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Exploration of Risky Riding Behaviour Among Young Motorcyclist

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Abstract. Road traffic crashes appears to be an endless problem (Kareem A 2003). Nowadays, statistics by Department of Road Transport showed that the road traffic crashes are significantly increasing in Malaysia every year. According to Royal Malaysian Police (PDRM) report, motorcyclists are more prone to crash when they are on the road compared to drivers of other vehicles. There are many factors that contribute to the road traffic crashes in young motorcyclists such as inexperience, lack of riding skill and risk riding behaviour that have been related to the collisions in which motorcycles have been the most popular choice of vehicles among young motorcyclist. This research evaluates the correlation between the set of risky riding behaviour among secondary school students based on their background. To prove that risk behaviours majorly contributed to the number of motorcycle crashes, determination of risky riding behaviour within secondary school student at schools' compound were conducted. Data collection also were collected through questionnaire distributed through google form for school students and young motorcyclist to assess their level of contribution in risky riding behaviour. The findings proved that, breaking the speed limit are the most popular risky riding behaviour among the school children. Meanwhile, riding while impaired and performing stunting acts are the behaviours considered to be less contributed to the number of motorcycle crashes. Correlation result shows that neglection of speed limit was highly contributed to the motorcycle crashes among the secondary school student. This result is very useful for the enforcement bodies to strategize their effort in curbing the crash issues involving young riders.

Keywords: risky riding behaviour, road traffic crashes, young motorcyclists

1. Introduction

Malaysia's road accident death is the third highest in Asia and matches those of some African countries. According to The World Health Organisation's 2013 statistics stated that Malaysia was the emerging countries with the riskiest roads after Thailand and South Africa. Malaysia registered a death rate of 23 per 100,000 population. Based on these statistics against the estimated population of 30 million, 7,000 to 8,000 people in the country die on the roads every year. (Thomas, 2019). The motorcycle has become popular in certain developing and middle-income countries and be the most common mode of transportation in Asian country. The proportion of the motorcycle population on Malaysian roads varies from state to state and also motorcycle was the major mode of personal transport for the low-income urban community. In other words, motorcycle is the major contributor to the traffic crashes in Malaysia in which according to the statistics, most of the road traffic crashes involving motorcyclist.



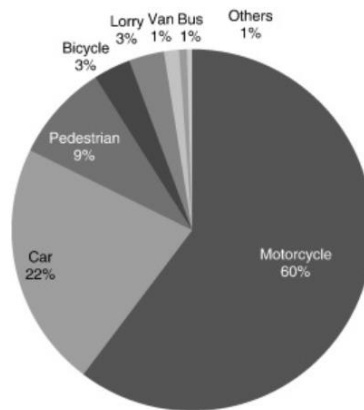


Figure 1. Shows the fatality distribution by mode of transport
Source: Royal Malaysia Police (PDRM) 2009

Figure 1 showed that motorcycle fatalities are 3 times higher than car fatalities, 6 times higher than pedestrian fatalities and nearly 50 times higher than bus passenger fatalities. (Abdul Manan & Várhelyi, 2012). About 1.25 million people die in traffic crashes every year, and road traffic injuries represent the main cause of death among young adults between 15-19 years old according to the World Health Organization. (WHO, 2018). Blackman and Haworth (2013) further argued that mopeds and motorcycles riders have 20–40 times higher risk for road fatalities as compared to car occupants. Accordingly, Brandau et al. (2011) stated that higher risk for traffic road injuries among young motorcyclist, and the percentage of 15-year-old young motorcyclist injured in traffic crashes in Austria increased from 6 to 32% between 2000 and 2008. The Decade of Action for Road Safety (DARS) 2011-2020 is a United Nations-led global effort to enhance road safety and reduce traffic accident and crash fatalities by 50%, especially among those at high risk of road deaths, such as youth. One of the key action areas of the global plan to achieve the DARS 2011–2020 goals concerns road users’ behaviour (UN Road Safety Collaboration, 2011). This indicates that a better understanding of the behavioural risk factors for traffic crashes can help in further promoting road safety, particularly in the most vulnerable groups of road users, such as young motorcyclist.

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
0-5	118	109	32	33	39	24	59	75	73	79	75
6-10	106	107	65	99	89	59	47	66	55	77	73
11-15	234	240	361	346	351	385	296	326	366	448	417
16-20	977	1149	1057	1258	1264	1032	960	1131	934	1161	1090
21-25	937	1037	756	1043	1046	1116	1139	895	828	1000	989
26-30	792	681	532	675	706	789	856	528	641	657	614
31-35	631	490	672	498	487	570	586	405	579	572	534
36-40	379	387	637	401	373	478	469	394	489	459	428
41-45	369	369	620	356	359	453	481	362	441	411	382
46-50	344	351	365	360	350	414	327	367	425	418	389
>50	347	356	335	392	399	356	378	332	416	398	370

Figure 2. shows Road traffic deaths within various age among motorcyclist in Malaysia from the year of 2007 to 2017
Source: JPJ (2017)

Figure 2 shows, that over past 10 years, the moped riders in age from 16 years until 20 years old has the highest number road traffic death which is 1090 in 2017. Several groups, like Jabatan Keselamatan Jalan Raya (JKJR) and the Malaysian Road Safety Research Institute (MIROS), have

made great efforts to overcome this question, but initiatives appear inadequately planned to address this problem completely.

Young motorcyclists are generally viewed as high-risk people that can contribute to the road crash (Abdul Manan & Várhelyi, 2012). According to the Road safety Department of Malaysia, individuals aged between 16 to 19 years old had the highest number of deaths in motorcycle traffic crash. To reduce motorcycle crashes, it is vital to understand why young motorcyclists are prone to crashes in the evenings and on weekends on rural primary roads, especially on straight road sections.

An example of road traffic deaths trend among motorcyclist in Malaysia as reported in the status report on Malaysian Institute of Road Safety Research (MIROS) is illustrated in figure 3.

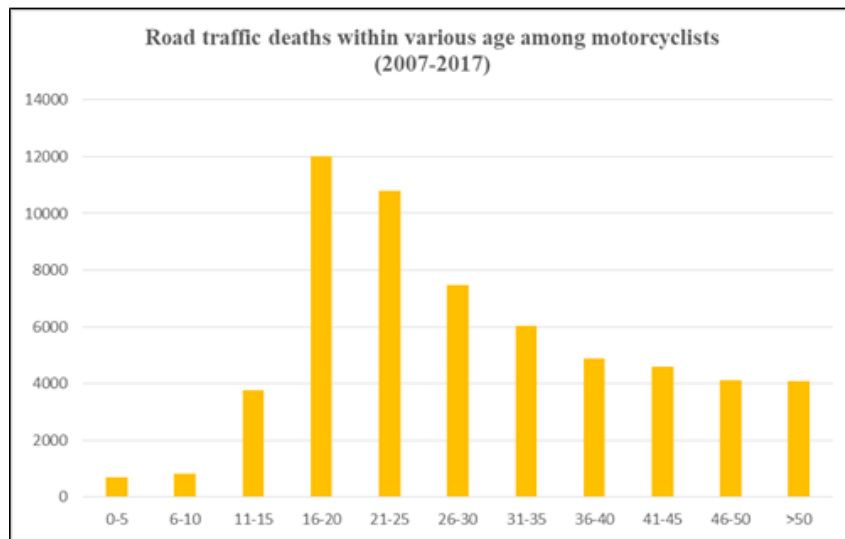


Figure 3. shows the trend in traffic crashes among motorcyclists
Source: MIROS (2017)

As shown on figure 3, the trend of road traffic crashes among motorcyclist in Malaysia from year 2007 to 2017. Based on figure above, the motorcyclist in age from 16 years until 20 years old has the highest number road traffic death which is 12,013 from 2007 until 2017 for number of road traffic crashes for the span of 10 years. Other than that, the trend of crashes that caused by human behaviour should also be analysed so that its contribution to an increase in overall road traffic crashes could be examined.

Young motorcyclists are considered a high-risk traffic group. Hence, young generation nowadays are more likely to experience vehicle accidents despite of their comparatively low exposure to driving (Clarke et al., 2005; Machin and Sankey, 2008; Waylen and McKenna, 2008). Early research propose that young drivers have immature skills or insufficient experience may account for the high crash rate. However, several investigations indicate that experienced young drivers still are exposed to high accidental risk. Inexperience obviously is not the only explanation for crash, research needs to clarify other factors differentiating young drivers from other drivers (Wong and Chung, 2007, 2008). As regard to the motorcycle crash, the current study shows that loss of control of motorcycle as a consequence of poor riding techniques and a collision overtaking and being hit from behind other motorcyclist represent the majority of crashes among young motorcyclists who were affected. In this study, we will be focusing more about risky riding behaviour among secondary school student, due to lack of experience and poor technique of riding among these young these teenagers.

Since road traffic crashes were figured out as the main cause of death in the world, few factors related with the crashes were identified. Road traffic crashes that occurred were caused by a few contributor factors such as human, road environment, and vehicle factors.

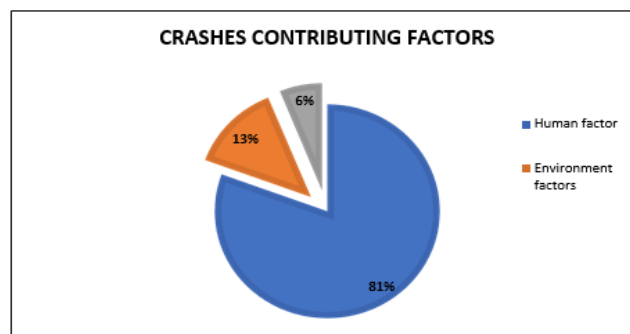


Figure 4. shows the Crashes Contributing Factors
Source: MIROS (2019)

Figure 4 states that the human factor was the highest contributing factor (80.6%) followed by environment factor which is the second highest contributing factor (13.2%). Following quite near to environment factor was the vehicle factor with 6.2%. Among those four factors, human factor was the main contributing factor of road traffic crashes (Jaafar et al., 2003). This is supported by Peden et al. (2004) who reported that the prevention of road traffic injury focusing on human factor contributed about 90% of overall road traffic crashes prevention program.

Inappropriate riding behaviour, aggression and distraction are types of risky riding behaviour that increase the risk of becoming involved in a motor vehicle crash, which in turn may have dramatic consequences for those involved. Besides the very well-known and easily observable risk factors, such as riding while impaired, performing the stunting acts breaking the speed limit, riding without crash helmet, riding while using phone also riding without using signal and also without headlights on and traffic violation be discussing further more in this study based on the risky riding behaviour among young motorcyclist.

Risky riding means riding with excessive fatigue, not only sensitive and aggressive driving, but also uneasy, distracted riding and riding. Intention, illness and sleepiness are among the main causes of crashes, for instance (Minoiu, Netto, Mammam and Lusetti, 2009). Therefore, it is vital to be able to examine the characteristics of risky riding behaviour. Besides the very well-known and easily observable risk factors, such as riding while impaired, performing the stunting acts breaking the speed limit, riding without crash helmet, riding while using phone also without using signal and also without headlights on and traffic violation be discussed further more in this study based on the risky riding behaviour within secondary school pupils at secondary school's compound.

The main objectives of this research are to evaluate the correlation between set of risky riding behaviour factors with respondent background. The results from this research can be implemented as an indicator for reducing the number of road crashes in Malaysia by Royal Malaysian police (PDRM). This result could give additional information about the causes of road traffic crashes occurred among young motorcyclist in Malaysia.

In order to reduce the number of road traffic crashes, an investigation of risky riding behaviour among the secondary school students and the level of understanding in risky riding behaviour need to be assessed in order to analyse the correlation between risky riding behaviour with the respondent background.

2. Methods

Generally, this research is to model the relationship between risky riding behaviour factors with the respondent background to identify the underlying factors the causes of motorcycles crashes among young motorcyclist.

The main objective of this research is to evaluate the correlation between the set of risky riding behaviour factors among secondary school student with the respondent background among young motorcyclist. This research focused on determining set of risky riding behaviour factors at secondary school compound area. by taking school compound as the study area. Collection of preliminary data for risky riding behaviour of secondary school students at chosen school.



Figure 5. map showing the 100 m radius from the school compound at Sekolah Menengah Kebangsaan Seri Mahkota, Kuantan

The main criteria in selecting the risky riding behaviour of young motorcyclist is situated around the school compound area where the location, the population of young motorcyclist aged around 16-19 years old highly at there. Furthermore, the determination of risky riding behaviour of the students will be observed and recorded within 100 m radius from the school compound area. The selected risky behaviour was also required to fulfil at least one of these criteria:

1. An increasing trend of crashes within five years were recorded
2. The previous record of road traffic crashes either PDRM or MIROS

The process of selecting the most significant risky riding behaviour to be used involved several key steps. Every step was important to ensure that most of the risky riding behaviour existed at study area were taken into account. Firstly, all risky riding behaviour as cited from previous study were listed. The criterion in choosing the risky riding behaviour is that the factors must be existed in road traffic system of Malaysia. An investigation was carried out to ensure that all the risky riding behaviour as listed in the general list were available at the school compound.

The data collection was collected used as a preliminary data for risky riding behaviour of secondary school students at chosen school. The entire risky riding behaviour factors were limited to an area within 100 metres radius from the school compound area. All risky riding behaviours were observed by using video camera. To determine the “break the speed limit factor”, Automatic method (radar speed gun) were used. This radar speed gun reflected waves of very high frequency which is directed from the radar speed gun to the moving vehicle. This device used to measure the speed of moving objects. The waves which is directly measurable is proportional to the speed at which the vehicle is moving. By using this equipment, the speed limit of the motorcycle will be able to determine within 100-meter radius from the school compound area. Data collection also will be collected through questionnaire that distributed through google form for school student and young motorcyclist to assess the level of understanding in risky riding behaviour among secondary school student.

Based on the previous researches, there were seven risky riding behaviours related with the road traffic crashes were listed out. These processes were carried out through site reconnaissance procedure by means of checking all 7 factors one by one at the school compound area. Table 1 below shows 7 risky riding behaviour factors selected to be further scrutinised.

Table 1. Risky Riding Behaviour Factors

Risky Riding Behaviour Factors
Riding while Impaired
Break the speed limit
Riding without crash helmet
Riding while using phone
Riding without using signal
Riding without headlights on and not stopping at a three-way junction
Performing stunting acts

2.1. Microsoft Excel 2010 (MS EXCEL 2010)

Microsoft Excel 2010 was used to analyse the road traffic crashes data that was obtained from Royal Malaysian Police (PDRM). The obtained data was analysed using Microsoft Excel 2010 to identify the risky riding behaviour located within the school compound. The diagram, graph, or chart was presented from the analysed data. The result from the data analysis was used by the researcher to understand and interpret the correlation between the risky riding behaviour factors with respondent background.

2.2. Statistical Package for Social Sciences (SPSS)

A statistical package for social sciences (SPSS) version 18.0 was also used in this study. This software was used to generate model (equation) and analyse the relationship between risky riding behaviour factors with respondent background. The independent variable of this study was the risky riding behaviour factors while the dependent variable was the respondent background. The number of respondent background was listed as dependent variable because the number of respondent background was expected to change time by time.

2.3 Correlation Analysis

Pearson, the Point-biserial and Spearman rho correlations were the type of correlation analysis that was used in this study. Correlation analysis was used to describe the linear relationship among two quantitative variables. It was also important to describe the strength and direction of the relationship. The value of r (Pearson's product-moment correlation/The Point-biserial/Spearman rho correlation) and its statistical significance can measure the strength and direction of a linear relationship between two variables.

Alias (2004) stated that researcher can determine the relationship between independent variable and dependent variable by providing the details on the strength of relationship. The strength of relationship is determined by the value of correlation coefficient (r) which has a range between -1 to $+1$ (George & Mallery, 2006). Below were showed the equations for Pearson, and Spearman rho and Point-biserial correlation.

$$r = \frac{S_{xy}}{\sqrt{S_{xx} S_{yy}}}, -1 \leq r \leq 1 \quad (1)$$

where, r = Pearson product-moment correlation

$$S_{xx} = \sum_{i=1}^n Xi^2 - \frac{(\sum_{i=1}^n Xi)^2}{n} \quad (2)$$

$$S_{yy} = \sum_{i=1}^n Yi^2 - \frac{(\sum_{i=1}^n Yi)^2}{n} \quad (3)$$

$$S_{xy} = \sum_{i=1}^n XiYi - \frac{(\sum_{i=1}^n Xi \sum_{i=1}^n Yi)}{n} \quad (4)$$

where,

x : independent variable

y : dependent variable

r : correlation coefficient

$$\rho = 1 - \frac{6 \sum di^2}{n(n^2 - 1)} \quad (5)$$

where,

ρ = Spearman rho correlation di = The difference between the ranks of corresponding variables n = Number of observations

$$r_{pb} = \frac{M_1 - M_0}{S_n} \sqrt{pq} \quad (6)$$

where,

r_{PB} = The point-biserial correlation

M_i = Mean of the group that received the positive variable

M_0 = Mean of the group that received the negative variable S_n = Standard deviation for the entire test

p = Proportion of cases in the "0" cases q =

Proportion of cases in the "1" cases

All steps or method used were important for researcher to ensure the study planned went smoothly. This research began with the identification of study area, requesting the road traffic crashes data from Royal Malaysian Police (PDRM) of Malaysian Institute of Road Safety Research (MIROS), identification of the chosen school area, identification of the risky riding behaviour factors, data collection of risky riding behaviour factors within 100m school compound area and also from the questionnaire, and lastly the data analysis using Microsoft Excel 2010 (MS Excel) and Statistical

Packages for Social Sciences (SPSS). As a final point, the evaluation of the correlation between the set of risky riding behaviour among secondary school students with the respondent background.

3. Findings

An attempt to recognize risky riding behaviour was done in school area compound as a pilot study. All steps or method used were important for researcher to ensure the study planned went smoothly. This research began with the identification of study area, identification of the chosen school area, identification of the risky riding behaviour factors, data collection of risky riding behaviour factors within 100m school compound area, and also by collecting data using questionnaire and lastly the data analysis using Microsoft Excel 2010 (MS Excel) and Statistical Packages for Social Sciences (SPSS). As a final point, the modelling of relationship between risky riding behaviour with the respondent background among young motorcyclist obtained after the results were analyzed.

Several risky riding behaviour factors seen to be located within 100 m radius of school compound area which are riding while impaired, break the speed limit, riding without crash helmet, riding while using phone, riding without using signal, riding without headlights on and not stopping at a three-way junction and also performing stunting acts.

The process of selecting the most significant risky riding behaviour to be used involved several key steps. Every step was important to ensure that most of the risky riding behaviour existed at study area were taken into account. Firstly, all risky riding behaviour as cited from previous study were listed. The criterion in choosing the risky riding behaviour is that the factors must be existed in road traffic system of Malaysia. An investigation was carried out to ensure that all the risky riding behaviour as listed in the general list were available at the school compound. Based on the previous researches, there are seven risky riding behaviour related were listed out. These processes were carried out through site reconnaissance procedure by means of checking all 7 factors one by one at the school compound area.

3.1 Descriptive Analysis for all variables

There were 7 variables which involved 7 numerical variables. Descriptive analysis was used to explore the characteristic of numerical variables. In addition to that, the characteristic risky riding behaviour was also measure using description statistics. The descriptive analysis presented here is based on the data collected by questionnaire to examined general characteristics of the variables.

Table 2. Descriptive Statistics of Numerical Variables.

	Descriptive Statistics							
	N	Minimum	Maximum	Mean	Std. Error	Std. Deviation	Skewness	Std. Error
Statistic	Statistic	Statistic	Statistic	Statistic	Std.	Statistic	Statistic	Std.
Age	200	0	4	1.57	.093	1.313	.539	.172
Break the speed limit	200	1	5	2.72	.089	1.264	.109	.172
Riding while using phone	200	1	5	2.16	.094	1.324	.765	.172
Riding without giving signal	200	1	5	2.14	.081	1.150	.773	.172

Riding without crash helmet	200	1	5	2.24	.079	1.117	.365	.172
Riding without headlights on and traffic violation	200	1	5	1.58	.074	1.054	1.728	.172
Riding while impaired	200	1	4	1.11	.034	.485	4.809	.172
Performing stunting acts	200	1	5	1.34	.056	.791	2.586	.172

Table 2. shows the detailed results of the descriptive analysis for all numerical variables in terms of mean, standard deviation, skewness and kurtosis values. All the 7 numerical variables were normally distributed since the value of skewness of each variable is in a skewness acceptable range between -1.96 and +1.96. Other than that, the skewness values of all variable shows that these variables were normally distributed.

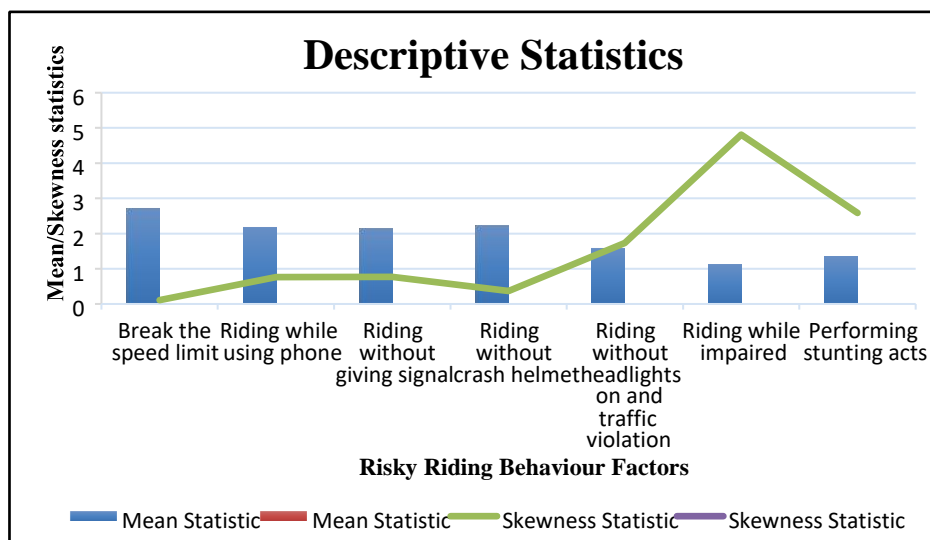


Figure 6. The histogram of descriptive statistics of risky riding behaviour factors

Figure 6 indicated the histogram and curve line for the risky riding behaviour factors among secondary school student. The figure represented the values of Mean and Skewness. Figure 6 shows that the risky riding behaviour variables is skewed to the left and rather peaked. The negative skewed depicts that the variable of breaking the speed limit has the highest mean among all the variables shown in the Figure 6 above.

The measures of variation or dispersion are explained by the value of range, standard deviation and variance. Range, maximum and minimum value gave different meaning in explaining the data set. Maximum value was the highest value in a data set and minimum value was the lowest value in a data set. Range is the difference between the highest value and the lowest value in a data set. Note that as a general principle, for large tables font sizes can be reduced to make the table fit on a page or fit to the width of the text.

3.2. Correlation between risky riding behaviour with the respondent background

Types of correlation namely Pearson, r were used in this analysis. Pearson r was using for continuous variables or one continuous variable and one dichotomous variable. According to the Table 3, it could be seen that only five out of seven risky riding behaviour factors that have a significant correlation with respondent background among young motorcyclist. All risky riding behaviour such as break the speed limit, riding while using phone, riding without giving signal, riding without using crash helmet, riding without headlights on and traffic violations. Moreover, only these five risky riding behaviour factors have been proven to have significant relationship with the number of age among young motorcyclists with a p -value of less than .05 ($p < .05$). Other than that, Table 3 also shows the six positive correlations, and one negative correlation with the number of age among young motorcyclist.

Table 3. Correlation between behaviour factors with the respondent background among young motorcyclist

	Independent Variables	r	p- value
1	Break the speed limit	.364**	.002
2	Riding while using phone	.222**	.002
3	Riding without giving signal	.162*	.022
4	Riding without crash helmet	.180*	.011
5	Riding without headlights on and traffic violations	.249**	.000
6	Riding while impaired	.024	.737
7	Performing stunting acts	-.006	.936

Table 4. Correlation between performing stunting acts behaviour factors with the riding experience

		Riding experience	Performing stunting acts
Riding experience	Pearson Correlation	1	.214**
	Sig. (2-tailed)		.002
	N	200	200
Performing stunting acts	Pearson Correlation	.214**	1
	Sig. (2-tailed)	.002	
	N	200	200

3.2.1. Positively correlated between risky riding behaviour factors and respondent background

As mentioned in Table 3 and Table 4, risky riding behaviour factors having positive correlation with respondent background among young motorcyclist which were breaking the speed limit, riding while using phone, riding without giving signal, riding without crash helmet, riding without headlights on and traffic violation. From the Table 3, the values of correlation coefficients (r) for those risky riding behaviour factors were shown in the table above.

Based on the value of correlations coefficient (r) and p-value between breaking the speed limit factor and the number of age, a significant medium correlation and positive relationship was achieved ($r = .364^{**}$, $p < .05$). This finding explained that the higher the chances of motorcyclist breaking the speed limit, the higher the number of age, the higher the possibilities of the number of crashes to increase.

3.2.2. *Negatively correlated between risky riding behaviour factors and respondent background*

One risky riding behaviour factors have recorded to be negatively correlated with the respondent background among young motorcyclists. Those risky riding behaviour factors is performing the stunting acts. From results in Table 3, the values of correlation coefficients (r) for this risky riding behaviour factors were shown below:

- Performing the stunting acts = $-.006$

Based on the value of correlations coefficient (r) and p-value between performing the stunting acts factor and the number age a non-significant small correlation and negative correlation relationship was achieved ($r = -.006^{**}$, $p > .05$). This finding explains that on the value of r as shown in above, it could be seen that this performing stunting acts factor has a negative weak correlation with respondent background among young motorcyclist.

Based on the table 4 depicts that performing stunting acts shows a significant small positive correlation with the riding experience was achieved ($r = .214^{**}$, $p < .05$). Lack of riding experience influence the behaviour of performing stunting acts of the young motorcyclist. Hence, performing stunting acts was significantly related to those with longer riding experience than those with lower experience which may be explained by the fact that riders with long riding experience are likely to have more courage, rigidity, and readiness to take risk that arises from their accumulated riding experience. (SA and MM, 2018).

From the discussion above, it can be summarized that based on the findings, breaking the speed limits is the most influenced risky riding behaviour factors. The group of age which is 17 years old motorcyclist has the highest number of among all the 7 risky riding behaviour factors. Apart from that, riding while impaired and performing stunting acts were the factors that less contributed to the number of motorcycle crashes.

To prove these factors contributed to the number of motorcycle crashes, the determinations of risky riding behaviour within secondary school students at schools' compound area as a preliminary study to be as a parameter has been done to prove the relationship the between the risky riding behaviours with the respondent background. The primary objective of this research is to analyse the number of relationships of risky riding behaviour. Among seven risky riding behaviour factors, breaking the speed limit was found associated with male gender and greater riding years for a given age. While greater speeding in male riders is a finding in line with other studies as well as common perception, (Risk Anal,2003). There was also a sizeable percentage of female riders who reported a tendency to ride faster than most people of their age. This underscores the need for gender inclusive road safety promotion programs.

From these findings, given this sample of young motorcyclists, for a given age, more years of riding was linked to greater tendency for riding fast. The finding held good separately for males and females, too. This is in keeping with the finding in another study that increase in rider's confidence associated with more riding years is a factor in risk-taking behaviour while riding a two-wheeler. (Styles T, 2005).

4. Discussions

This research had successfully given an insight into the effect of risky riding behaviour towards the motorcycle crashes among young motorcyclist. By determining set of risky riding behaviour at secondary school compound area, the evaluation the correlation between the set of risky riding behaviour among secondary school students with the respondent background based on combination of risky riding behaviour.

The exploration of risky riding behaviour with respondent background towards motorcycle crashes has been proved in this research. By focusing on the risky riding behaviours, these behaviours have been proved as one of the aspects that could produce instant crashes risk toward young motorcyclists. Initially, 7 risky riding behaviours were used to represent current behaviour among the secondary school students. Correlation analysis showed that six intersection behaviour were positively correlated and one risky riding behaviour were negatively correlated with the respondent background. Concisely, specific findings concluded from this research were summarised in below subtitle.

4.1. Selection of Risky Riding Behaviour

The second objective of this research is to determine set of risky riding behaviour at secondary school compound area. Initially, 7 risky riding behaviour were identified from previous researches. Based on the previous researches, there are seven risky riding behaviour related with the road traffic crashes were listed out. The selection of risky riding behaviour was produced. These processes were carried out through site reconnaissance procedure by means of checking all 7 factors one by one at the school compound area.

4.2. Correlation between the set of Risky Riding Behaviour Factors Among School Students with the respondent background

The third objective is to evaluate the correlation between the set of risky riding behaviour factors among school student with the respondent background. From the findings, the key conclusions that can be drawn were as listed below:

1. Breaking the speed limit behaviour was contributed the most to the motorcycle crashes among the secondary school students.
2. Lack of riding experience influenced the behaviour of performing stunting acts of the young motorcyclist.
3. Riding while impaired and performing stunting acts were the behaviour that less contributed to the number of motorcycle crashes.
4. The relationship of performing stunting acts behaviour with the respondent background recorded the weakest relationship as a non-significant small correlation and negative correlation relationship was achieved.

5. Conclusion and Recommendation

This research had successfully given an insight into the effect of risky riding behaviour towards the motorcycle crashes among young motorcyclists. By determining set of risky riding behaviour at secondary school compound area, the evaluation the correlation between the set of risky riding behaviour among secondary school students with the respondent background based on combination of risky riding behaviour.

The exploration of risky riding behaviour with respondent background towards motorcycle crashes has been proved in this research. By focusing on the risky riding behaviours, these behaviours have been proved as one of the aspects that could produce instant crashes risk toward young motorcyclists. Initially, 7 risky riding behaviours were used to represent current behaviour among the secondary school student. Correlation analysis shows that six risky riding behaviour were positively correlated and one risky riding behaviour were negatively correlated with the respondent background. Concisely, specific findings concluded from this research were summarised in below subtitle.

The development of this research was one of the initial attempts in demonstrating the relationship of risky riding behaviour among secondary school student with the respondent background. Although this research has been successfully answering the research objectives as outlined, more research could be further initiated to be fulfilled to strengthen the research in the field of road safety. In this research, there are a few recommendations which aimed to strengthen the research related to road safety among young motorcyclist. The recommendations that are outlined which is further study should be conducted at the school compound area that has larger number risky riding behaviours with crashes record. The larger number of sample (risky riding behaviour) can explain more accurate and details results. Aside from that, it also suggested for similar research to be conducted on different area, such

another school compound area at another state (beside Kuantan). The data will be various and hence, the problem of crashes and other risky riding behaviours at another area can also addressed.

As for the conclusions, it can be summarised that each risky riding behaviour factors have given different impact to road safety among young motorcyclists especially secondary school students. The evaluation of the correlation between the set of risky riding behaviour factors among school students with the respondent background is one of the ways to predict the risky riding behaviour that contribute to motorcycle crashes. Other than that, it can also be a method in reducing the number of crashes since predicted number of crashes can be a reference to authority.

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