

Identification of traffic and roadway variables affecting safe motorcycling along urban roads

ABSTRACT

In Malaysia, motorcycles represented 45% of all registered vehicles. Alarmingly, motorcyclists comprise 65% of total road deaths. One major reason being that these vulnerable road users get entangled with other mixed vehicles. It is appreciated that roadway design guidelines are based on the characteristics of drivers/automobiles and not riders/motorcycles. Thus, motorcyclists are expected to occupy the dynamically changing space that is available along the roadway. An effective engineering measure to tackle motorcycle safety problems in mixed traffic conditions would be to segregate the motorcycles exclusively. However, this measure is not appropriate for urban roads. One practical approach to address motorcycling safety along urban roads is to identify the traffic and road environment variables that affects safe motorcycling. This list of variables can be used to check the safe motorcycling status along segments of urban roads. The variables relating to bicyclist's perception on the roadway segments were adopted for the variables affecting motorcycling safety along urban roads. To corroborate the adopted variables factors with the actual perception of motorcyclist, the questionnaires related to the variables affecting safe motorcycling were responded by 137 motorcyclists. The variables were identified to be pavement condition, on-street parking, traffic volume, divided/undivided roadway, left-side kerb clearance, lane width, and travelling speed. To further understand these seven variables from the aspect of motorcyclist perceptions, 14 short clips were presented to 483 motorcyclists who rated each clip based on their perception of safe motorcycling. Results found that the odds of feeling unsafe riding on bad pavement is 61.5 times greater than the odds of riding on good pavement. The odds of unsafe motorcycling along roads with on-street parking is 43.2 times higher than without on-street parking. Overall, it infers that the maintenance of road pavement conditions must be of high priority to the local authorities followed by issues of on-street parking along urban links.

Keyword: Motorcycle accidents; Urban mixed traffic; Safe motorcycling; Traffic and road variables; Unsafe to safe motorcycling; Odds ratio