



Modeling pedestrian gap crossing index under mixed traffic condition

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ABSTRACT

Introduction: There are a variety of challenges faced by pedestrians when they walk along and attempt to cross a road, as the most recorded accidents occur during this time. Pedestrians of all types, including both sexes with numerous aging groups, are always subjected to risk and are characterized as the most exposed road users. The increased demand for better traffic management strategies to reduce the risks at intersections, improve quality traffic management, traffic volume, and longer cycle time has further increased concerns over the past decade. **Method:** This paper aims to develop a sustainable pedestrian gap crossing index model based on traffic flow density. It focusses on the gaps accepted by pedestrians and their decision for street crossing, where (Log-Gap) logarithm of accepted gaps was used to optimize the result of a model for gap crossing behavior. Through a review of extant literature, 15 influential variables were extracted for further empirical analysis. Subsequently, data from the observation at an uncontrolled mid-block in Jalan Ampang in Kuala Lumpur, Malaysia was gathered and Multiple Linear Regression (MLR) and Binary Logit Model (BLM) techniques were employed to analyze the results. **Results and conclusions:** From the results, different pedestrian behavioral characteristics were considered for a minimum gap size model, out of which only a few (four) variables could explain the pedestrian road crossing behavior while the remaining variables have an insignificant effect. Among the different variables, age, rolling gap, vehicle type, and crossing were the most influential variables. The study concludes that pedestrians' decision to cross the street depends on the pedestrian age, rolling gap, vehicle type, and size of traffic gap before crossing. **Practical applications:** The inferences from these models will be useful to increase pedestrian safety and performance evaluation of uncontrolled midblock road crossings in developing countries.

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