Modelling Driver Injury Severity at Signalized Intersections in Malaysia

Mohamad Raduan Kabit[1],Melissa Lee May Syn[2], Norehan Zulkiply[3], Zayn Al-Abideen Gregory[4]

[1]Department of Civil Engineering, Universiti Malaysia Sarawak;

[2]Department of Civil Engineering, Universiti Malaysia Sarawak;

[3]Faculty of Human Resource and Cognitive Sciences, Universiti Malaysia Sarawak;

[4]Faculty of Built Environment, Universiti Malaysia Sarawak;

Email : kraduan@unimas.my, melissaleemaysyn@gmail.com, znorehan@unimas.my, agzayn@unimas.my

Abstract

Risky driving behaviors have been reported as one of the leading factors contributing to traffic crash severity. As research investigating the relationship between various driving behaviors and road crash severity has been predominantly conducted in developed countries, published literature pertinent in the context of developing countries such as Malaysia is still limited. Thus, this study aimed to analyze the relationship between risky driving behaviors and other driver-related factors on crash severity at signalized intersections in Malaysia. A four-year historical crash data set comprised of 400 reports obtained from the Malaysian Royal Police were analyzed using binary logistic regression. The results indicated that traffic crashes were dominated by passenger cars, accounting for 78.0%, followed by light commercial vehicles, 17.0%, and motorcycles, 5.0%. Rear-end crashes were found to be the most frequent type of crashes occurring at signalized intersections. Binary logistic regression results revealed that risky driving behaviors, passenger car, PM peak hour, rear-end crash and sideswipe crash were statistically significant in contributing to the driver injury severity of traffic crashes. As the results provide insight on the effects of risky driving behaviors on traffic crash severity, the design and implementation of policies and strategies to bring a positive change in such behaviors should comprehensively consider its contributing factors.

Keywords : Risky Driving Behavior, Crash Severity, Signalized Intersections, Binary Logistic Regression

I. Introduction

The steady increase of motor vehicle crashes has become a major safety issue across the globe today. The World Health Organization (WHO) (2018), in the Global Status Report on Road Safety, has identified and ranked vehicle crashes as the 9th