[LOG 6] ROAD SAFETY: FACTORS INFLUENCING YOUNG DRIVER BEHAVIOUR AMONG UUM STUDENTS

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ABSTRACT

The contribution of risky behavior towards road accident and fatality among young drivers has been highlighted in the many road safety literatures. In Malaysia, the number of road accidents has increased every year. Among the road accident victims, young drivers contribute the highest rate of fatalities and injuries. The objective of the study is to examine the relationship between gender, license type and road crash involvement with young driver behavior. Therefore, the Behaviour of Young Novice Drivers Scale (BYNDS) has been utilized in this study. The Reciprocal Determinism Model (RDM) by Albert Bandura has been used as underpinning theory to understand driver behaviour. 350 respondents participate in this research and all of them have experience driving a car. The result of the finding showed there was a significant difference between male and female drivers toward young driver behavior. However, the result for the license types and road crash involvement is not significant and it shows that this variable not related to young driver behavior. The recommendations for road safety intervention and future research have also been addressed.

Keywords: *road safety, young driver, Reciprocal Determinism Model (RDM), Road Accident, Behaviour of Young Novice Drivers Scale (BYNDS)*

INTRODUCTION

The increase in the population and industry in Malaysia led to the growth of car owners the indirectly higher rate of traffic accident caused. World Health Organization (WHO) defines road crash as a fatal or non-fatal injury as an outcome of a collision on a public road with at least one moving vehicle.

In Malaysia, road crash has seen a critical issue where the total number of road accidents increased every year. Most of road accidents occur not because of the types of vehicle and surrounding environment, but, also because of bad and unsafe driving behavior. According to Ambak (2014), the human factor is most significant that causes of road accident especially among young driver. Based on statistics that proved by the Bukit Aman Traffic Unit, in 2014, around 476 196 accident cases on roads in Malaysia. That was a 5.4 percent reduction than the 477 204 cases in 2013. However, according to the data from Jabatan Pengangkutan Jalan Malaysia (JPJ), the statistic of road accident increases to 489 606 cases in the year 2015. According to Prof. Dr Ahmad Farhan Mohd Sadullah (2008) said young people aged between 16 and 20 years old account for the

highest number of fatalities among Malaysians in traffic accidents compared to adults involved in driver.

There is numerous study have been carried out about young driver behavior. However, there are few studies that focus on young driver behavior in Malaysia. This study attempted to fill this gap. Specifically, this study is designed to answer these questions; 'Does gender, license type and road crash involvement influence young driver behavior?

Therefore the purpose of this study is to examine the difference between gender, license type and road crash involvement towards the young driver's behavior. It is expected that this research findings may extend the existing findings from other research and establish an understanding of young driver behavior as a whole.

LITERATURE REVIEW

Driver behaviour

In Malaysia, the number of road crashes is increasing because of many factors. This includes driving behavior, the condition of the car and the road environment. In term of the condition of the car there is a lot of improvement have been done to reduce the number of road accidents. Driver behavior however is a human factor that can contribute to the traffic accident (Liana et al., 2012). Based on previous studies, the author emphasizes that human factor is most significant that causes of road accident, especially among young driver (Ambak et al., 2014). This study focuses on young driver because many young people today are driving in a more complex traffic environment than ever before.

Young driver

Younger drivers are a person that aged 16 to 25 years, however, from the research, there are many definitions for young drivers. Some country categorized young driver for 15 years or 17 years, but they still in the young driver category. Younger driver have not enough experienced drive a car, so, from this research commonly young driver frequently contributes to road accidents. The young driver is tending to contribute road accidents because they are lacking an experienced in driving a car. Sometimes they drive a car with emotion which is in stress, tired or not focus on driving.

According to Wengraf (2013), the young driver is a person that in around 17 to 24 years old. Biology by young people is very different comparing with older people and this give impact to road safety. This is because young drivers have started to learn to drive since they in adolescence. A biological change is a during the period 17 to 24 years, which is itself a time of crucial.

Generally, in the most countries their young drivers under 25 years are a main contributor of road accident and fatalities. For instance, a young driver fatalities in the European Union, the percentage of fatalities among young driver in Denmark is around 18 percent to 32 percent in Germany. In other side, the number of age groups in the total population ranges from 8 percent in Denmark to 13 percent in Ireland. In other hand, Northwest Territories (June, 2015) defined the young drivers are a person that aged below 25 years, which is young driver more involving in a road accident.

Risk for young drivers 17 to 24 were involved in road accidents, higher than drivers aged 24 to over. For those in the 15 to 24 aged category are also four times more likely to die from a road traffic collision than from drug, alcohol or other substance poisoning (Box, 2011). Hence, it shows road accident among young drivers are serious cases occurred among them. Mostly in 2011, the record show that young drivers created 25 percent of all those drivers killed or seriously injured.

The young driver are not very aware about their condition in road safety when they're driving. Most of those young drivers car driving lack a skill in driving, especially when they get car license. They are very excited when get a chance to drive a car and also they are not very punctual with a regulation in road safety, which is the youngest driver drive a car over the certain speed limit. A research show that, road accident is a main killer of 15 to 24 years old, apart from this show that it's not a good result because it give a threat to road safety users.

In Malaysia, road accident among young drivers are increasing which is year by year. Based on the International Transport Forum (2013), Malaysia are listed as the third highest number of deaths in road accident in 2011 among other developing countries. The young driver in Malaysia categorizes a person that aged 18 to 29 years, which is having qualified to have driving.

Reciprocal Determinism Model

This study uses the theory of Reciprocal Determinism Model (RDM) by Albert Bandura to understanding the theoretical framework. Reciprocal determinism suggests that behavior is controlled by determined by the individual, through cognitive processes, and by the environment, through external social stimulus events. The basis of reciprocal determinism should change individual behavior by allowing subjective thought process transparency when contrasted with cognitive, environmental and external social stimulus events. Bandura's theory argues that three instruments that are prudent in the way of our action which is the individual, the environment, and the actual behavior.

Driver behavior determined by the individual, so with gender, where the individual normally will act based on their gender. Vlahogianni and Golias (2012) observed differences in behavior between young males and female drivers during overtaking. Vlahogianni (2013) found out gender as a vital factor that affect the time period of overtaking in two lane highways.

License type are included in the environment factor which is it will stimulate the act of driver behavior. Research has found that young drivers, have over confident in self-assessment of skills shows rather in the first two years of life than those that insecure about their driving skill to crash. Because of young driver inexperience, which must to young driver focus more on practical tasks, so switching between tasks are slower and slower responding to danger. An individual that has "P" type of license has different driving behavior from those who have full license or graduated license.

According to Monash University Accident research Centre (2013), 95 percent crash involvement factors are come contributed from human factors. The finding also states human factors are consists of driver's behavior and attitudes which is not implement helmet wearing, overtaking on the left, riding in the emergency lane, running red lights, ride in between moving cars, close behind trucks, speeding behaviors, smoking and use

of handphone. In addition, road environment factors are contribute 28% as total and vehicle factors is 8 percent.

In order to account for the human factor environment-infrastructure interaction in crashes, Russo et al. (2013) calibrated safety performance functions (SPFs) to predict the injury crash frequency over traffic exposure (injury crash rate) on two-lane rural roads in the Southern Italy for three main crash types (head-on/side collisions, rear-end collisions, single vehicle run-off-road crash). The current study has proven that road environment influence on the occurrence of traffic conflicts involving vehicles entering from the access point and merging with traffic on primary road in Malaysia (Marizwan Abdul Manan, 2014).

Factors influencing young driver behavior

Gender

Previous studies show that male drivers and female drivers have differences toward driving behavior. For instance, Vlahogianni (2013) the case of back-to-lane maneuver, gender as a critical factor that influences the duration of overtaking in two lane highways.

Studies of Governors Highway Safety Association (2013) highlighted fifty percent of male drivers likely to report driving over the posted speed limit compare to females. It showed that male drivers were more likely to drive riskily compared to female drivers.

Tara Kelley-Bakera and Eduardo Romanoa (2012) establish that although female involvement in skill-related crashes was not dissimilar from that of males, females were more likely than males to apply wrong maneuvers when speeding was involved. The researcher also found that the most important contributing factor to gender differences in nonfatal crashes can be traced back to gender-based differences in alcohol consumption.

Focusing on fatal crashes, Romano and colleagues (2008) reported that relative female involvement in fatal crashes has indeed increased in the United States, albeit largely due to an increase in traffic exposure. Similarly, Nayum (2008) found that males were more likely to commit driving violations, speed and be involved in a road accident than females.

Several researchers have identified factors that explain differences of gender and found males were higher than female involved in a road accident (Jimenez-Mejias et al., 2014). For example, men involve greater risky behavior than female, such as driving long distance, over speeding, driving under the influence of alcohol or speaking on mobile phones (Ainy, Movahedi, Aghaei, & Soori, 2011; Vardaki & Yannis, 2013, as cited in Jimenez-Mejias et al., 2014). On the other hand, Fernandes, Hatfield and Soames Job (2010) and Nykolyshyn et al. (2003) noted that female drivers had higher use of safety devices compared to men such as usage of the seat belts when driving or riding in a car (as cited in Jimenez-Mejias et al., 2014).

Jimenez-Mejias et al. (2014) found that differences of gender involved in road safety were related to mortality and morbidity. For example, Instituto Nacional de Estadistica (2010) observed that compare to female, the mortality rate of male was 4.5 times higher than female between the aged 20 and 29 years (as cited in Jimenez-Mejias et al., 2014).

Similarly, research by Jimenez-Mejias et al. (2014) suggested that male drivers had a higher risk of involving in accidents due to speeding, drinking, cell phone usage, and not using a seat belt.

Overall, all these research provides a good argument on the differences between male and female driver while driving on the road. The other individual factors that may influence young driver behavior are license type and road crash involvement that will be explained next.

License type

The dilemma surrounding young drivers is that they require to increase their driving experience to cut the risk of crash involvement, but the more they drive, the more they are exposed to high risks. To tackle this problem, several jurisdictions worldwide has introduced Graduated Driver Licensing (GDL) programs. These programs are designed to allow young drivers to get as much practical driving experience in real-world conditions as possible.

In Malaysia, driving license is the conduct of the Road Transport Department (JPJ) Malaysia. To apply a driving license, a person has to be 17- years old and over. For a motorcycle license the minimum age is 16-years old. However, in foreign country like the United States and Canada, the minimum age to get the license is 14 years old, meanwhile in Singapore and Indonesia are 18 and 17 years old respectively.

Although in each country the licensing system is unique in terms of content and organization, in generally two distinct categories of licensing systems can be distinguished: traditional and probationary licensing systems and graduated licensing systems (GDL).

In Malaysia, some young drivers have probationary licensing and some already have full driving licensed. Because of less experience in driving, young driver tend to drive in circumstances that would increase the risk for any driver. Previous research has found that apart for the first months after licensing, young novice drivers tend to drive too fast (Clarke, 2008). While they may not generally exceed the speed limits in these first months, they tend to drive too fast for the circumstances (e.g. too fast in a band) (McKnight, 2008).

Road crash involvement

A vehicle was specified as being involved in a casualty crash if an occupant of that vehicle was injured seriously enough to be treated as, or admitted to hospital or fatally injured or if, during the crash sequence, that vehicle came into physical contact with another vehicle in which an occupant was injured seriously enough to be treated at or admitted to hospital or fatally.

In a survey conducted in the UK, West reported that novice drivers who experienced a motor vehicle crash in the 3 years immediately following their driving test had “inattentive” and “impatient” characteristics, compared with drivers who did not crash. Dahlen and colleagues have shown that sensation seeking, impulsive, boredom proneness, and driver anger predicted crash related conditions (eg, losing concentration, having a minor loss of control, having a “close call”), and aggressive and risky driving behavior in young American adults (median age 19 years). People involved in the crash

are likely to rethink the events and possibly change their attitude and behavior in the future or when they go through in a similar experience.

It is difficult to tell road crash involvement change in attitudes and behavior is specific to the car drive, or whether it reflects a more general trend towards more positive behaviors among young people.

METHODOLOGY

The types of this research are quantitative research. In this study, young driver behavior is the dependent variable, while gender, license type and road crash involvement act as the independent variables. This study use non-probability sampling as sampling method (purposive sampling).

In methodology, this study uses primary sources where the questionnaires were developed and distributed purposefully in UUM area and mostly in the student residential area. The sample size of questionnaires is 350 respondents who have driving license. The questionnaire was adapted from Scott-Parker, Bridie and Watson, Barry C. And King, Mark J. (2010). The questionnaire contains two sections; Section 1 contained the demographic background of the respondent, such as gender, age, race, semester, college, license type and road crash involvement. While Section 2 is related to respondent's driving behavior towards road safety. Therefore, in order to test the differences between gender, license types and road crash involvement with young driver behavior, the independent t-test have been selected.

Theoretical framework

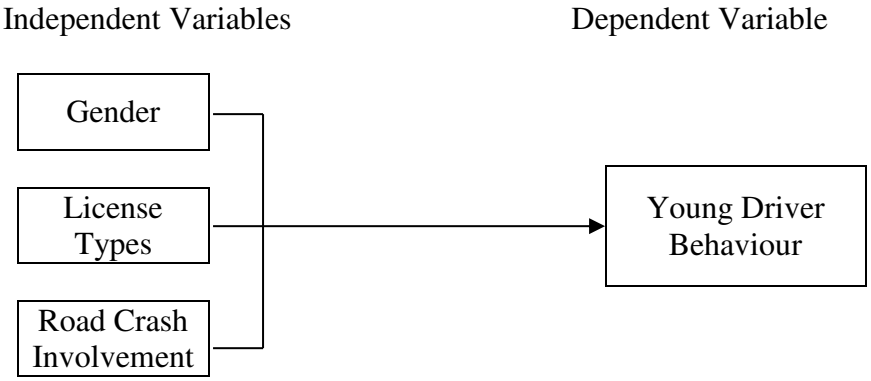

Figure 1
Research framework of young driver behavior

RESULTS

Demographic profile

There are 350 respondents participated in this study. Their description is presented in Table 1 as below:

Table 1
Demographic profile

Item		F	%	Item		F	%
Gender	Male	162	46.3	Semester	Semester 1	66	18.9
	Female	188	53.7		Semester 2	12	3.4
Ages (years old)					Semester 3	49	14.0
	18	1	3		Semester 4	13	3.7
	19	12	3.4		Semester 5	62	17.7
	20	60	17.1		Semester 6 above	148	42.3
	21	49	14.0	College	College of Business (COB)	237	67.7
	22	122	34.9		College of arts and sciences (CAS)	48	13.7
	23	80	22.9		College of Law, Goverment and International Studies (COLGIS)	65	18.6
	24	20	5.7				
	25	6	1.7				
Race	Malay	234	66.9	License types	'P' license	75	21.4
	Chinese	90	25.7		Full license	275	78.6
	Indian	18	5.1	Road crash involvement	Yes	72	20.6
	others	8	2.3		No	278	79.4

Table 1 summarizes the distribution frequency and percentage of respondent demographics for this study. From the data in table 1 shows that the sample of respondents contained more females 188 (53.7%) than males 162 (46.3%). The disproportionate of females and males could be due to more female furthering their study at UUM.

Independent T-Test analysis

Table 2
T-test between male and female driver toward driving behavior

Dependent variable	Gender	N	Mean	Standard Deviation	Mean different	t	Significant
Young Driver Behaviour	Male	162	2.4409	.57852	0.34971	6.055	.000
	Female	188	2.0912	.50195	0.34971	5.992	

Independent Sample t-Test was performed to investigate the mean difference between a male and female driver toward driving behavior. Based on Table 2, the result shows there is a significant difference of driving behavior between gender ($p=0.000 < \alpha$). The result indicates that there was a significant difference in the scores for male of driving behavior between male (M=2.44, SD=0.58) and female (M=2.09, SD=0.50) drivers; t (348)=6.06, p=0.000

Table 3
Independent Sample T-test for license types

Dependent variable	License type	N	Mean	Standard Deviation	Mean different	t	Significant
Young Driver Behaviour	P License	75	2.2786	.65690	.03255	.441	.659
	Full License	275	2.2460	.53915	.03255	.394	

Based on the t-test analysis in Table 3, there is no significant differences between P license and full license toward driving behavior. For the mean of license type, the p-value is 0.659 which is more than 0.05 (alpha value). The result of t-test analysis shows that there is no significant differences between P license and full license toward driving behavior. As a conclusion, there was no significant for the scores of P license (M=2.28, SD=0.66) and full license (M=2.25, SD=0.54), t(348)=0.44, p=0.659

Table 4
Independent Sample T-test for road crash involvement

Dependent variable	Road crash involvement	N	Mean	Standard Deviation	Mean different	t	Significant
Young Driver Behaviour	Yes	72	2.36	.59	.14	1.81	.071
	No	278	2.23	.56	.14	1.75	

From the Table 4, the result shows there is no significant differences for students who have been involved in road crash (M=2.36, SD=0.59) and who have not been involved in road crash (M=2.23, SD=0.56), t(348)=1.81, p=0.071

DISCUSSION

The current study aims to investigate the differences between gender, license types and road crash involvement with young driver behavior. The result shows that gender has significant differences toward young driver behaviur. Gender is one of the factors that influence young driver behavior. Based on the result, male driver is more likely to carry out unsafe and risky driving behavior than female drivers. This result in line with previous research by the Governors Highway Safety Association (2013) shows fifty percent of male drivers likely to report driving over the posted speed limit compared to females. It showed that male drivers were more likely to drive riskily compared to female drivers.

Second, the result for the license types and road crash involvement is not significant and it shows that this variable not related to young driver behavior. This most probably because, most of the respondents were full license, thus experience drivers and most of them do not involve in road crashes.

CONCLUSION

As a conclusion, gender has been found influence young driver behavior. Thus, it is suggested that road safety education and promotion should focus on male young drivers. At the same time female driver should not be forgotten as they need a more practical driving education that may improve their driving. Future research related to young drivers should be explored and other factors such as personality, emotion, environment and the type of vehicle driving could be considered in the research.

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