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Road Accident Prevention through Road Signage: Islamic Country Practice

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ABSTRACT

Road injuries and fatalies are growing concern in almost all country. Although there are many action taken to reduce the fatality rate, the number of recorded accident kept on rising each day. There are many explanantion of why accident happen. In Malaysia particulalrly, most of the road accident was linked to the rapid growth in population, economics and other factors. This paper try to look at the factors that caused accident from the perspective of the road signage, which is still lacking. It is believed that with proper signage would help in reducing the road accident incident. Thus, reducing the fatality rate.

KEYWORDS: Road, Accident, Road Signage, Islamic Practice.

INTRODUCTION

Road injuries and fatalities are a growing concern in Malaysia, with more than 6000 killed and over 25,000recorded injuries yearly for the past 5 years [5]. Due to this, road safety had long been considered as one of the social responsibilities to the Malaysian Government [9]. He also mentioned that more alarmingly, Malaysia had the highest fatality risk, i.e. death per 100,000 population in the world since 1996. Although many preventive action had been taken to reduce it, but still the number of recorded accidents kept on rising regardless of transport mode. The research literature showed that key factors that significantly related to the crashes were human factors, road and vehicle conditions and environment factors [14]. Therefore, the main objective of this investigation is to look at current practice of road accident prevention from built environment factors, practice and the Islamic principles that could possibly reduce fatal accident on the road. The main focus of the paper is to focus on the design of road signage install along the roadside to create alertness to all road users from the perspective of two country namely Malaysia and Brunei Darussalam.

ACCIDENT RECORD IN MALAYSIA

A road traffic crash is defined as "collision or incident that may or may not lead to injury, occur on a public road and involving at least one moving vehicle" [7]. The definition had been further refined from the perspective of the World Health Organization (WHO) who define road traffic injuries as "fatal or non-fatal injuries incurred as a result of a road traffic crash". They further highlighted that in Malaysia, the increase in road accidents was linked to the rapid growth in population, economic, industrialization and motorization industries.

There were 43,758 car crashes and 4,667 motorcycle accidents in 2010. Although the latter declined by 1.7% to 4,586 cases in the 2011, the situation was then offset by a rise of 2.9% in the number of car crashes, totalling 45,036 cases in the same year. An analysis of road accident in 2012 revealed that there was significant (double-digit) increased in highway accidents involving both classes of vehicles. As for accidents involving cars, it had accounted for a total of 51,982 cases whereas 5,263 cases involved motorcycles. From the statistics reported, both cases had recorded an increase of about 15.4% and 14.8% respectively from the preceding year. A further analysis in year 2013, had further showed that the number of car accidents continued to rise by another 4,898 cases or 9.4%, to 56,880 cases. On the other hand, accidents involving motorcycles had also gone up by 376 cases or 7.1% to 5,639 cases. There were no signs of any slowdown in highway accident rates again in year 2014 [15].

Malaysian primary roads are hazardous for motorcyclists. Previous studies had revealed that motorcyclists were the victims in more than 50% of road accident fatalities in Malaysia with 62% of the total motorcycle accident fatalities occurred on main primary roads [4].

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Figure 1: Accident fatalitoes by type of road in Malaysia [4]

From Figure 1, it can be seen clearly that most of the accidents in Malaysia took place on the straight section of the roads (46%). This was followed by accidents on the curve section (42%), T junction (8%) and others. The result showed that when the road was straight, the tendency of road users to speed up their vehicle was high thus the higher level of accidents being reported on these type of roads compared to the curved section.

Human Factors

95% of crash influencing factors were contributed from human factors [8]. Based on the telephone survey from 1922 participants, human factors consisted of driver's behaviour and attitudes that included failure to wear helmet, overtaking on the left, riding in the emergency lane, running red lights, ride in between moving cars, trail closely behind trucks, speeding behaviours, smoking and usage of hand phone. In addition, the report also highlighted that the road environment factors contributed to 28% of the total crashes and vehicles factors was only 8%.

The study of road accidents involving motorcycle fatalities in California had been especially prominent, specifically with regard to those under the age group of 24 and those aged 45-54 [3]. Major finding from the study highlighted that human error, local road and speed violation were significant factors on increasing the fatalities of younger motorcyclists. However, road conditions and collision location factors were not found to be statistically significant to motorcyclist fatalities in California. A different study of road accidents considered only helmet usage and risk compensation in motorcycle crashes that occurred in Los Angeles [11].

The age factor was initially examined as a series of indicator variables of an accident occurrence [13]. Their finding had summarized that both younger and older drivers were found to be more prone to severe injuries. The research concluded that, a 1% increase in age will result in a 1.1% increase in fatalities involved in single-vehicle crashes.

Apart from that, another study on road crashes [2] showed that human and roadway-related factors such as age, alcohol, gender, lighting and horizontal and vertical curves were significant factors in both urban and rural motorcycle crashes. Among the critical factors discuss in their study highlight that riders younger than 25 years of age were less likely to be involved in accidents fatality in either urban or rural area, whereas riders older than 55 years of age were more likely to be involved in rural accidents fatality. They further sum up that the absence of street lights and the presence of higher speed limits in rural areas were identified as contributing factors to the increased probability of crashes for the older group. None of the discussion was made on the road signage and the effects towards the accident occurrence on the road. In this study, the environment was referring to the road signage used along the road side to create alertness to the road users.

Modern Built Environment

Road design in urban areas are normally complex and consist of numerous factors in ensuring the safety of all road users. One of the major factors is proper signage. Hence, all urban area signage need to meet social, environmental, cultural objectives as well as economic and physical attributes to alert road users. Malaysia had adopted a Road Safety Programme highlighted by the Ministry of Works that several approaches have been utilized in order to improve road safety. This include accident preventions, accident reduction, road maintenance and building new roads. In theory, it was agreed that when the users can eliminate or reduce their time or exposure on the road, the possibility of being involved in accidents was reduced [7].

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One of the factors that contributed to road accidents in Malaysia is the environment. Some researcher referred to the term of environment as the weather condition that affected road condition that contributed to accidents [14]. They also reported that rain was the most common weather associated factor. In general, incident of accidents will increase in wet weather condition. In contrast the risk of being involve in accident actually can be reduce when it rains compared to fine weather. Drivers in general will exercise extra caution while driving in wet conditions by adjusting their speed and driving habits accordingly. However, during a rainfall, a great number of vehicles are involve in minor collisions because drivers are not taking into consideration the result of wet road surfaces. In the context of road signage in Malaysia, road users are only reminded on the speed limit during fine weather. Example of common road signage in Malaysia are as follows.



Figure 2: Common road signage displayed in Malaysian road

There is no caution to decrease speed limit to road users during rainy day, while scrutinizing the common signage being installed along the road in Malaysia. The signage are only used to create awareness to the road users that include the signage informing motorcyclist about shelter during rainy day and relatively new design of signage that can be seen in the residential area, where it urges caution and to reduce speed because people could be walking or cycling and there are speed bumps.



Figure 3: Accident road signage in Malaysia



Figure 3 clearly shows road signage of accident caution to road users. These are among the most common words used in order to create awareness of accidents area for road users.

Figure 4: Serious traffic conflicts involving motorcyclists entering the primary road from the access point (level 1) and nested within different road environment attributes (level 2) [6]

From Figure 4, it can be concluded that major conflict happened when motorcyclist entered the main road from level 1 to level 2 of the road space. However in their study, they did not mention regarding the road signage as any of the contributing factor. Traffic conflict that happened in the surrounding primary road environment [5].

Even with the existing signage installed along Malaysian road, accidents will still keep happening and increasing rapidly that will resulted in the increase of fatal accident cases. Therefore, it is a critical time for us to change the words use to create the awareness among road users from the negative words to a more positive words just like the practice from the Islamic country.

Road Accident in Brunei

Jalan Gadong had been identified as the area with the highest number of accidents per kilometre per year, while Jalan Jerudong had the highest number of injuries related to accidents per kilometre per year [10]. He was also reported that with an average of 11 road deaths per 100,000 population, Brunei Darussalam's road fatality rate is higher than that of a number of developed countries such as Australia, Singapore, the United Kingdom and other countries that have a huge car population.

The number of car accidents recorded in the year 2012 was also slightly lower at 3,052 compared to 3,338 in 2013 [1].

Road Signage Practice in Brunei

In Brunei, the use of road signage were based on the Islamic principles and practice. Having a signage installed along the roadway, especially in areas of high accident area had reduce the occurrence of the accident on the road. With this signage, every Muslim who is driving on the road will slow down and recite this khalimah and achieved peace of mind to continue their journey on the road towards their end destination.

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Figure 5: Road signage used in high accident area source

Another important signage that was installed along the road in Brunei was the speed limit on a particular road differed during normal day and rainy day. It can be clearly seen in Figure 6.



Figure 6: Road signage during rainy day and normal day

Another road signage used to reduce the accident rate in Brunei can be seen in Figure 6 where all road users were reminded on their speed limit not only during normal weather, but also during rainy day to prevent accident occurrence. This is a very important signage that authority in Malaysia can consider because adjusting speed limit according to weather condition is very important.

The third example of road signage that had been used along roadside to reduce accident among road user in Brunei can be seen in the Figure 7. The signage clearly showed that road users was reminded to use their seat belt.



Figure 7: Fasten your seatbelt

This is very rare sight in Malaysia where a simple signage to remind road users to fasten their seat belt while driving on the road to increase their safety level, while driving is an important and useful reminder to road users [12].

CONCLUSION

- Improvement in the signage from current design to a newly improved design is vital in an attempt to reduce fatalities in road accidents.
- Enforcing an appropriate speed limit through road signage is crucial in reducing the fatalities among the road users especially during normal day and rainy day.
- Appropriate roadway signage as a medium to create awareness to reduce collision does not necessary comes from high expenses and technology advance.
- Lengthy roadway design factors should be avoided as a roadway signage and visibility enhancement strategies are expected to reduce fatalities.
- Road users education and enforcement of speed violations are expected to improve road related safety for all road transport users.

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