

ABSTRACT

The use of the *E-scooter* V1 as a mobility alternative within the Telkom University environment still faces ergonomic challenges, particularly regarding the *platform* design, which potentially causes musculoskeletal complaints among users. This study aims to evaluate and redesign the *platform* of the *E-scooter* V1 based on physical discomfort assessed using the Nordic Body Map (NBM) method. The research sample consisted of 30 Industrial Engineering students selected through simple random sampling with an 18% margin of error, calculated using the Slovin formula. Initial data revealed the highest reported discomfort in the left calf (80%), left thigh (60%), and left foot (60%), indicating a mismatch between the *platform* design and users' posture and body dimensions. The flat and rigid structure of the *platform* results in uneven weight distribution, especially during braking, which leads to discomfort.

The study was conducted in three stages: initial testing along a standard route, completion of the NBM questionnaire, and data analysis to define redesign parameters. The proposed solution involved the addition of a *foot rest*. The modified *prototype* was retested using the same methods to evaluate improvements in user comfort. The results showed a significant 24% overall reduction in physical complaints categorized as painful. These findings confirm that ergonomics-based design improvements can substantially enhance *E-scooter* comfort. This study provides a valuable contribution to the development of more user-friendly micro-mobility solutions.

Keywords — *E-scooter*, *Nordic Body Map*, *Anthropometry*, *Platform*, *Ergonomics*, *Musculoskeletal*