Journal of the Society of Automotive Engineers Malaysia
Volume 3, Issue 3, pp 267-272, September 2019
e-ISSN 2550-2239 & ISSN 2600-8092

A Study of Malaysian Motorcyclists' Behaviour from the Perspective of Pickup Truck

N. A. Mazlan[1], W. J. Yahya[*1], A. M. Ithnin[1] and M. S. Ahmad Laili[2]

[1]Malaysia-Japan International Institute of Technology, Universiti Teknologi Malaysia, Jalan Sultan Yahya Petra, 54100 Kuala Lumpur, Malaysia
[2]Malaysian Institute of Road Safety Research (MIROS), Jalan TKS 1, Taman Kajang Sentral, 43000 Kajang, Selangor, Malaysia

[*]*Corresponding author: wira@utm.my*

ORIGINAL ARTICLE **Open Access**

Article History:

Received
23 Oct 2018

Received in revised form
3 Jun 2019

Accepted
5 Jun 2019

Available online
1 Sep 2019

Abstract – *The number of fatalities related to motorcyclists in Malaysia has exceeded 4,000 people a year in the recent years. The cause of each accident may vary from case to case but mostly related to human errors. Many studies have tried to relate motorcyclist behaviour and number of crashes through survey and statistical analysis. In this study, a pick-up truck equipped with a Video Camera Recorder (VCR) will be used to record motorcyclist behaviour in highway and urban areas for three months. The data from VCR was analysed and categorized into two groups; motorcyclist riding behaviour and safety requirement. The behaviour will be discussed and causes that can lead to accidents will be identified.*

Keywords: Motorcyclist behaviour, motorcycle safety, motorcyclist fatality, Video Camera Recorder (VCR)

Journal homepage: www.jsaem.saemalaysia.org.my

1.0 INTRODUCTION

Every year, millions of people are involved in fatal and non-fatal road crashes all across the world. Unfortunately, more than half of the numbers are motorcyclists because they are more at risk of being killed or injured in road traffic crashes. Based on 2017 data, the total number of vehicles in Malaysia is nearly 29 million and motorcycles represent 45% of that figure (JKJR, 2018). This shows that over the years, the motorcycle has become one of the main motorized transportation modes in Malaysia in both the urban and rural areas. Among the key factors that make motorcycle more popular is because they are cheaper in both price and maintenance costs as compared to cars (Isa et al., 2011). Additionally, they are also very effective in narrow roads and traffic jams in urban areas (To & Zuni, 2016).

The higher the number of motorcycles, the higher the rate of road accident throughout the year. According to the World Health Organization (WHO), Malaysia is ranked among the top in fatality rates for motorcycles in Asia (WHO, 2013). In order to control the fatality rate among the motorcyclists, the stakeholders need to look seriously for these three categories: (i) motorcycle; (ii) environment; and (iii) rider (Elliot et al., 2017). For the motorcycle, it is important to understand the characteristics of each motorcycle type and thus the different crash and injury risks. For example, higher capacity motorcycle, i.e. more than 250 cc, are correlated with higher risks as compared to the lower capacity motorcycle (Bjørnskau et. al., 2012). Furthermore, the motorcycle itself must comply with all the rules and regulations, e.g. side view mirrors, taillight, headlight and safety gears are required to lower the crash and injury rates (Radin Sohadi, 2005; Solah et al., 2019). As for the road and environmental factors, the risks may come from the traffic condition, weather condition and also road surface condition.

All the above factors to some extent will affect the third factor, which is the riders. Moreover, riders' safety is also depending on their attitude, emotion, and age or maturity as road users (Chesham et al., 1993). A study found that younger male riders between the age bracket of 18 and 28 have more risks to be involved in road crashes because of the greater tendency to violate and ignore the traffic rules and regulations (Chang & Yeh, 2006). Furthermore, riding unlicensed also is a worrying situation in Malaysia especially among high school students (Isa et al., 2013).

Extensive research in motorcyclist behaviour has also exposed other risk factors leading to the high number of motorcycle crashes, in which speeding is one of the significant ones (Elvik et. al., 2009; Elliot et al., 2017). During riding, excessive speeding can lead to a higher potential of losing balance and disruption. Besides, other riding behaviour such as weaving, lane splitting, and overtaking also proved to be risky, especially when the rider is young and inexperienced (Perez-Fuster et. al., 2013; Ibrahim et al., 2018). On the other hand, it is very important for a rider to wear riding gear such as helmet, footwear, jacket, shoes and bright clothing (Abbas et al., 2012; Solah et al., 2019).

As previously mentioned, the rate of fatal motorcycle crashes in Malaysia is consistently high. In order to understand the risks, an observation has been done from a pickup truck prospective towards the behaviour of motorcyclists in Malaysia. The pickup truck was chosen due to its higher visibility compared with a normal car. From there, the behaviour that most contributed to the motorcycle crashes will be identified and discussed.

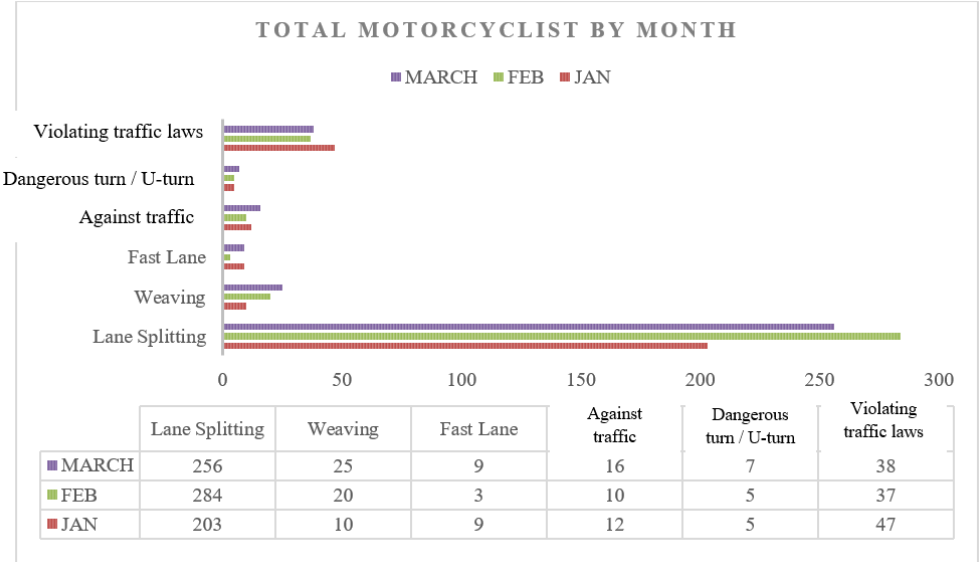
2.0 METHODOLOGY

A Video Camera Recorder (VCR) was installed in an ISUZU D-Max pickup truck. The truck was driven on two different types of roads, i.e. expressway and urban area. The recordings were made mostly during peak hours (travelling back-and-forth from work) for three months between January until March 2018. After that, the footages from the VCR were sorted into two categories, which are motorcyclist riding behaviour and safety requirement. In respect of motorcyclist riding behaviour, the behaviour was classified by lane splitting, weaving, riding on the fast lane, riding against traffic, and violating traffic laws (no signal/red light running/speeding). Safety requirements were categorized into excessive pillions, not wearing a helmet, and no tail/head light (not included in this paper).

Throughout the observation process, the observers must identify a particular motorcyclist's behaviour and recorded some notes according to the predefined categories. Also, it is to be noted that this study collects the data based on what had been observed, and may not be the best for inference towards the entire population.

3.0 RESULTS AND DISCUSSION

The following Figure 1 shows the total number of observations based on the categories during the months of observation. Meanwhile, Figure 2 shows the percentage of each behaviour for the whole three months. It can be seen that lane splitting – defined as riding a motorcycle between vehicles or lane during slow traffic in the same direction – is one of the prominent behaviours among motorcyclists during observations. The main purpose is rather obvious, which is to overtake the rest of the vehicles in traffic congestion (Hamzah et al., 2018). In addition to that, there were also motorcyclists who ride their motorcycles between two lanes of fast-moving traffic. Even though lane splitting is listed as one of the riskiest actions on the road, but it is better for them to choose lower speed and always keep an eye out for cars that want to change lane (ACEM, 2003).



	Lane Splitting	Weaving	Fast Lane	Against traffic	Dangerous turn / U-turn	Violating traffic laws
MARCH	256	25	9	16	7	38
FEB	284	20	3	10	5	37
JAN	203	10	9	12	5	47

Figure 1: The observations based on the categories during the three months

The second common behaviour being observed is a violation of traffic laws. Figure 3 shows the percentages of the violations, which consists of no signal, red-light running and speeding. Apparently, many of the observed motorcyclists did not use the turn signal when turning or changing lanes. Obviously, this risky behaviour not only endangering their lives but also the lives of other road users (Elliot et al., 2017). Moreover, quite a number of the observed motorcyclists were ignoring the traffic lights, i.e. red-light running. In addition to that, some riders were caught speeding (mostly on overtaking or on the fast lane).

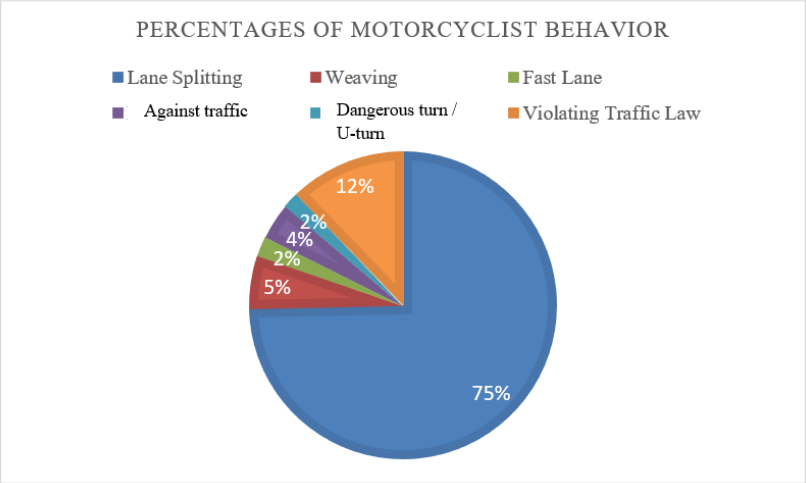


Figure 2: The percentages of motorcyclists' behaviours

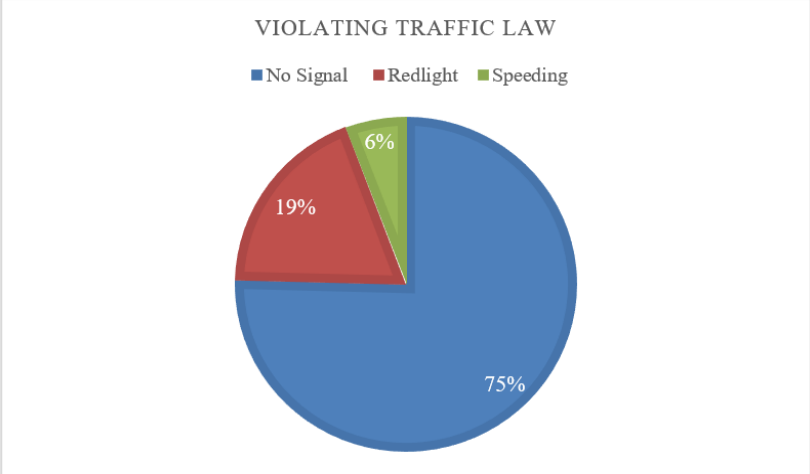


Figure 3: Violations of traffic laws by categories

The third most behaviours from the observations is weaving. The term weaving is defined as constantly or continuously changing lanes and passing between other vehicles (Abdul Manan et. al., 2017). In order to pass through slow traffic or congestion, the motorcyclist will take every opportunity to overtake by weaving, or also known as zigzagging. The apparent risk from this action is that they may be in the blind spot of other vehicles, and the chances for a crash to happen is higher. On top of that, there are several other dangerous behaviours which mostly due to the congestion, i.e. riding against the traffic and making a dangerous turn or illegal U-turn.

4.0 CONCLUSION

Motorcyclists in Malaysia are the highest risk group from the perspective of road safety, and the observations showed that dangerous behaviours are something that the government and other stakeholders should look seriously into. Their selfishness and thoughtlessness make them more at risk for getting involved in near misses and crashes. The enforcement agencies should also creatively prioritize their actions towards curbing these behaviours among motorcyclists – perhaps with the exclusion of lane splitting since it is still a debatable issue and seemingly accepted as a norm in the country.

ACKNOWLEDGEMENTS

The authors would like to express their gratitude to ISUZU Malaysia and Delloyd R&D Sdn. Bhd. for providing the facilities and equipment used in this research. Highest appreciation goes to the ASEAN NCAP for financial support through the ANCHOR program.

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