating position of the BHARATA electric vehicle driver on comfort and occupational risk using the Rapid Upper Limb Assessment (RULA) method. The study is based on ergonomic theory, which emphasizes the compatibility between humans and their working environment to minimize injury risks, and the RULA method as a tool for evaluating upper-body working postures. A descriptive quantitative approach was employed, with seat-to-steering wheel distances varied at 42 cm, 37 cm, 32 cm, and 27 cm. Data were obtained through cabin modeling using SolidWorks software and posture analysis using CATIA *V5, which were subsequently evaluated using the RULA method. The results showed that seating distances of 42 cm, 37 cm, and 32 cm produced a RULA score of 4, indicating a moderate risk level, while a distance of 27 cm resulted in a RULA score of 5, indicating a higher ergonomic risk and the need for corrective action. Among all variations, the 37 cm seating distance was identified as the most ergonomic position because it provided the most balanced posture score distribution. Therefore, the application of the RULA method proved effective in identifying ergonomic risk levels and can serve as a basis for developing a more comfortable and safer electric vehicle cabin design.*

Keywords: *Electric car, ergonomics, RULA, occupational risk.*