



UNIVERSITI PUTRA MALAYSIA

***RIDING BEHAVIOUR AMONG SECONDARY SCHOOL STUDENTS IN
SRI SERDANG, SELANGOR***

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SRI SERDANG, SELANGOR**

BY

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**Thesis submitted in fulfilment of the requirement for the degree of Bachelor
Science (Environmental and Occupational Health) from the Faculty of
Medicine and Health Sciences, Universiti Putra Malaysia**

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ABSTRACT

RIDING BEHAVIOUR AMONG SECONDARY SCHOOL STUDENTS IN SRI SERDANG, SELANGOR

AIMI ZAFIRAH HUSNA BINTI HASHIM

Introduction: In Malaysia, road crashes are a never-ending problem and continue to increase year by year. Young motorcyclists have been believed to be the group who prone to road accident involvements in Malaysia and it is the most concern issue nowadays. As household incomes becoming to increase, people desire to have their own vehicles. Motorcycles are most likely chosen as daily transportation because they are fuel-efficient and affordable to purchase and maintain. Therefore, young people prefer motorcycles as their mode of transportation in order for them to move from one place to another. **Objective:** This study aims to determine the riding behaviour among secondary school students in Sri Serdang, Selangor. **Methodology:** This study is a cross-sectional study that used a simple random sampling method to obtain the sample. The data collection was conducted in two schools which are SMK Seri Serdang and SMK Seri Indah both in Sri Serdang, Selangor. The respondents were given a set of a self-administered Motorcycle Rider Behaviour Questionnaire (MRBQ) containing 59 items that was adapted from previous studies as the research instruments to achieve the objectives of the study. **Results and Discussion:** The results showed that the mean of MRBQ rating of secondary school students in Sri Serdang students was precaution factor (3.58 ± 0.185), traffic error (2.10 ± 0.155), speeding (1.93 ± 0.100), safety violation (1.84 ± 0.213) and safety equipment (1.74 ± 0.366). The male students have higher crash involvement in both road crashes and near-miss crashes as compared to female students. The traffic error ($p < 0.001$), safety violation ($p < 0.001$), speeding ($p < 0.001$), and safety equipment ($p < 0.001$) has a significant difference between male and female students. Traffic error and safety equipment factors were the road crash significant predictors among secondary school motorcyclists. Students who had safety violations above the average were 0.370 times more likely to be involved in road crashes, meanwhile, students who had precautions above the average were 2.385 times less likely to be exposed to road crash. **Conclusion:** This study will provide baseline data to the related organization such as Malaysian Institute of Road Safety Research (MIROS) to propose prevention and intervention programs for this specific population. Intervention programs such as motorcycle safety riding should be conducted among secondary school students.

Keywords: MRBQ, Riding behaviour, Secondary school students.

ABSTRAK

TINGKAHLAKU MENUNGGANG DALAM KALANGAN PELAJAR SEKOLAH MENENGAH DI SRI SERDANG, SELANGOR

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Pengenalan: Di Malaysia, kemalangan jalan raya adalah masalah yang tidak berhenti dan terus meningkat dari tahun ke tahun. Penunggang motosikal muda dipercayai merupakan kumpulan yang rentan terhadap kemalangan jalan raya di Malaysia dan ini adalah isu yang paling membimbangkan ketika ini. Apabila pendapatan isi rumah semakin meningkat, orang ingin memiliki kenderaan mereka sendiri. Motosikal paling kerap dipilih sebagai pengangkutan harian kerana ia jimat bahan bakar dan berpatutan untuk dibeli dan diselenggara. Oleh itu, orang muda lebih suka motosikal sebagai kaedah pengangkutan mereka agar dapat bergerak dari satu tempat ke tempat lain. **Objektif:** Kajian ini bertujuan untuk mengetahui tingkahlaku menunggang di kalangan pelajar sekolah menengah di Sri Serdang, Selangor. **Metodologi:** Kajian ini adalah kajian keratan lintang yang menggunakan kaedah persampelan rawak untuk mendapatkan sampel. Pengumpulan data telah dilakukan di dua buah sekolah iaitu SMK Seri Serdang dan SMK Seri Indah kedua-duanya di Sri Serdang, Selangor. Responden diberi satu set soal selidik Tingkahlaku Penunggang Motosikal (MRBQ) yang dikendalikan sendiri yang mengandungi 59 item yang diadaptasi dari kajian sebelumnya sebagai instrumen kajian untuk mencapai objektif kajian. **Keputusan dan Perbincangan:** Hasil kajian menunjukkan bahawa min penilaian MRBQ pelajar sekolah menengah di pelajar Sri Serdang adalah faktor pencegahan (3.58 ± 0.185), kesalahan lalu lintas (2.10 ± 0.155), kelajuan (1.93 ± 0.100), pelanggaran keselamatan (1.84 ± 0.213) dan keselamatan peralatan (1.74 ± 0.366). Pelajar lelaki mempunyai penglibatan kemalangan yang lebih tinggi dalam kemalangan jalan raya dan hampir kemalangan berbanding pelajar perempuan. Kesalahan lalu lintas ($p < 0.001$), pelanggaran keselamatan ($p < 0.001$), kelajuan ($p < 0.001$), dan peralatan keselamatan ($p < 0.001$) mempunyai perbezaan yang signifikan antara pelajar lelaki dan perempuan. Kesalahan lalu lintas dan faktor peralatan Keselamatan menjadi peramal kemalangan jalan raya di kalangan penunggang motosikal sekolah menengah. Pelajar yang mempunyai pelanggaran keselamatan di atas rata-rata adalah 0.370 kali lebih mungkin terlibat dalam kemalangan jalan raya, sementara itu, pelajar yang mempunyai langkah berjaga-jaga di atas rata-rata adalah 2.385 kali lebih kecil kemungkinannya terdedah kepada kemalangan jalan raya. **Kesimpulan:** Kajian ini akan memberikan data asas kepada organisasi seperti Institut Penyelidikan Keselamatan Jalan Raya Malaysia (MIROS) untuk mencadangkan program pencegahan dan intervensi untuk populasi khusus ini. Program intervensi yang memfokuskan keselamatan menunggang motosikal perlu dijalankan dalam kalangan pelajar sekolah menengah.

Kata kunci: MRBQ, Tingkahlaku menunggang, Pelajar sekolah menengah.

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LIST OF ABBREVIATIONS

MRBQ	Motorcycle Rider Behaviour Questionnaires
MIROS	Malaysian Institute of Road Safety Research
SMK	Sekolah Menengah Kebangsaan
WHO	World Health Organization
DBQ	Driving Behaviour Questionnaires
MOE	Ministry of Education
MOT	Ministry of Transport

CHAPTER 1

INTRODUCTION

1.1 Study Background

In Malaysia, road crashes are a never-ending problem and continue to increase year by year. Road crash refers to any accident involved by at least one road vehicle such as cars, cyclists or pedestrians. According to Transport Statistic Malaysia 2017, the total number of road crashes was 548,598 in the year 2018 which there is an increase of 14,723 crashes from total number of road crashes in 2017.

TAHUN Year	MOTOSIKAL Motorcycle	MOTOKAR Motorcar	VAN Van	BAS Bus	LORI Lorry	PEMACU 4 RODA Four Wheel Drive	TEKSI Taxi	BASIKAL Bicycle	LAIN-LAIN Others	JUMLAH Total
2009	113,962	472,307	19,220	9,380	46,724	23,581	8,669	2,486	9,294	705,623
2010	120,156	511,861	18,788	9,580	50,438	25,777	9,899	2,178	11,756	760,433
2011	129,017	546,702	17,916	9,986	53,078	30,828	11,197	2,033	16,394	817,151
2012	130,080	655,813	15,143	10,617	42,158	32,891	11,680	1,310	21,540	921,232
2013	121,700	632,602	17,148	10,123	39,276	52,512	11,651	1,370	15,441	901,823
2014	125,712	617,578	15,041	9,193	37,481	41,464	10,856	1,275	27,743	886,343
2015	123,408	625,758	14,565	8,804	34,942	46,163	9,591	1,119	29,924	894,274
2016	135,181	670,935	14,470	9,462	35,064	48,907	8,399	1,318	36,833	960,569
2017	108,221	564,491	13,347	7,258	34,747	44,297	5,328	787	24,047	802,523
2018	113,288	591,399	17,226	7,328	36,915	45,757	3,912	727	21,143	837,695

(Source: MOT. (2019). *Transport Statistic Malaysia.pdf*)

Table 1.1: Total Motor Vehicles Involved in Road Crashes by Type of Vehicle,
Malaysia, 2009 – 2018

Based on Table 1.1 above, the number of total motor vehicles involved in road crashes fluctuates from 2009 until 2018. Therefore, there are increases in the number of total motor vehicles involved in road crashes from 2009 until 2012, 2014 until 2016 and 2017 until 2018. The highest number of total road crashes is in 2016 which is 960,569 crashes. Most importantly, increasing trends in the total number of total motor vehicles involved in road crashes can be seen throughout the year. From all type of vehicle on Table 1.1, motorcar has the highest number of involved in road crashes for each year and followed by motorcycle.

Although the motorcycle was the second higher motor vehicles that involved in road crashes after motorcar, Table 1.2 below shows that motorcycle users has the highest number of total deaths in road crashes from 2014 until 2017. There is an increase of percentage of total deaths of motorcycle user for each year. In the year 2017, the number of motorcyclists' deaths have dropped from 4,485 to 4,348 death, however the percentage remain increases from 62.7% to 64.5%.

According to MIROS (2018), the group age 16 – 25 years old recorded the highest number of death in road traffic crashes which 30.2% from the total of death in year 2016. From the findings, it conclude that motorcyclists who aged between 16 – 25 years old as a high risk population on the road.

Kategori pengguna jalan raya	2014		2015		2016		2017	
	Bil	%	Bil	%	Bil	%	Bil	%
Motosikal	4,179	62.6%	4,203	62.7%	4,485	62.7%	4,348	64.5%
Kereta	1358	20.3%	1,358	20.3%	1,489	20.8%	1,269	18.8%
Pejalan kaki	515	7.7%	482	7.2%	511	7.1%	441	6.5%
Basikal	124	1.9%	107	1.6%	123	1.7%	162	2.4%
Van	73	1.1%	71	1.1%	65	0.9%	62	0.9%
Bas	37	0.6%	20	0.3%	29	0.4%	23	0.3%
Lori	222	3.3%	223	3.3%	186	2.6%	199	3.0%
Pacuan 4 roda	129	1.9%	130	1.9%	142	2.0%	113	1.7%
Lain-lain kenderaan	37	0.6%	112	1.7%	122	1.7%	123	1.8%
Jumlah	6,674		6,706		7,152		6,740	

(Source: MIROS. (2018). *Pelan Keselamatan Jalan Raya 2014 – 2020: Laporan Status Pencapaian dan Cadangan Penambahbaikan.pdf*)

Table 1.2: Total of Deaths in Road Crashes by Category of Road Users, Malaysia, 2014 – 2017

According to To and Zuni (2016), motorcycle is the main vehicles and most affordable mode of transport in Malaysia, Taiwan, Indonesia and Vietnam. The same study added, the increasing of motorcycle cause those countries facing problems in road safety such as road crashes, injured crashes and congested road traffic condition. The increase in percentage of motorcyclists' deaths can be related with the increasing the number of motorcycle on road. Ministry of Transport (2017) stated there were 429,225 new motorcycle registration in 2017.

As household incomes becoming to increase, people desire to have their own vehicles. Privately owned vehicles are more comfortable, faster, more convenient in trip timing and more flexible for doing multiple tasks on one trip compared to almost any form of

public transportations. Motorcycles are most likely chosen as daily transportation because they are fuel-efficient and affordable to purchase and maintain. Therefore, young people prefer motorcycles as their mode of transportation to move from one place to another. Young motorcyclists have been believed to be the group who prone to road crash involvements in Malaysia and it is the most concern issue nowadays.

Human behaviour may become the factor of the involvement of motorcyclists in road crashes. As mentioned by Asonganyi et al. (2016), most crashes and injuries that lead to death often attributed to human behaviour which are drunkenness, speeding and bad motorcycle condition. Motorcycle Rider Behaviour Questionnaire (MRBQ) is a tool used to assess behavioural factors affecting the risk of crash for the motorcyclists by sel-reporting (Sakashita et al., 2014). Stephens et al. (2017) added that MRBQ was developed with the aim for better understanding on the behaviour of motorcyclists which likely to be related with crash risk. These include road traffic violations, speeding, stunts, traffic errors, control of motorcycle as well as usage of safety equipment.

Therefore, this study will be conducted to examine the riding behaviour among the young motorcyclists among secondary school students in Sri Serdang, Selangor specifically on the age of 16-year-old to provide the subject knowledge on the level of behaviour during riding a motorcycle whether the subject is a risk-taker or not.

1.2 Problem Statement

Low and medium-income countries reported higher road fatality rates per 100,000 population in 2016 as compared to high-income countries (WHO, 2020). In addition, according to World Health Organization (2020), nearly 1.35 million people die per year as a result of road traffic crashes and more than half of deaths are represent vulnerable road users group which are pedestrians, cyclists, and motorcyclists. Road traffic crashes are the leading cause of death for children and young adults aged 5-29 years.

According to the Global status report on road safety 2013 by World Health Organization, Malaysia rank fifth highest in the world for the percentage of motorcycle accident fatalities from total road fatalities in 2013 (Muhammad et al., 2015). Therefore, road injuries and fatalities are a growing concern in Malaysia, with more than 6000 killed and over 25,000-recorded injuries yearly for the past 5 years (Abdul Manan & Várhelyi, 2012). Therefore, the main concern in Malaysia currently is the involvement of young motorcycle riders in road crashes. There are associations between human behaviour and the number of incidents commuted. Human behaviour is the main contributor to road traffic crashes and it is the most difficult factors to control (Younas et al., 2018). One of the important contributing factors in motorcycle crashes is risk-taking behaviour (Muhammad et al., 2015). Risky riding behaviour were more common among students. It was found that students are more likely to engage in risky riding behaviour, such as encroaching car lanes, exceeding speed limits, ignoring red lights, overtaking recklessly, and riding under the influence of alcohol (Nguyen-phuoc et al., 2020).

Motorcyclists may either lack riding experience or riding a motorcycle with risky behaviour and leading to unable to ride safely on the road. Although professional riders can get involved in a road accident as the riding behaviour is difficult to control. Therefore this study explored the significant predictors that lead to crash risk.

There is no study yet to be conducted to analyse the motorcycle riding behaviour using Motorcycle Rider Behaviour Questionnaires (MRBQ) especially among secondary school students in Malaysia who are using a motorcycle as daily transportation to move from one place to another.

A previous study in Malaysia (Azman et al., 2017) was conducted among young motorcyclists in Klang Valley, Malaysia. This previous study targeted people who are aged between 16 – 25 years old while this study focuses on secondary school students aged 16 years old only. As 16 years old is the minimum age for riding a motorcycle legally. The motorcyclist's riding behaviour may vary between secondary school students and the other populations from the various study as every community has different habits and behaviour. Through this study, it will determine whether secondary school students engage with riding behaviour or not. This study also will serve as fundamental data for MIROS for Nation Road Safety.

1.3 Study Justification

This study focuses on human behaviour that may lead to road crashes. There are 3 key variables that can cause road crashes which are human factors, environmental factors, and machine factors. Human behaviour may vary depends on age group, educational level, demographic details and other factors. This study is important because it provides education and awareness among young people, especially secondary school students regarding the importance of road safety.

There is still a limitation of study about the Motorcycle Rider Behaviour Questionnaire (MRBQ) in Malaysia, especially among secondary school students. Therefore, this study as a baseline data for MRBQ among secondary school students and this study also able to step-up the intervention programs to reduce the risk of road crash in the future. Safety preventive measures and programs can be developed to prevent any consequences for motorcyclists. Possible risks and consequences could be avoided if the motorcyclists understand the safety measures that need to be taken.

1.4 Conceptual Framework

Figure 1.1 shows the conceptual framework of this research. The conceptual framework below describes the concept in this study from the beginning, the collection data among young motorcycle riders in secondary schools, riding behaviour and the factors; safety violation, traffic error, speeding, safety equipment and precaution. There are also other elements which are demographic details, riding experiences, summon details and crash involvement of respondents. The instrument used in this study to determine the riding behaviour factors is Motorcycle Rider Behaviour Questionnaire (MRBQ).

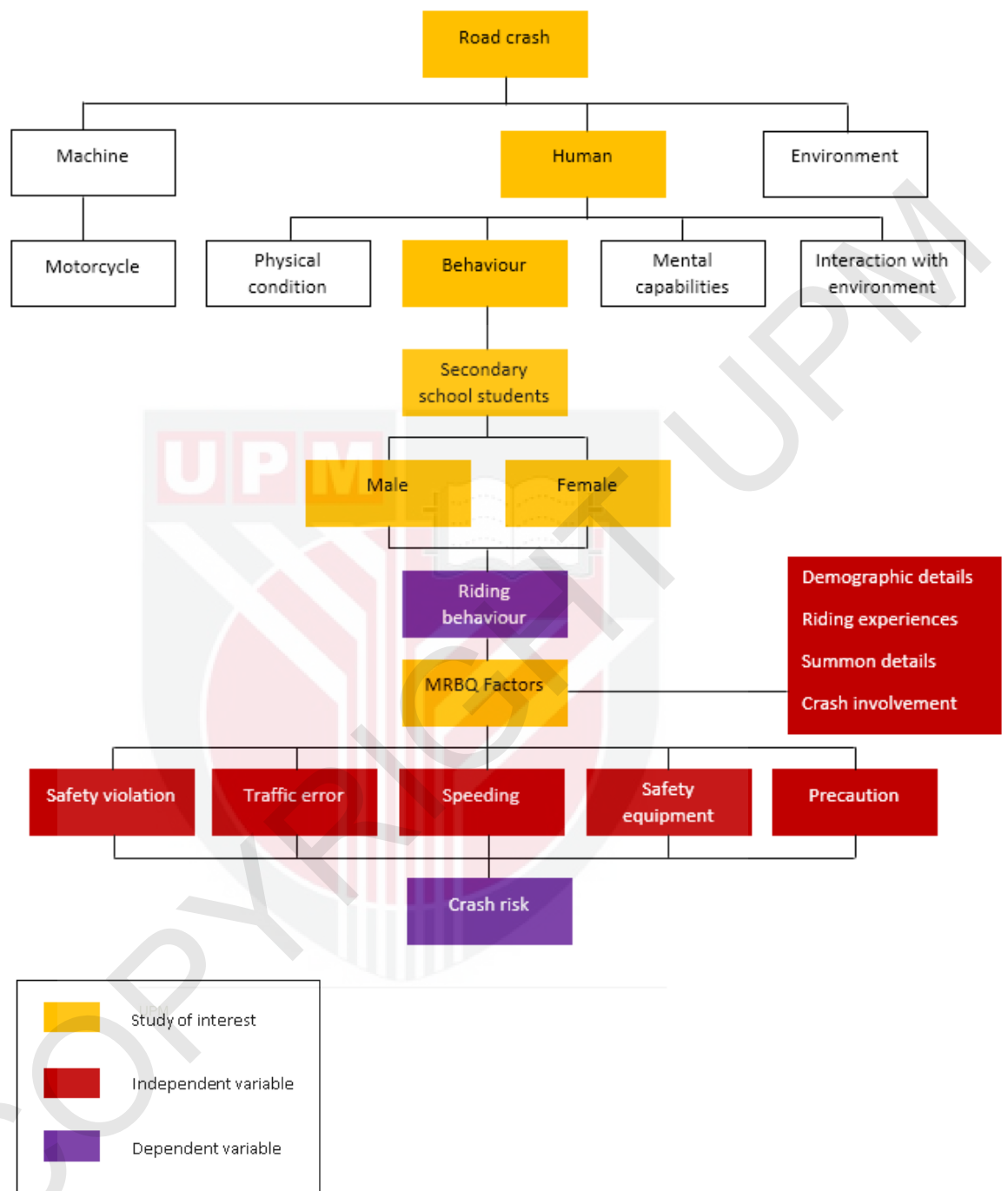


Figure 1.1: Conceptual framework

1.5 Definitions of Terms

1.5.1 Conceptual Definition

Motorcycle rider

A person who rides a motorcycle (Oxford, 2019).

Young Motorcyclist

WHO defines 'Young People' as individuals in the 10 – 24-year-age group. A young motorcyclist is defined as a person who rides a motorcycle at the age of 10 – 24 years old.

Riding behaviour

Based on the journal Psychological and Social Factors Influencing Motorcycle Rider Intentions and Behaviour (2007), riding behaviour is riding practices, rider intentions and behaviour of individual motorcyclists.

Secondary school student

Secondary school is defined as a school intermediate between primary school and college and usually offering general, technical, vocational, or college-preparatory courses. A student is the one who attends school or studies (Merriam-Webster, 2019).

1.5.2 Operational Definition

Young motorcycle rider

A young motorcyclist is defined as a person who rides a motorcycle at the age of 16 years old. The respondents are among secondary school students in Sri Serdang who ride a motorcycle as their daily transportation as well as when going to school. The respondents will be given a set of an adapted questionnaire from the Motorcycle Rider Behaviour Questionnaire (MRBQ) to be answered.

Riding behaviour

Based on the journal Psychological and Social Factors Influencing Motorcycle Rider Intentions and Behaviour (2007), riding behaviour is riding practices, rider intentions and behaviour of individual motorcyclists. MRBQ is the instrument used to study the riding behaviour of the motorcyclist. There are five factors solutions of riding behaviour for motorcyclists: safety violations, speeding, traffic errors, safety equipment, and precautions.

Secondary school student

A group of secondary school students riding a motorcycle. The respondents are among the secondary school students in Sri Serdang. The respondents will be given a set of an adapted questionnaire from the Motorcycle Rider Behaviour Questionnaire (MRBQ) to be answered.

1.6 Research Questions

Questions that arise from this research were as follow:

1. What are the riding behaviours of young motorcycle riders among secondary school students?
2. What are the factors contributing to the crash involvements among secondary school students?
3. Which factors have higher significant contributing factors of riding behaviour among secondary school students?
4. Do the male students have higher road crash involvement compared to female secondary school students?
5. Do the male students have higher risky riding behaviour compared to female secondary school students?
6. What is the significant predictor of road crash involvement among secondary school students?

1.7 Research Objectives

1.7.1 General Objective

To determine the riding behaviour among secondary school students in Sri Serdang, Selangor.

1.7.2 Specific Objectives

1. To study the socio-demographic factors among secondary school students in Sri Serdang.
2. To determine the MRBQ rating (safety violation, traffic error, speeding, safety equipment and precaution) among secondary school students.
3. To determine the road crash involvement among secondary school students.
4. To compare the road crash involvement between male and female secondary school students.
5. To compare the MRBQ factors (safety violation, traffic error, speeding, safety equipment and precaution) between male and female secondary school students.
6. To identify the significant road crash predictors among secondary school students.

1.8 Hypothesis

1. Male students have higher road crash involvement and risky riding behaviours compared to female secondary school students.
2. The MRBQ factors (safety violation, traffic error, speeding, safety equipment and precaution) have significant differences between gender.
3. The traffic error is a significant road crash predictor among secondary school students.

CHAPTER 2

LITERATURE REVIEW

2.1 Motorcycle

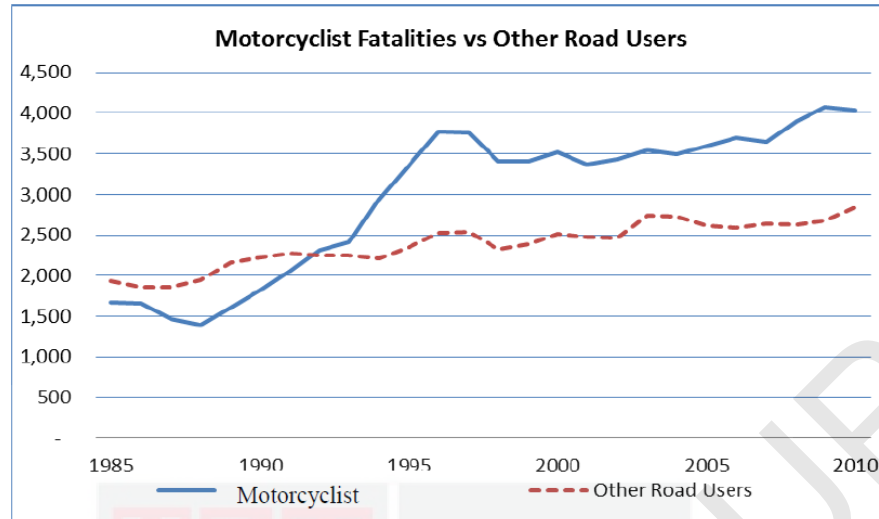
Motorcycles have been the most preferable, convenient and affordable mode of transport for many years (Rohayu et al., 2010). The licenses and license renewal for motorcycle are the cheapest compared to other motor vehicles. No toll fees are charged to motorcyclists on the highways. In addition, the petrol consumption of motorcycles is the lowest compared to four-wheeled vehicles. In Malaysia, especially in urban areas, traffic-jammed is an inescapable condition for all road users. In order to avoid this condition, many Malaysians use a motorcycle as their main transportation which they can reach the destination faster. Therefore, people prefer to use a motorcycle because of its money-saving aspect.

Rohayu et al. (2011) stated that the pattern reveals that motorcyclists have tended to outnumber other road users for two decades. Results from accident findings indicate that the popularity of motorcycle riding is a major concern in road safety (Huth et al., 2014). Motorcycles are known to be more likely to cause serious injury or death to riders and passengers compared to four-wheeled cars (Asonganyi et al., 2016). Motorcycle riders are required to comply with road traffic rules to promote transport safety, such as riding on the right side of the road, driving in prescribed lanes for motorcycles where available, and using turn signals when turning at intersections. As the size of motorcycles is smaller and less stable than other on-road vehicles,

motorcyclists are more vulnerable to road hazards such as road conditions and weather. Other than that, motorcycles are less visible to other drivers on the road. Motorcycling is dangerous and motorcyclists are 35 times more likely to die in a motor vehicle traffic accident than passenger-car occupants and 8 times more likely to be injured per vehicle mile (Asonganyi et al., 2016). In addition, the highway which has inadequate signs, especially for pedestrian crossings is more likely to harm the motorcyclists.

2.2 Road Crashes

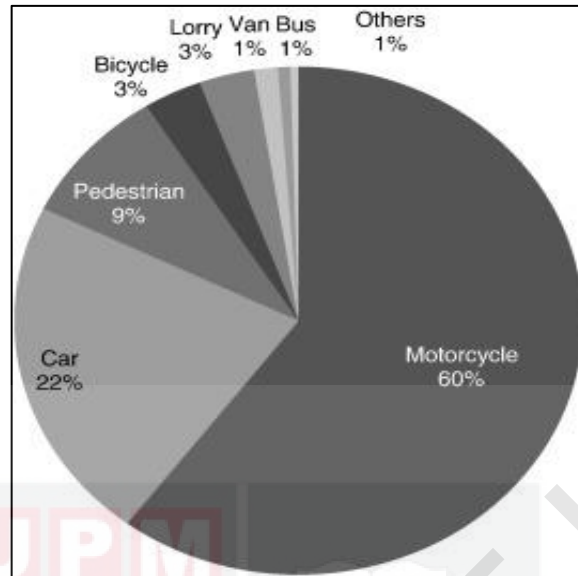
Motorcycle injury is a significant cause of disability and death worldwide, especially in low- and middle-income countries (Asonganyi et al., 2016). The same study added injury is the leading cause of death in all age group, including for both males and females and a high proportion of deaths in road crashes constitute by motorcyclists. Abdullah et al. (2018) stated according to Road Transport Department, the number of crashes were 490,000 cases in which has been an increase of about 13.41% compared to the year 2014, and the number also increased from 6706 cases to 6674 cases. The mental and physical skills of motorcyclists may cause an increase in motorcycle fatalities. Other than that, Asonganyi et al. (2016) mentioned a substantial number of motorcycle crashes and deaths include riders who do not have a proper license or training, speeding and/or do not wearing a protective helmet. When evaluating the factors that affect riding safety, it is important to consider environmental-related hazards as well as the strategies of riders when facing such hazards (Huth et al., 2014).



(Source: *A Dictionary of Transport Analysis*, 1(May), 277–279)

Figure 2.1: Motorcyclist Fatalities versus Other Road Users

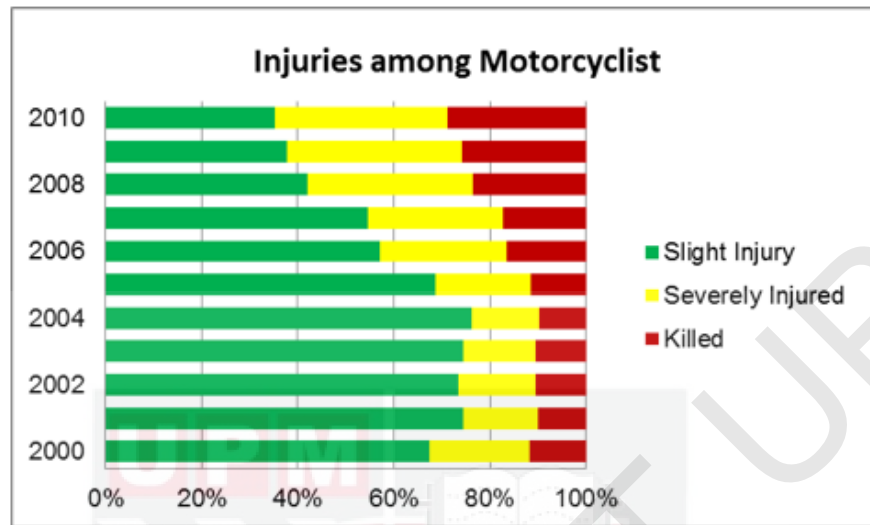
Figure 2.1 shown the trend of motorcyclists and other road user's fatalities for the last thirty years. As seen from Figure 2.1, the number of motorcyclist fatalities started to increase and higher compared to other road user fatalities in early 1995. A previous study found, the most common road traffic crashes are single-vehicle crashes, where the rider loses control of the motorcycle, followed by front-side crashes at road intersections, which are mostly caused by another vehicle's right-of-violation (Huth et al., 2014).



(Source: *Motorcycle fatalities in Malaysia. IATSS Research*, 36(1). 30-39)

Figure 2.2: Fatality distribution by mode of transport.

Figure 2.2 shows that motorcycle fatalities are 3 times higher compared to car fatalities, 6 times higher than pedestrian fatalities and nearly 50 times higher than bus passenger fatalities. Abdul Manan et al. (2018) added among all vehicles on the road, motorcyclists are more prone to accident. Statistic (2009) reported that the ratio of deaths among other road users to motorcyclists is 1: 1.52 (Rohayu et al., 2010). From all road traffic users, motorcyclists particularly those who are most exposed which busy highways, neglect of basic safety laws and regulations and lack of formal training in riding produce a dangerous combination to the motorcyclists (Asonganyi et al., 2016). Based on this situation, speeding of motorcycles may lead to an increase in motorcycle fatalities. The mental and physical skills of motorcyclists may cause an increase in motorcycle fatalities.



(Source: *A Dictionary of Transport Analysis*, 1(May), 277–279)

Figure 2.3: Motorcycle Accidents Fact

Based on Figure 2.3 the percentage of killed and severely injured were low in early 2000 but the percentage is higher when approaching 2010. From 2000 to 2005, killed and severely injured (KSI) accounted for just about 30% of the total casualties (Rohayu et al., 2010). The same study added in the years 2006 to 2010, KSI increased to more than 50% of total casualties in 2010.

Date	Title	Content of news	Sources
May 2021	<i>Dua pelajar sekolah maut kemalangan di Baling</i>	• Baling, Kedah • 15 and 16 years old male student • Died at the scene of accident because of severe injury • Lost control and enter the opposing lane before colliding with a car (both students on one motorcycle)	Astro Awani
April 2021	<i>Pelajar maut kemalangan selepas berbuka puasa bersama rakan</i>	• Kemaman, Terengganu • A 17 years old male student • Died at the scene of accident • He hit the back part of a 3-ton lorry before he got hit by a motorcycle behind him	Astro Awani
March 2021	<i>Pelajar sempat minta halalkan makan, minum sebelum ajal</i>	• Segamat, Johor • A 17 years old male student • Died at the scene of accident because of severe head injury • Got hit by a car	Kosmo
March 2021	<i>Mayat remaja ditemui terapung bawah jambatan</i>	• Kemaman, Terengganu • A 16 years old male student • Found floating under a bridge after he had disappeared for a day • Motorcycle lost control before slipping and plunging into the river	Astro Awani

November 2020	<i>Dua pelajar SMK Sertik maut nahas</i>	• Bentong, Pahang • Two 15 years old male students • One died at the scene of accident and one died after being taken to the clinic • Lost control and enter the opposing lane before colliding with a lorry (both students on one motorcycle)	Sinar Harian
November 2020	<i>Pelajar Tingkatan Enam maut kemalangan</i>	• Rantau Panjang, Kelantan • A 18 years old male student • Died at the scene of accident because of severe head injury • A car suddenly enter the opposing lane and the student could not evade the car in time before they collided	Sinar Harian
October 2020	<i>Pelajar maut motosikal bertembung lori</i>	• Baling, Kedah • A 15 years old male student • Died at the scene of accident • The student tries to overtake a car before getting hit by a lorry	BH online
September 2020	<i>Pelajar maut motosikal dibonceng bertembung lori</i>	• Lipis, Pahang • A 15 years old female student and a 16 years old female student • One died at the scene of accident and one suffered severe injury • Students try to overtake other motorcycles before colliding with a lorry	BH online

		(both students on one motorcycle)	
September 2020	<i>Tiga pelajar kemalangan depan sekolah</i>	• Alor Gajah, Melaka • Three 17 years old students (one male and two female) • Two female students suffered severe injuries while male student got light injury only • The male student failed to evade and collided with the two female students	Sinar Harian
September 2020	<i>Pelajar tingkatan empat maut kemalangan depan sekolah</i>	• Ipoh, Perak • A 16 years old female student • Died at the scene of accident because of severe injury • The female student rode her motorcycle into a car • She did not have a motorcycle license	Kosmo
August 2020	<i>Pelajar maut nahas ketika ke sekolah</i>	• Sekinchan, Selangor • A 16 years old female student and a 17 years old male student • One died at the scene of accident and one no injury • The female student lost control and enter the opposing lane before colliding with the other student	BH online
August 2020	<i>Remaja maut motosikal kemalangan dengan lori</i>	• Kuala Lipis, Pahang • A 16 years old male student • Died at the scene of accident	BH online

		The student lost control and enter the opposing lane before colliding with a lorry	
July 2020	<i>Maut dirempuh ketika bawa adik tiri tunggang motosikal</i>	- Seremban, Negeri Sembilan - A 17 years old male student and his 4 years old stepbrother - The student died at the scene of accident while his stepbrother suffered severe injury - A car from an opposing lane enter their lane before both vehicles colliding	Harian Metro
February 2020	<i>Pelajar tingkatan 4 maut</i>	- Kuala Terengganu, Terengganu - A 16 years old male student - Died at the scene of accident because of severe head injury - The student tries to overtake a car for the second time then he got thrown into an opposing lane before getting hit by a MPV car	BH online
December 2019	<i>Dua sahabat hendak beli keperluan sekolah maut kemalangan</i>	- Sungai Petani, Kedah - A 16 years old male student and a 17 years old male student - Both students died at the scene of accident because of severe injury - Students failed to evade lorry in the emergency lane before colliding with it (both students on one motorcycle)	Astro Awani

November 2019	<i>Maut tercampak ke sungai</i>	• Kuala Berang, Terengganu • A 16 years old male student • Found floating in the river after the scene of accident • Got hit by a car before he got thrown into the river	BH online
November 2019		• Yan, Kedah • A 15 years old male student • Died at the scene of accident • He lost control before he and his motorcycle fell into the river • He did not have a motorcycle license	Astro Awani
September 2019	<i>Pelajar ACS maut nahas motosikal</i>	• Beruas, Perak • A 16 years old male student • Died at the scene of accident because of severe injury • The male student lost control and enter an opposing lane before colliding with a car	Sinar Harian
August 2019	<i>Pelajar tingkatan empat maut kemalangan</i>	• Kota Bharu, Kelantan • A 16 years old male student • Died at the scene of accident because of severe injury • Student's motorcycle got rub against a MPV car before colliding with other car	Sinar Harian

July 2019	<i>Pelajar maut motosikal bertembung teksi</i>	• Mersing, Johor • A 17 years old male student • Died at the scene of accident • Got hit by a taxi	Sinar Harian
June 2019	<i>Pelajar maut kemalangan motosikal</i>	• Pasir Puteh, Kelantan • A 16 years old male student • Died at the scene of accident because of severe injury • The male student lost control before colliding with the other motorcycle	BH online
June 2019	<i>Calon SPM maut kemalangan</i>	• Kemaman, Terengganu • A 17 years old male student • Died at the scene of accident because of severe injury • The student lost control before he got thrown on the road	Sinar Harian
May 2019	<i>Pelajar maut dirempuh lori</i>	• Kulim, Kedah • A 16 years old female student • Died at the scene of accident • The student lost control and enter an opposing lane before colliding with a lorry	Sinar Harian

April 2019	<i>Dua pelajar maut kemalangan jalan raya</i>	• Tanah Merah, Kelantan • Two 16 years old male students • One died at the scene of accident and one died in Hospital Tanah Merah • They lost control and enter the opposing lane before colliding with a van • Both of the students were not wearing helmets	BH online
April 2019	<i>Pelajar sekolah maut lintas jalan</i>	• Taiping, Perak • A 16 years old male student • Died at the scene of accident because of severe injury • Got hit by a car	Sinar Harian
March 2019	<i>Pelajar tingkatan 4 maut kemalangan</i>	• Kuala Selangor, Selangor • A 16 years old male student • Died at the scene of accident because of severe injury • The student fails to evade a car at the intersection before both motorcycle and car collided	Sinar Harian
February 2019	<i>Sempat salam tangan mak ayah sebelum maut kemalangan</i>	• Simpang Renggam, Johor • A 17 years old female student • Died at the scene of accident because of severe injury • Got hit by a car	Sinar Harian

January 2019	<i>Pelajar maut dalam perjalanan ke sekolah</i>	• Bachok, Kelantan • A pair of twins, 17 years old male students • Students hit the back part of a car in front of them then they were thrown into the opposing lane before getting hit by a MPV car	Astro Awani
July 2018	<i>Pelajar, pekerja restoran maut kemalangan tiga kenderaan</i>	• Alor Gajah, Melaka • A 17 years old female student and female adult • Student and female adult died at the scene of accident (both on the same motorcycle) • After the red traffic light turns green, student tries to overtake a lorry and a car before they got crushed under the lorry	BH online
November 2017	<i>Maut kemalangan pada hari terakhir sekolah</i>	• Kuala Terengganu, Terengganu • A 16 years old male student • The student suffered a severe head injury then died at the hospital • In a convoy, the student suddenly cross the road while the traffic light was red before getting hit by a car	BH online

Table 2.1: Road crashes involving secondary school students from 2017-2021

Table 2.1 shows the news of road crashes involving secondary school students from 2017-2021. Based on the table above, many secondary school students were involved in crashes because of their behaviour while riding motorcycle. Most students ride motorcycles at a high speed before they lose control. There are also students who ride motorcycle below the legal age and do not have a motorcycle license. Besides, students also committed traffic violations such as not wearing a helmet during riding motorcycle and violated red traffic lights. The most frequent traffic violations committed by young motorcyclists were red light running and speeding (Wong et al., 2010). Students also tried to overtake other vehicles while on the road causing students to be involved in crashes. Most of the students died at the site of the crashes due to their severe injuries. The news revealed that road crashes involving secondary school students should not be taken lightly.

2.3 Young Motorcycle Rider

WHO defines 'Young People' as individuals in the age of 10 – 24 years old. Usually, at this range of age, most people are still studying and some of them are working. At age of 10 – 12 years old and 13 – 17 years old young people went to primary school and secondary school respectively. At age 18 years old and above young people already entering colleges and universities. Therefore, young people also can be categorized as students. A study showed that over 70% of students always or frequently use motorcycles (Asonganyi et al., 2016). In addition, a higher active crash

incidence was reported by student riders and those with a lower education level (Nguyen-phuoc et al., 2020).

Asonganyi et al. (2016) stated young motorcyclists have an even higher risk compared to other age group people and the risks of motorcycle accident and death have been consistently shown to be highest among young people including in high-income countries such as the United States. In addition, only a few students were given formal training to ride a motorcycle. Asonganyi et al. (2016) clarified that young people which inexperienced in riding a motorcycle is explained by the high risk of motorcycle injury and death. Abdul Manan and Várhelyi (2012) added young motorcyclists are inexperienced, lack proper riding skills and often show risky behaviour, and most of them have no licences or have less than 3 years of experience as they are mostly self-taught by trial and error. Based on Journal Road Violations in Klang Valley, 28.1% of motorcyclists do not have a motorcycle license which especially young motorcyclists aged 16 – 20 years old and more than half of them riding a motorcycle without a license.

Young motorcyclists ride for enjoyment, expression and thrill and in doing so they tend to violate traffic laws for example by not wearing helmets and exceeding the speed limit (Abdul Manan & Várhelyi, 2012). A study found that to escape from heavy traffic, most young riders aged 17-21 are more likely to violate the traffic rules (Abdullah et al., 2018). While riding a motorcycle, the majority of students reported not wearing protective gear and a this study found that the use of protective gears has been shown to reduce motorcyclists' death and disability (Asonganyi et al., 2016). Young male drivers have more risky behaviours when driving compared to female and

older drivers and they are also bad in hazard perception compared to older drivers (McKenna et al., 1998).

2.4 Riding Behaviour

Based on the journal Psychological and Social Factors Influencing Motorcycle Rider Intentions and Behaviour (2007), riding behaviour is riding practices, rider intentions and behaviour of individual motorcyclists. A study stated that the primary contributor to crash risk is human error (Allen et al., 2017). Most of the crashes and injuries that lead to death are often attributed to human behaviour which are drunkenness, speeding, bad motorcycle condition (Asonganyi et al., 2016). A previous study describes risky riding behaviour as neglecting signal, mobile phone use while riding, encroaching car lanes, speeding, red-light running, carrying more than one passenger, smoke while riding, no helmet used, overtaking and drink alcohol while riding (Nguyen-phuoc et al., 2020). Sakashita et al. (2014) found the factors used to analyse the riding behaviour of novice riders are errors, speed violations, stunts and protective gear use. Risky riding behaviour such as riding attitude, sensation seeking, anger, and riding confidence are the four predictors examined in a previous study (Abdullah et al., 2018). As the results of the research, that risky riding behaviour is significantly affected by riding attitude, sensation seeking and anger (Abdullah et al., 2018). Huth et al. (2014) mentioned key areas of concern in the motorcycle riding behaviour are riders' behaviour, interactions among riders or with other road users, environment-related hazards and improvement suggestions for riding safety. Although, other road users

might influence riders to engage in risky riding behaviour (Huth et al., 2014). Official records of traffic crime are useful to understand risky riding behaviour (Sakashita et al., 2014). However, people do not always get caught for breaking road and traffic rules due to the variability in enforcement. The same study added most jurisdictions and countries not fully enforced for the use of safety equipment except for helmets. Therefore, understanding the risky riding behaviour of motorcyclists is important not just for the development of intervention but also for the assessment of interventions specifically targeted for motorcyclists (Sakashita et al., 2014). Riding behaviour will help to promote intervention of a safety risk for motorcyclists (Abdullah et al., 2018). Nguyen-phuoc et al. (2020) stated risky riding behaviour was more common among students. It was found that riders who were student are more likely to engage in risky riding behaviour, such as encroaching car lanes, exceeding speed limits, ignoring red lights, overtaking recklessly, and riding under the influence of alcohol (Nguyen-phuoc et al., 2020). Andy et al. (2015) mentioned that motorcyclists had involved in an accident often to commit certain driving violations and more aggressive. They are likely to perceive the risks of crashes as being caused by driving-related and environment-related factors. Abdullah et al. (2018) stated one of the dangerous riding behaviour is an attitude such as breaking traffic rules to escape from heavy traffic. Motorcycle riders are required to comply with road traffic rules to promote transport safety, such as riding on the right side of the road, driving in prescribed lanes for motorcycles where available, and using turn signals when turning at intersections (Nguyen-phuoc et al., 2020). The riders might be unwilling to accept the necessary contribution to the improvement of riding safety by changes in individual riding. In

this context, self-reflection should be encouraged (Huth et al., 2014). Nguyen-phuoc et al. (2020) stated binary logistic regression modelling found that it was significantly linked to self-reported active crash or fall involvement to fail to use turn signals, having more than one passenger and smoking while driving. Active accident crash or fall involvement was also associated with turn signal negligence (Nguyen-phuoc et al., 2020).

Other road users' behaviour apprehended by the riders was mainly characterised by unpredictable actions in which car drivers frequently put motorcyclists at risk by behaving recklessly, breaking traffic laws, and showing erroneous behaviour (Huth et al., 2014). The same study added riders need to properly evaluate the road situation and condition at any time and choose the appropriate reactions or defensive behaviours to avoid crashes. For this purpose, it is important to research the expectations and appreciations of the riders of relevant riding situations. In addition, experience helps riders to control situations and ability of riders to predict hazards, including the actions of other road users behaviour (Huth et al., 2014).

2.5 Motorcycle Rider Behaviour Questionnaire (MRBQ)

As the number of motorcycle crashes keeps rising year by year, the factors that contribute to these cases need to be recognized to ensure the motorcycle crashes can be controlled. Rider behaviour and rider attitude are the most important characteristics of the rider (Elliott et al. 2007). There is a need for a tool that can measure and predict riding behaviour. Elliott et al. (2007) developed a questionnaire which is the

Motorcycle Rider Behaviour Questionnaire (MRBQ) that has reliable questions to measure the behaviour of motorcyclists. This questionnaire developed based on Reason et al.'s (1990) Driving Behaviour Questionnaire (DBQ) as there are proves that DBQ is a valuable research tool to investigate driver behaviour. The Motorcycle Rider Behaviour Questionnaire (MRBQ) was designed to assess behavioural factors affecting the risk of accident for motorcyclists, including errors and violations, as well as the motorcycle safety equipment by self-reporting (Sakashita et al., 2014). MRBQ is a similar tool as DBQ as both of it are focusing on behaviour and its relation to road safety. Therefore, they are many tools used to analyse human behaviour. In a previous study, Özkan et al. (2012) use Motorcycle Rider Behaviour Questionnaire (MRBQ), Theory of Planned Behaviour, Health Belief Model and Locus of Control to analyse the motorcycle riding behaviour among respondents

Sakashita et al. (2014) stated when alternative data collection approaches such as direct observations and official records are not feasible due to restricted research resources, self-report can be a valuable additional tool. Sakashita et al. (2014) stated developing and testing a self-report indicator of riding behaviours such as the MRBQ is useful for study and practice in motorcycle safety. It is important to ensure the validity and reliability of any research methods, including the MRBQ, before their broader use (Sakashita et al., 2014). Elliott et al. (2007) added this questionnaire was able to test which types of behaviour that predict motorcyclists' accident risk. Motorcycle Rider Behaviour Questionnaire (MRBQ) such a tool that combine factors such as traffic errors, control errors, speed violations, performance stunts and use of safety equipment that reliably measure all aspects of riding behaviour (Elliott et al. 2007). MRBQ has

43 items under 5 main components include traffic errors, control errors, speed violations, performance stunts and use of safety equipment. The respondents required to answer to the MRBQ on 6-point scales (1, never, 2, hardly ever, 3, occasionally, 4, quite often, 5, frequently, and 6, nearly all the time). MRBQ scores are the addition of each item score and dividing the answer by the number of items, therefore each scale score ranged from 1 to 6 (Sakashita et al. 2014).



CHAPTER 3

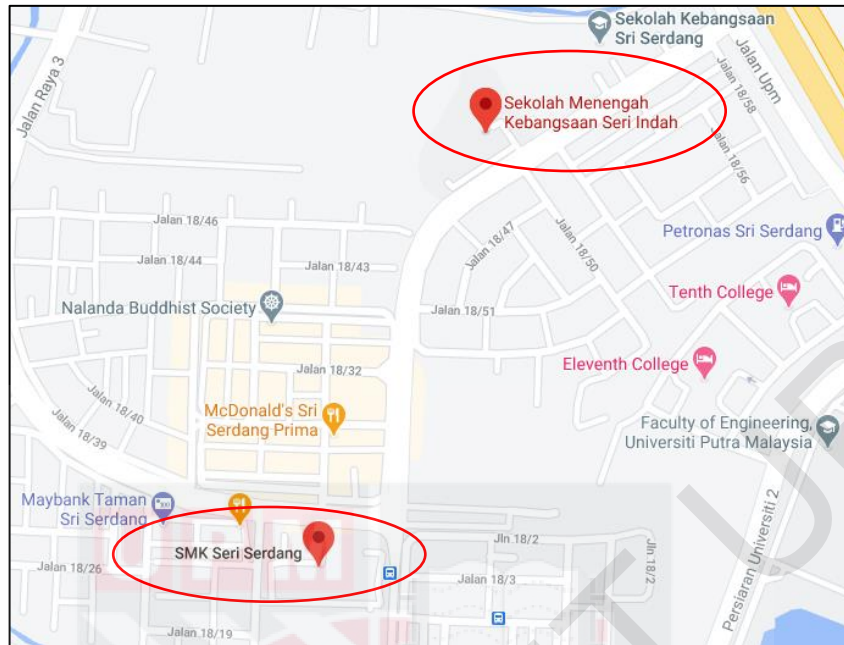
METHODOLOGY

3.1 Study Design

A cross-sectional study design was used to achieve the research aims. Cross-sectional designs entail the collection of data on more than one case at a single point in time, after which the data are examined to detect patterns of association. The cross-sectional study design was used among secondary school students in 2 secondary schools in Sri Serdang using MRBQ which was conducted from April 2021 until June 2021.

3.2 Study Location

This study was carried out at two secondary schools in Sri Serdang area which are SMK Seri Serdang and SMK Seri Indah. As seen from Figure 3.1, both schools were located near the main roads of Sri Serdang area. Traffic jam is inevitable on main roads especially during peak hours. In order to avoid traffic jam, motorcyclists perform speeding even they are riding near the school area. A previous study found both speed and traffic intensity are dangerous for motorcyclists (Asonganyi et al., 2016).



(Source: Google maps)

Figure 3.1: Study location.

3.3 Study Population

Secondary school students that consist of male and female who age 16 years old with different race were randomly selected as the study population.

3.4 Sampling

3.4.1 Sampling Frame

The sampling frame refers to the name list of students from each school administration.

3.4.2 Inclusion Criteria

The inclusion criteria are secondary school students which age 16 years old with at least one-year experience of riding a motorcycle and have a motorcycle license.

3.4.3 Exclusion Criteria

The exclusion criteria are any secondary school students aged below 16 years old and have less than one year experience of riding a motorcycle or cannot ride a motorcycle at all.

3.4.4 Sampling Method

This study has received approval from Ethic Committee for Research Involving Human Subjects (JKEUPM). In order to conduct research among students, approvals from Ministry of Education (MOE) and Selangor State Education Selangor were needed. Total of 20 working days to obtain the approvals from both ministry and department. The name list of the respondents obtained from the school administration through the principal of both schools which are SMK Seri Serdang and SMK Seri Indah. The sampling method used for this study is Simple Random Sampling. The respondents were randomly selected using a random number generator from the name list obtained. The respondents also needed to comply with the inclusion criteria which are secondary school students who age 16 years old with one-year experience of riding a motorcycle and have a motorcycle license to be selected in this study.

3.4.5 Sample Size

Lemeshow et al. (1990) formula for group comparison was used to calculate the sample size to obtain the number of respondents. This formula used to calculate the sample size as shown below.

$$n = \frac{\left(Z_{1-\alpha/2} \sqrt{2\bar{P}(1-\bar{P})} + Z_{1-\beta} \sqrt{P_1(1-P_1) + P_2(1-P_2)} \right)^2}{(P_1 - P_2)^2}$$

Where,

$Z_{1-\alpha/2}$ = Standard error associated with confidential interval, 95% CI = 1.96

$Z_{1-\beta}$ = Standard error associated with power, 84.2% of power = 0.842

P_1 = estimated proportion (larger)

P_2 = estimated proportion (smaller)

Where,

$Z_{1-\alpha/2}$ = Standard error associated with confidential interval, 95% CI = 1.96

$Z_{1-\beta}$ = Standard error associated with power, 84.2% of power = 0.842

P_1 = estimated proportion = 87.8% (Md Isa et al., 2011)

P_2 = estimated proportion = 12.2% (Md Isa et al., 2011)

$$= \frac{\left(1.96 \sqrt{2(0.500)(1-0.500)} + 0.842 \sqrt{0.878(1-0.878) + 0.122(1-0.122)}\right)^2}{(0.878 - 0.122)^2}$$

$$= 60$$

= 60 respondents each comparative group which are male students and female students

Based on the calculation, 60 respondents for each male and female secondary school students was needed for each comparative group. For the strength of analysis of the study, the number of respondents increased by 20% to consider non-responsive respondents, missing data and errors. Therefore the total of respondents needed for this study is 144 respondents.

3.4.6 Sampling Flowchart

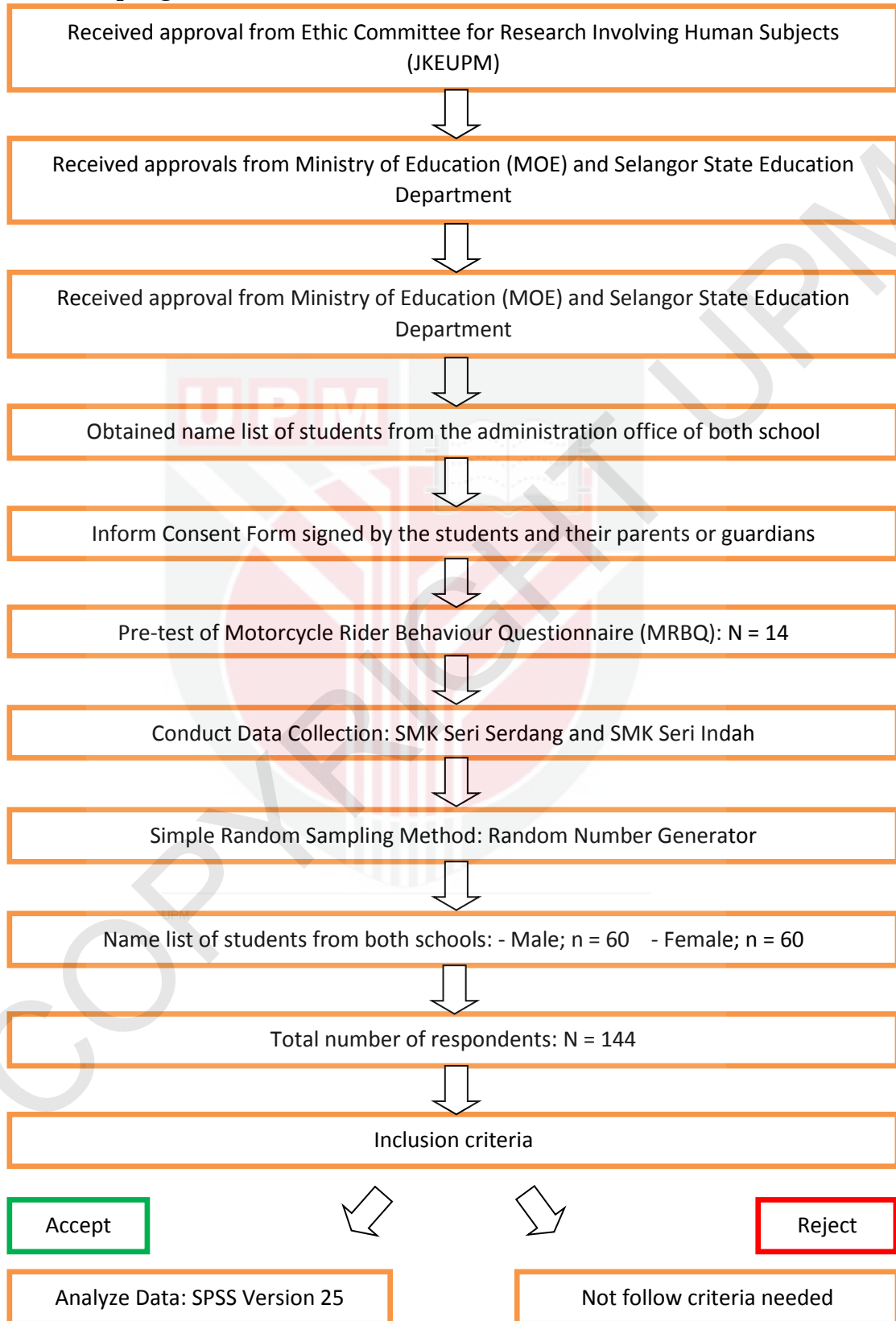


Figure 3.2: Research flowchart

3.5 Study Instrument and Data Collection

3.5.1 Questionnaire

A self-reported questionnaire was used to study the riding behaviour among secondary school students. Online data collection conducted via a google form. The questionnaire is available in a dual-language which are in English and Malay version. Dual language version will allow the respondents to understand and answer the questions easily. The questionnaire in this study was adopted from the Malaysian version of the Motorcycle Rider Behaviour Questionnaire (MRBQ). The original Malaysian version (Azman et al., 2017) uses MRBQ as an instrument to study riding behaviour among motorcyclists in Klang Valley. Factors included in MRBQ of the previous study in Klang Valley are traffic errors, speed violations, stunts, safety equipment, and control errors. Meanwhile, the questionnaire in this study includes 5 factors; safety violation, traffic error, speeding, safety equipment and precaution. Other elements also asked on the questionnaire such as demographic details, riding experiences, summon details crash involvement of respondents and injuries sustained in crashes. The fundamental components analysis on the Malaysian version of the MRBQ showed five-factor solutions; safety violations, traffic errors, speeding, safety equipment and precaution.

Variables	Questions
Traffic Error	Fail to notice that pedestrians are crossing when turning into a side street from a main road
	Not notice someone stepping out from behind a parked vehicle until it is nearly too late
	Not notice a pedestrian waiting to cross at a zebra crossing, or a pelican crossing that has just turned red
	Pull out on to a main road in front of a vehicle that you had not noticed, or whose speed you have misjudged
	Miss "Give Way" signs and narrowly avoid colliding with traffic having the right of way
	Fail to notice or anticipate that another vehicle might pull out in front of you and have difficulty stopping
	Queuing to turn left on a main road, you pay such close attention to the main traffic that you nearly hit the vehicle in front
	Distracted or pre-occupied, you belatedly realise that the vehicle in front has slowed and you have to brake hard to avoid a collision.
	Attempt to overtake someone that you had not noticed to be signalling a right turn
	When riding at the same speed as other traffic, you find it difficult to stop in time when a traffic light has turned against you
	Run wide when going round a corner
	Find that you have difficulty controlling the bike when riding at speed (e.g. steering wobble)
	Skid on a wet road or manhole cover
	Have trouble with your visor or goggles fogging up
	Driver deliberately annoys you or puts you at risk

Speeding

Ride so close to the vehicle in front that it would be difficult to stop in an emergency

Race away from traffic lights with the intention of beating the driver/rider next to you

Ride between two lanes of fast-moving traffic

Ride so fast into a corner that you scare yourself

Ride above the speed limit in the motorcycle lane

**Safety
Violation**

Ride so fast into a corner that you feel like you might lose control

Exceed the speed limit on a country/rural road

Disregard the speed limit late at night or in the early hours of the morning

Exceed the speed limit on a highway

Exceed the speed limit on a residential area

Open up the throttle and just 'go for it' on country roads

Get involved in unofficial 'races' with other riders or drivers

Attempt to do, or actually do, a wheelie

Pull away too quickly and your front wheel comes off the road

Intentionally do a wheel spin

Unintentionally do a wheel spin

Ride when you suspect you might be over the legal limit for alcohol or under the influence of drugs

Cross a junction while the traffic light is red

Ride in the opposite direction of the traffic flow/roadway

Ride on the sidewalk

Talk on a mobile phone while riding.

Type text messages on a mobile phone while riding

Read text messages on a mobile phone while riding

I brought more than one passenger

	Ride without wearing a helmet for a short trip (example: residential area)
Safety Violation	Wear a helmet without the chinstrap Try or done a "stoppie" action (sudden stop until the rear wheel is lifted) Try or done superman action
Safety Equipment	Wear riding boots? Wear protective trousers (leather or non-leather)? Wear a protective jacket (leather or non-leather)? Wear body armor (elbow pads, shoulder pads, knee pads, etc.) Wear no protective clothing? Wear gloves? Wear a leather one-piece suit? Wear bright/fluorescent clothing?
Precaution	Wear bright/fluorescent strips/patches on your clothing Use dipped headlights on your bike Brake or throttle-back when going round a corner or bend Change gear when going round a corner or bend Use a motorcycle lane when provided Give signal when turning right at the intersection Give signal when changing lanes on the highway Give signal when changing lanes on a commercial road (not the highway)

Table 3.1: Items of MRBQ according to factors

3.6 Quality Control

3.6.1 Pre-test Questionnaire

This questionnaire had undergone constructive and reliability testing. A pre-test conducted for constructive testing. The pre-test is conducted to 10% of the sample size that has similarity in characteristics to the study population to make sure the validity and reliability of data obtained. The value obtained for Cronbach's alpha was 0.872. After that process, the questionnaire revised and modified if needed.

3.7 Data Analysis

The data obtained analysed by using IBM SPSS Statistics version 25. The type of analysis which was used for this study as shown in Table 3.2, based on the specific objectives in this study.

Specific Objectives	Tests
1. To study the socio-demographic factors among secondary school students in Sri Serdang.	Descriptive analysis
2. To determine the MRBQ rating (traffic error, safety violation, speeding, safety equipment and precaution) among secondary school students.	Descriptive analysis
3. To determine the road crash involvement among secondary school students.	Descriptive analysis
4. To compare the road crash involvement between male and female secondary school students.	Chi-square
5. To compare the MRBQ factors (traffic error, safety violation, speeding, safety equipment and precaution) between male and female secondary school students.	Mann-Whitney U
6. To identify the significant road crash predictors among secondary school motorcyclists.	Logistic Regression

Table 3.2: Data Analysis outcomes

3.8 Ethical Consideration

This study had reviewed and approved by Ethic Committee for Research Involving Human Subjects (JKEUPM), University Putra Malaysia before the data collection process started. This study also approved by the Ministry of Education (MOE) and the Selangor State Education Department as the study involving secondary school students. A consent form had given to each of the respondents as an agreement to participate in this study. A consent form also had given to the respondents' parents or guardians as the respondents are age under 18 years old. The consent form needs to be read and signed at the beginning of the study. Participation of the respondents for this study is voluntary and without any involvement from other parties. All the information obtained from this study kept confidential and only be used for this study. Questions from the respondents are welcome regarding this study.

CHAPTER 4

RESULTS

4.1 Sociodemographic Factors and Riding Background of Secondary School Students

The whole sample consisted of 144 secondary school students from SMK Seri Serdang and SMK Seri Indah. The participation of the respondents was voluntary based and respondents were selected according to the inclusion criteria of this study. Table 4.1 shows that 72 male respondents and 72 female respondents participated in this study.

All the respondents' age was 16 years old. Majority of the respondents were Malay with a total of 90.3% while only 3.5%, 4.9% and 1.4% of the respondents were Chinese, Indian and Others, respectively. None of the respondents has a B full license. Most of the respondents have a B2 license (98.6%) and only 1.4% of them have a B1 license. For the license status, about 79.9% and 20.1% were P license and L license, respectively. All the respondents obtained their license at age of 16 years old to meet the inclusion criteria of this study. Almost 68.8% of the respondents riding motorcycle unlicensed at the age between 13 to 16 years old while only 31.3% of them were riding at age 9 to 12 years old. The result of age riding unlicensed shown an average of 13.92 ± 1.969 .

Table 4.1: Sociodemographic Factors and Riding Background of respondents

Variables	Frequency (N=144)	%	Mean±SD
Gender			
Male	72	50.0	
Female	72	50.0	
Race			
Malay	130	90.3	
Chinese	5	3.5	
Indian	7	4.9	
Others	2	1.4	
License type			
B	0	0	
B1	4	1.4	
B2	142	98.6	
License status			
P	115	79.9	
L	29	20.1	
Age of riding unlicensed			13.92±1.969
9-12	45	31.3	
13-16	99	68.8	

There were 63.2% of the respondents' main purpose of riding a motorcycle were go back or forth to school while 13.2% and 23.6% were for recreational or convoy and others, respectively. The result showed that the weekly riding hours were 1 hour (55.6%), 2 hours (34.7%) and more than 2 hours (9.7%). Based on table 4.2 below, respondents reported the traffic condition during riding a motorcycle were Uncertain (41.0%), Smooth (24.3%), Very Smooth (21.5), congested (9.7%) and standstill (3.7%). There were 14.6% of respondents have charged for traffic violation in the past 3 years and the rest 85.4% of respondents never been charged.

The signal light usage was ranked between 1 to 6 point of scale which are Never, Hardly ever, Occasionally, Quite often, Frequently and Nearly all the time. The result showed that none of the respondents never use a signal light while riding motorcycle. There were the majority of respondents reported that they used the signal light Nearly all the time (43.1%), Frequently (31.3%) and Quite often (13.9%). Among the respondents, only 2.1% and 9.7% used the signal light Hardly ever and Occasionally, respectively. The reason of respondents not to use the signal light at the junction were Forgot (34.7%), Lazy (9.0%), Other motorcyclists not giving signal (6.9%), Unimportant (4.2%), Do not have time to give signal (1.4%) and Not necessary (1.4%). 42.4% of respondents have no reason not to use signal light at a junction.

Table 4.2: Riding background of respondents involved in this study

Variables	Frequency (N=144)	%
Main purpose of riding motorcycle		
Go back/forth to school	91	63.2
Recreational/Convoy	19	13.2
Others	34	23.6
Weekly riding hours		
1 hour	80	55.6
2 hours	50	34.7
> 2 hours	14	9.7
Traffic condition		
Uncertain	59	41.0
Standstill	5	3.5
Congested	14	9.7
Smooth	35	24.3
Very smooth	31	21.5
Charged for Traffic Violation		
Yes	21	14.6
No	123	85.4
Signal light usage		
Never	0	0
Hardly ever	3	2.1
Occasionally	14	9.7
Quite often	20	13.9
Frequently	45	31.3
Nearly all the time	62	43.1
Reason not to use signal light		
Lazy	13	9.0
Forgot	50	34.7
Unimportant	6	4.2
Do not have time to give signal	2	1.4
Not necessary	2	1.4
Others motorcyclist not giving signal	10	6.9
None	61	42.4

4.2 The MRBQ Rating

The MRBQ rating was ranked between 1 to 6 point of scale which are Never, Hardly ever, Occasionally, Quite often, Frequently and Nearly all the time. The result showed that the Precaution factor (3.58 ± 0.185) has the highest mean compared to other MRBQ factors. The rest of MRBQ factors, Traffic error (2.10 ± 0.155), Speeding (1.93 ± 0.100), Safety violation (1.84 ± 0.213) and lastly Safety Equipment (1.74 ± 0.366) with the lowest mean of MRBQ rating.

Table 4.3: Descriptive statistic of MRBQ rating

Variables	Mean $\pm$ SD
Traffic Error	2.10 ± 0.155
Safety Violation	1.84 ± 0.213
Speeding	1.93 ± 0.100
Safety Equipment	1.74 ± 0.366
Precaution	3.58 ± 0.185

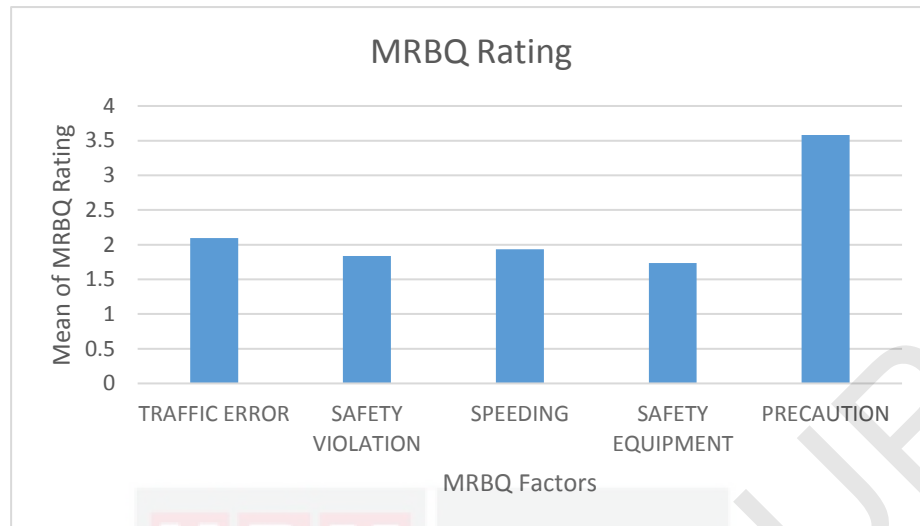


Figure 4.1: Mean of MRBQ rating among respondents

Based on Table 4.4 below, MRBQ factors of the respondents were Speeding (54.9%), Safety violation (53.5%), Safety equipment (52.1%), Precaution (50.0%) and Traffic error (48.6%). The study revealed that the Speeding factor is the highest frequency of reported MRBQ factors among the respondents.

Table 4.4: The frequency of MRBQ factors among the respondents

MRBQ Factors	Frequency (%)	
	Yes	No
Traffic Error	70(48.6)	74(51.4)
Safety Violation	77(53.5)	67(46.5)
Speeding	79(54.9)	65(45.1)
Safety Equipment	75(52.1)	69(47.9)
Precaution	72(50.0)	72(50.0)

4.3 The Crash Involvement of Secondary School Students

The frequency of near-miss crashes and road crashes involved by the respondents shown in Table 4.5 below. Based on the table, near-miss crashes involved by the respondents were Never (30.6%), 1 to 2 times (38.9%), 3 to 5 times (24.3%), 6 to 10 times (4.9%) and more than 10 times (1.4%). There were 68.8% of respondents reported Never involved in road crashes while 29.9% and 1.4% of respondents were involved in road crashes 1 to 2 times and 3 to 5 times, respectively. None of the respondents was involved in road crashes 6 to 10 times and more than 10 times in the past 12 months.

Table 4.5: The frequency of crash involvement involved by the respondents

Variables	Frequency (N=144)	%
Near-miss Crashes		
Never	44	30.6
1 to 2 times	56	38.9
3 to 5 times	35	24.3
6 to 10 times	7	4.9
> 10 times	2	1.4
Road Crashes		
Never	99	68.8
1 to 2 times	43	29.9
3 to 5 times	2	1.4
6 to 10 times	0	0
> 10 times	0	0

Table 4.6 below shows near-miss crashes and road crashes in the last 12 months between male and female respondents. From a total of 72 male respondents who have participated in this study, 80.6% of respondents were involved in near-miss crashes and only 19.4% of respondents were not. For female respondents, the result has shown that 58.3% of respondents were involved in near-miss crashes and 41.7% of respondents were not involved in near-miss crashes. Moreover, 41.7% of male respondents and 20.8% of female respondents were involved in road crashes in the past 12 months. The rest, 58.3% of male respondents and 79.2% of female respondents were not involved in any road crashes in the past 12 months.

Table 4.6: The crash involvement between male and female respondents

Variables	Frequency (%)	
	Male (n=72)	Female (n=72)
Near-miss Crashes		
Yes	58(80.6)	42(58.3)
No	14(19.4)	30(41.7)
Road Crashes		
Yes	30(41.7)	15(20.8)
No	42(58.3)	57(79.2)

4.4 Comparison of Crash Involvement Between Gender

Table 4.7 shows the comparison of crash involvement between male and female respondents. Crash involvement has been divided into two categories which were near-miss crashes and road crashes. Chi-square test was performed and result showed that there is significant difference for both near-miss crashes ($\chi^2 = 14.829$, $p = 0.001$) and road crashes ($\chi^2 = 7.273$, $p = 0.007$) between male and female respondents. The crash involvement of male respondents is higher compared to female respondents for both near-miss crashes and road crashes.

Table 4.7: The comparison of crash involvement between male and female respondents

Variables	Study groups (N=144)		df	χ^2	p-value
	Male (n=72)	Female (n=72)			
Near-miss Crashes			1	14.829	0.001**
Yes	58	42			
No	14	30			
Road Crashes			1	7.273	0.007*
Yes	30	15			
No	42	57			

* Significant at $p < 0.05$

** Significant at $p < 0.001$

4.5 Comparison of MRBQ Factors Between Gender

The median of MRBQ factors which Traffic error, Safety violation, Speeding, Safety equipment and Precaution were compared among male and female respondents by using the Mann-Whitney U test. Mann-Whitney U test was conducted since the data is not normally distributed. The result shown that there is significant difference for four MRBQ factors which Traffic error ($p = 0.001$), Safety violation ($p = 0.001$), Speeding ($p = 0.001$) and Safety equipment ($p = 0.001$) between male and female respondents.

Table 4.8: The comparison of MRBQ factors of the respondents based on gender

Variables	Median (IQR)		z	p-value
	Male (n=92)	Female (n=92)		
Traffic Error	36.50(17)	25.00(12)	-5.402	<0.001**
Safety Violation	49.00(23)	33.00(11)	-6.536	<0.001**
Speeding	11.00(8)	6.50(3)	-6.714	<0.001**
Safety Equipment	14.50(9)	12.00(5)	-3.812	<0.001**
Precaution	29.50(13)	31.50(16)	-0.182	0.856

**** Significant at $p < 0.001$**

4.6 Significant Crash Risk Predictors among Secondary School Motorcyclists

Table 4.9 shown the significant crash risk predictors among secondary school students. There were two MRBQ factors have significant difference with the road crash which were Traffic error (OR = 0.370, 95% CI = 0.162 – 0.845) and Safety equipment (OR = 2.385, 95% CI = 1.007 – 5.281). Based on the result, the respondents that have traffic error above the average was 0.370 times (95% CI = 0.162 – 0.845) more likely to exposed to a road crash. Meanwhile, respondents who have safety equipment above the average was 2.385 times (95% CI = 1.007 – 5.281) less likely to exposed to a road crash.

Table 4.9: Logistic regression of the significant road crash predictors among the respondents

MRBQ Factors	OR	95% CI		p-value
		Lower	Upper	
Traffic Error	0.370	0.162	0.845	0.018*
Safety Equipment	2.385	1.077	5.281	0.032*

* Significant at $p < 0.05$

CHAPTER 5

DISCUSSION

5.1 Sociodemographic Factors and Riding Background of Secondary School Students

A total of 144 secondary school students have participated in this study. 72 respondents were male and the other 72 respondents were female. The students' age was 16 years old meeting with the inclusion criteria of the study. The majority of the students were Malay and the rest were Indian, Chinese and Others.

In this study, all of the students have obtained their motorcycle license at the age of 16 years old. However, most of the students already ride motorcycle unlicensed as early as 9 years old and the average of the students riding a motorcycle without a license was around 13 years old. Riding a motorcycle without a license was considered a traffic law violation according to Road Transport Act 1987 under section 26. Students who have violated this law may be fined not less than RM300 or more than RM2000 or imprisoned for a term that not exceed three months or both.

The majority of the students' main purpose of riding a motorcycle was to go back or forth to school. Most of them also used motorcycle as their main daily transportation. For the traffic condition during riding a motorcycle, most of the students reported the traffic condition was uncertain, followed by smooth, very smooth, congested and lastly standstill traffic condition. Depending on the time of the students riding the motorcycle, the traffic condition could be uncertain, either smooth or congested.

Young riders engage in risky riding behaviour such as speeding or squeezing between vehicles as long as the traffic condition appears good to do it (Wong et al., 2010). A previous study mentioned that men were more likely to react angrily and aggressively while riding especially during traffic jams compared to women (Lyu et al., 2018). It concludes that traffic condition may be the factor for the students to perform risky behaviour while riding a motorcycle.

Based on the result, there were few students have charged for a traffic violation in the past 3 years and most of the students never been charged for the traffic violation. The majority of students stated that they have used signal light nearly all the time and followed by frequently, quite often, occasionally and hardly ever. Result reported that none of the students never use the signal light while riding a motorcycle. The reason of the students not to use the signal light were mostly because of forgot and followed by lazy, other motorcyclists not giving signal, unimportant, do not have time to give signal and not necessary. Most of them have no reason not to use the signal light at the junction.

5.2 The MRBQ Rating

MRBQ factors consist of five elements which are traffic error, safety violation, speeding, safety equipment and precaution. MRBQ factors divided into two which are undesirable or negative behaviour and positive behaviour from a road safety perspective. Traffic error, safety violation and speeding categorized as negative behaviour while safety equipment and precaution factors considered as a positive

behaviour. A previous study mentioned that there are five factors in the Malaysian version of MRBQ; safety violation, speeding, traffic error, safety equipment and precaution (Azman et al., 2017).

Precaution factor has the highest mean of MRBQ rating among those five factors and followed by traffic error, speeding, safety violation and safety equipment. Azman et al. (2017) stated that the speeding factor has the highest mean in their study. However, safety equipment and precaution factors did not included in the study.

The question that scores the highest mean in precaution factor was “Give signal when changing lanes on the highway”. From the result, it concludes that the average of students always give signal when changing lanes while riding a motorcycle on the highway. This is a positive behaviour practised by most of the students.

Next, the safety equipment section showed that the “Wear bright/fluorescent clothing?” question has the highest mean score. From this, it is shown that average of the students always wears bright colour cloth while riding a motorcycle. It concludes that most of the students wearing bright cloth while riding motorcycle are a positive behaviour in the road safety perspective. Usage of safety equipment while riding motorcycle helps the motorcyclists prevent possibilities involved in road crashes or any harm on the road.

In traffic error factor, the highest mean was “Ride wide when going round a corner” and for the safety violation factor, the highest mean score was “Ride without wearing a helmet for a short trip (example: residential area). The result showed that an average of the students ride wide when going round a corner and they have riding motorcycle

without wearing a helmet for a short trip for example at the residential area. Those undesirable behaviour performed by the students may become factors that involving the students in any harm or road crashes.

Lastly, the question that scores the highest mean in speeding factor was “Ride above the speed limit in the motorcycle lane”. The result indicated that an average of the students has performed riding motorcycle above the speed limit in the motorcycle lane. Previous study also mentioned that most motorcyclists were riding motorcycle exceeding the speed limit on a motorway (Azman et al., 2017).

5.3 The Crash Involvement of Secondary School Students

In this study, crash involvement is divided into two types which are near-miss crashes and road crashes. Near-miss crashes specify any near-miss crashes experienced by the students in the past 12 months while road crashes considered as crashes that have been involved by the students within 12 months. The result has shown that the frequency of the students involved in near-miss crashes was higher than the students involved in road crashes. Same goes for the previous study in which the involvement of the young motorcyclists was higher in near-miss crashes compared to involvement in road crashes (Azman et al., 2017). Asonganyi et al. (2016) stated fatalities and crashes can be caused by lack of training, speeding and riding motorcycle inexperience. Previous study mentioned young riders are seen as a high-risk group on the road because of their low exposure to riding and they are more likely to be involved in road crashes (Lyu et al., 2018).

5.4 Comparison of Crash Involvement Between Gender

Male students have shown a higher frequency in road crash involvement compared to female secondary school students. Previous study also mentioned that young male motorcyclists more likely to be involved in a road accident compared to young female motorcyclists (Azman et al., 2017). Getrude et al. (2020) stated that female riders are more concerned than male riders about the possibilities to be involved in a road accident.

5.5 Comparison of MRBQ Factors Between Gender

MRBQ factors were compared between male and female secondary school students. The result has shown that four factors significantly difference for both genders. The four factors were traffic error, safety violation, speeding and safety equipment. From the road safety perspectives, the level of traffic error, safety violation, speeding and safety equipment was different between genders. A significant difference and intercorrelate with gender have shown in speeding, stunts and protective gear factors (Sakashita, 2014). Wong et al. (2010) revealed that young riders who tend to perform speeding, break traffic laws and consider riding as recreation are engage in more risky riding behaviour.

The male and female students showed a significant difference in the undesirable or negative factors which are traffic error, safety violation and speeding. Both genders also show a significant difference in positive behaviour on road perspective which is

safety equipment. Asonganyi et al. (2016) mentioned among female, the use of protective gear was particularly low compared to male. Both male and female students did not show any significant difference in precaution factor. It concludes that in the term of road safety, both genders may take the same level of precaution. Precaution factor was considered as a positive behaviour which mean both genders engage while riding a motorcycle on the road.

5.6 Significant Crash Risk Predictors among Secondary School Motorcyclists

In this study, traffic error and safety equipment have significant difference with the road crash. Secondary school students who have traffic error above the average was 0.370 times more likely involved in a road crash. Meanwhile, students who have safety equipment above the average was 2.385 times less likely exposed to a road crash. Azman et. al (2017) revealed in their study, young motorcyclists who practice traffic error are 1.381 times more likely to involve in a road accident. Azman et. al (2017) added that traffic error was the significant predictor of crash involvement among young motorcyclists in Klang Valley. Sakashita (2014) mentioned the significant predictors for near-miss crashes and road crashes are speed violations and errors.

From the findings, the intervention program and training could be proposed and conduct to reduce the road crashes occurrence in this specific population which is secondary school students. The reduction of risky riding behaviour should be done at the early stage. Factors such as gender, traffic error and safety equipment need to be considered to ensure the best interventions for this targeted population.

CHAPTER 6

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

In conclusion, the precaution factor has the highest mean of MRBQ rating and followed by traffic error, speeding, safety violation and lastly the lowest mean of MRBQ rating was safety equipment. The prevalence of the students' involvement in road crashes was 31.2% while 68.8% of students were never involved in road crashes. Male students have higher crash involvement compared to female students. The Mann-Whitney U test result showed that traffic error, safety violation, speeding and safety equipment have a significant difference between male and female secondary school students. Male students has higher score in four MRBQ factors which are traffic error, safety violation, speeding and safety equipment compared to female students. This study shows that traffic error and safety equipment factors were the road crashes significant predictors among secondary school motorcyclists. Students who have traffic error above the average was 0.370 times more likely involved in a road crash. Meanwhile, students who have safety equipment above the average was 2.385 times less likely exposed to a road crash. Gender, traffic error and safety equipment were the factors that found to influence the road crash risk. Furthermore, this study will provide baseline data to the related organization such as MIROS to propose prevention and intervention programs for this specific population. This organization prevention and intervention programs will help to reduce the road crash involvement of secondary school students and also developing more trained and safe riders in the future.

6.2 Study Limitation

There were some limitations in this study that can be improved upon. First, this study relied on the questionnaire which the exact validity cannot be proven. By using a questionnaire, several factors may influence how the respondents responded to the question given. Due to COVID-19 constraint, schools were closed and all the students undergo home-based teaching and learning (PdPR) in their home. Therefore, the researcher unable to observe each of the respondents answering the questionnaire due to the online method of survey. Besides, there were many possibilities for the inconsistency of the results.

Other than that, this study was solely based on the questionnaires from MIROS and previous study from local and other countries. Due to the COVID-19, the targeted sample size cannot be fulfilled. The data collection conducted from April 2021 until June 2021 which at that time Movement Control Order (MCO) has been announced by the Prime Minister of Malaysia. However, more than 120 respondents were obtained which meet the minimum sample size.

6.3 Recommendation

Firstly, a larger number of samples of secondary school students are needed to ensure better results. A larger number of samples also helps to make the samples more representative. Continuous measurement of the risky riding behaviour of the students by using this study results as baseline data is needed. Due to this, a cohort study can be done to monitor whether the behaviour more towards positive or negative riding behaviour. Various groups of population in Malaysia and also various location include urban and rural areas are recommended for the next similar study. Other than that, an intervention program focusing on Motorcycle Safety Riding should be conducted among secondary school students. The training module on road safety can be improvised by emphasizing several factors such as gender, traffic error and safety equipment that have an impact on to road crash involvement of the respondents.

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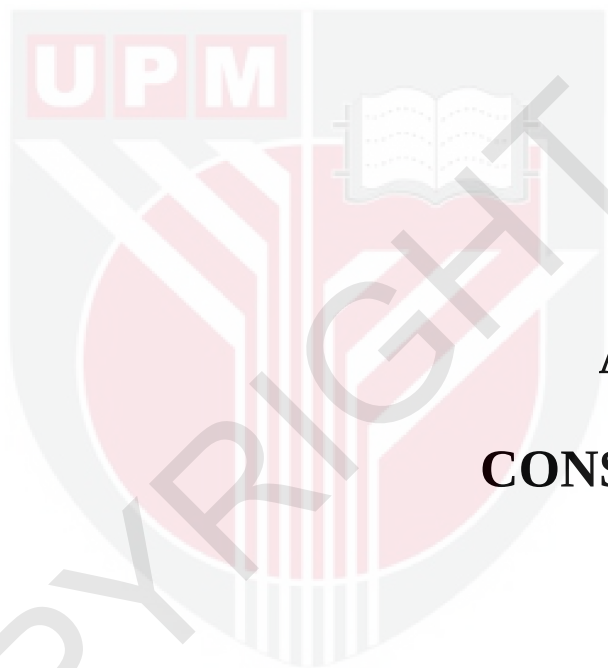
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APPENDIX 1

CONSENT FORM



FORM 2.4: RESPONDENT'S INFORMATION SHEET AND INFORMED CONSENT FORM

Please read the following information carefully and do not hesitate to discuss any questions you may have with the researcher.

1. STUDY TITLE :

Riding Behaviour among Secondary School Students in Sri Serdang, Selangor.

2. INTRODUCTION:

In Malaysia, road crashes are a never-ending problem and continue to increase year by year. Young motorcyclists have been believed as group who prone to road accident involvements in Malaysia and it is the most concern issue nowadays. As household incomes rise, people desire to have their own vehicles. Motorcycles are most likely chosen as daily transportation because it are fuel efficient and affordable to purchase and maintain. Therefore, young people prefer motorcycles as their mode of transportation to move from one place to another. This study will specifically focus on the aged 16 years old by using the Malaysian version of the Motorcycle Riding Behaviour Questionnaire (MRBQ) as the instrument to determine the riding behaviour among secondary school students in Sri Serdang, Selangor.

3. WHAT WILL YOU HAVE TO DO?

First of all, you have to sign the consent form to show that you are interested to participate in this study. Then, you need to read all the information given and understand every instruction and information stated in the consent form. You required to answer all the questions in this questionnaire. The questionnaire consists of section A: Respondent Background Information, section B: Motorcyclist Behaviour. The duration expected for a participant to answer this questionnaire is about 15 minutes.

4. WHO SHOULD NOT PARTICIPATE IN THE STUDY?

Participants who should not participate in this study are any secondary school students aged below 16 years old and have no experience of riding a motorcycle or cannot riding a motorcycle.

5. WHAT WILL BE THE BENEFITS OF THE STUDY:

(a) TO YOU AS THE SUBJECT?

This study will provide the subject knowledge about the level of behaviour during riding a motorcycle whether the subject is a risk-taker or not.

(b) TO THE INVESTIGATOR?

This study will help the investigator to determine the riding behaviour of motorcyclists among secondary school students. This data can be used as baseline data for future research related to the riding behaviour of the motorcycle rider.

6. WHAT ARE THE POSSIBLE RISKS?

There is no possible risk available in this study.

7. WILL THE INFORMATION THAT YOU PROVIDE AND YOUR IDENTITY REMAIN CONFIDENTIAL?

All information obtained from this study will be kept confidential and will only be used for this study.

8. WHO SHOULD YOU CONTACT IF YOU HAVE ADDITIONAL QUESTIONS DURING THE COURSE OF THE RESEARCH?

If you have any questions and curiosity about this study, you may contact the supervisor of this study, Dr Karmegam Karupiah at 03 8947 2513 or megam@upm.edu.my or the investigator of this study, Aimi Zafirah Husna Binti Hashim at 017-7491590 or aimizafirah12@gmail.com.

Please initial here if you have read and understood the contents of this page_____

9. CONSENT

I Identity Card No.
address.....
.....hereby voluntarily agree to take part in
the research stated above *(clinical /drug trial/video recording/ focus group/interview-based/
questionnaire-based).

I have been informed about the nature of the research in terms of methodology, possible
adverse
effects and complications (as written in the Respondent's Information Sheet). I understand
that I have the right to withdraw from this research at any time without giving any reason
whatsoever. I also understand that this study is confidential and all information provided with
regard to my identity will remain private and confidential.

I* wish / do not wish to know the results related to my participation in the research

I agree/do not agree that the images/photos/video recordings/voice recordings related to me
be used in any form of publication or presentation (if applicable)

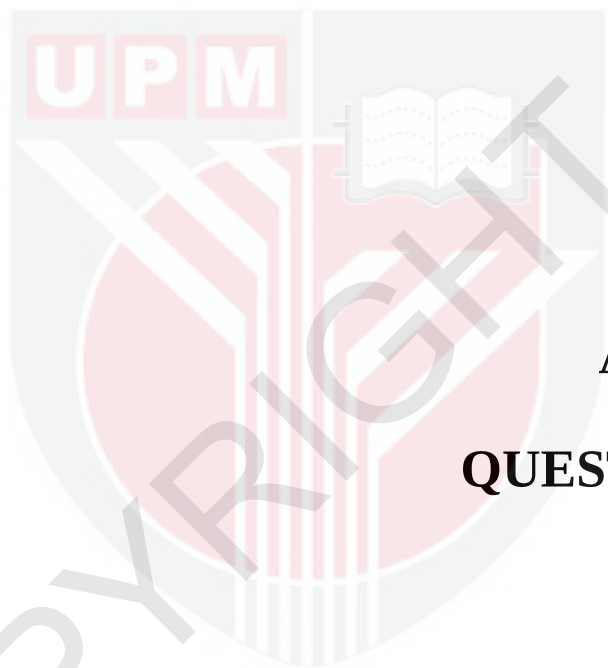
* delete where necessary

Signature Signature
(Respondent) (Witness)

Date :..... Name :.....
I/C No. :.....

I confirm that I have explained to the respondent the nature and purpose of the above-
mentioned research.

Date Signature
(Researcher)



APPENDIX 2

QUESTIONNAIRE



QUESTIONNAIRE FORM

BORANG KAJI SELIDIK

RIDING BEHAVIOUR AMONG SECONDARY SCHOOL STUDENTS IN SRI SERDANG, SELANGOR.

*TINGKAHLAKU MENUNGGANG DI KALANGAN PELAJAR SEKOLAH
MENENGAH DI SRI SERDANG, SELANGOR.*

NAME/Nama :

DATE/Tarikh :

QUESTIONS INSTRUCTIONS:

Arahan soalan:

1. THIS QUESTIONNAIRE FORM CONSISTS OF SEVERAL SECTIONS: -

Borang soal selidik ini terdiri daripada beberapa bahagian: -

PART A : RESPONDENT BACKGROUND INFORMATION

Bahagian A : Maklumat latar belakang responden

PART B : MOTORCYCLIST BEHAVIOUR

Bahagian B : Tingkah Laku Penunggang Motosikal

2. YOU REQUIRED TO ANSWER ALL QUESTIONS IN THIS QUESTIONNAIRE.

Anda dikehendaki menjawab semua soalan dalam soal selidik ini.

3. PLEASE MARK THE ANSWER IN THE PROVIDED ANSWER SECTION.

Sila tandakan jawapan di bahagian yang telah disediakan.

4. THE QUESTIONNAIRE SHOULD BE RETURNED TO THE RESEARCHER AFTER COMPLETING ALL THE QUESTIONS.

Borang soal selidik hendaklah dikembalikan kepada penyelidik selepas menjawab semua soalan.

PART A : RESPONDENT BACKGROUND INFORMATION

BAHAGIAN A: LATAR BELAKANG RESPONDEN

A1 **AGE** : **YEAR OLD**/tahun
Umur

A2 **GENDER** ☐ **MALE** ☐ **FEMALE**
Jantina *Lelaki* *Perempuan*

A3 **RACE** ☐ **MALAY** ☐ **INDIAN**
Bangsa *Melayu* *India*
☐ **CHINESE** ☐ **OTHERS:**
Cina *Lain-lain:*

A4 **STATUS** ☐ **SINGLE** ☐ **OTHERS:**
Status *Bujang* *Lain-lain:*
☐ **MARRIED**
Berkahwin

- A5 **WHAT KIND OF LICENSE DO YOU HAVE NOW? PLEASE INDICATE AT WHICH AGE YOU OBTAIN THE LICENSE AND WHEN YOU START RIDING. (EXAMPLE: OBTAIN LICENSE AT AGE 16 AND STARTED RIDING AT AGE 14)**
Apakah jenis lesen yang anda miliki sekarang? Sila nyatakan umur anda mendapatkan lesen tersebut dan bila mula menunggang. (contoh: ambil lesen pada umur 16 tahun dan telah mula menunggang pada umur 14 tahun)

	TYPE OF LICENSE <i>Jenis Lesen</i>	(v/x)	AGE OBTAIN THE LICENSE? <i>Umur mengambil lesen?</i>	AGE RIDING UNLICENSED? <i>Umur mula menunggang tanpa lesen?</i>
a.	B (MOTORCYCLE MORE THAN 500 CC) <i>B (Motosikal melebihi 500 cc)</i>			
b.	B1 (MOTORCYCLE LESS THAN 500 CC) <i>B1 (Motosikal tidak melebihi 500 cc)</i>			
c.	B2 (MOTORCYCLE LESS THAN 250 CC) <i>B2 (Motosikal tidak melebihi 250 cc)</i>			
d.	P <i>P</i>			
e.	L <i>L</i>			

- A6 **HOW MANY MOTORCYCLES DO YOU HAVE? UNIT (PLEASE LIST THE MOTORCYCLE BASED ON FREQUENCY OF USE)**
Berapakah bilangan motosikal yang anda miliki? buah (sila senaraikan motosikal tersebut di bawah berdasarkan kekerapan penggunaan)

MOTORCYCLE CHARACTERISTICS <i>Ciri motosikal</i>	MOTORCYCLE 1 (MOST FREQUENT) <i>Motosikal 1 (paling kerap)</i>	MOTORCYCLE 2 (FREQUENT) <i>Motosikal 2 (kerap)</i>	MOTORCYCLE 3 (RARELY) <i>Motosikal 3 (kadang-kadang)</i>
BRAND <i>Jenama</i>			
MODEL <i>Model</i>			
MANUFACTURE YEAR <i>Tahun buatan</i>			
PURCHASE YEAR <i>Tahun dibeli</i>			
NEW/USED? <i>Baru/terpakai?</i>			
POWER (CC) <i>Kuasa (cc)</i>			
ODOMETER (LATEST) <i>Odomoter (terkini)</i>			

- A7 **WHAT IS THE ESTIMATED NUMBER OF HOURS YOU RIDE A MOTORCYCLE IN A WEEK? HOURS**

Berapa anggaran jumlah jam anda menunggang motosikal dalam seminggu? jam

A8 **WHAT IS THE ESTIMATED AMOUNT OF DISTANCE YOU RIDE A MOTORCYCLE IN A WEEK? KM**

Berapa anggaran jumlah jarak anda menunggang motosikal dalam seminggu? km

A9 **WHAT IS YOUR MAIN PURPOSE FOR RIDING A MOTORCYCLE? (PLEASE SELECT ONLY ONE [1])**

Apakah tujuan utama anda menunggang motosikal? (sila pilih satu [1] sahaja)

☐ **GO BACK AND FORTH TO SCHOOL**

Pergi & balik sekolah

☐ **RECREATIONAL / CONVOY**

Rekreasi/konvoi

☐ **OTHER:**

Lain-lain:

.....

A10 **WHAT IS YOUR MAIN VEHICLE FOR SCHOOL OR DAILY USAGE? (TICK/FILL IN THE MOST APPROPRIATE CONTENT FOR THE FOLLOWING STATEMENT)**

Apakah kenderaan utama anda ke sekolah atau kegunaan harian? (tanda/isi yang paling tepat bagi pernyataan berikut)

☐ **PUBLIC TRANSPORT**

Pengangkutan awam

☐ **MOTORCYCLE ONLY**

Motosikal sahaja

☐ **OTHER**

Lain-lain:

☐ **CAR ONLY**

Kereta sahaja

☐ **CAR OR MOTORCYCLE**

Kereta atau motosikal

.....

A11 **ESTIMATED DISTANCE (FROM HOME TO SCHOOL): KM**

Anggaran jarak (dari rumah ke sekolah) : km

A12 **ESTIMATED TIME(FROM HOME TO SCHOOL): MINUTES**

Anggaran masa (dari rumah ke sekolah) : minit

A13 **HOW MANY STOPS / COMMITMENTS BEFORE GOING TO SCHOOL?**

Bilangan persinggahan tetap/komitmen sebelum ke tempat kerja?

(EXAMPLE: TAKE FRIEND TO SCHOOL): TIMES

(contoh: mengambil kawan ke sekolah) : kali

A14 **TRAFFIC CONDITION BACK AND FORTH FROM SCHOOL:**

Tahap trafik pergi/balik dari sekolah :

☐ **UNCERTAIN**

Tidak menentu

☐ **STANDSTILL**

Sangat sesak

☐ **VERY SMOOTH**

Sangat lancar

☐ **CONGESTED**

Sesak

☐ **SMOOTH**

Lancar

- A15 **HAVE YOU EVER BEEN CHARGED FOR A TRAFFIC VIOLATION WHILE RIDING A MOTORCYCLE OVER THE LAST 3 YEARS?**
Pernahkah anda disaman disebabkan kesalahan trafik semasa menunggang motosikal sepanjang tempoh 3 tahun kebelakangan ini?
- ☐ **NO (GO TO QUESTION A18)** ☐ **YES (GO TO QUESTION A16)**
Tidak (terus ke soalan A18) Ya (sila ke soalan A16)
- A16 **IF YES, HOW MANY TIME YOU BEEN CHARGED? TIMES**
Sekiranya YA, berapa kali anda pernah disaman? kali
- A17 **PLEASE SPECIFY THE TRAFFIC VIOLATION? (CAN TICK MORE THAN ONE (1) OPTION)**
Sila nyatakan kesalahan trafik tersebut? (boleh tanda lebih dari satu (1) pilihan)
- ☐ **SPEEDING** ☐ **TRAFFIC LIGHT VIOLATION** ☐ **OTHERS**
Tidak patuh had laju Langgar lampu merah Lain-lain:
- ☐ **NOT WEARING HELMET** ☐ **USING MOBILE PHONE**
Tidak pakai helmet Guna telefon bimbit
- A18 **AS A MOTORCYCLE RIDER, HOW MANY TIMES HAVE YOU BEEN INVOLVED IN A NEAR-MISS ACCIDENT IN THE PAST 12 MONTHS?**
Sebagai penunggang motosikal, berapa kali anda pernah hampir terlibat dalam kemalangan jalan raya sepanjang tempoh 12 bulan yang lalu?
- ☐ **NEVER** ☐ **3 TO 5 TIMES** ☐ **MORE THAN 10 TIMES**
Tidak pernah 3 ke 5 kali Lebih 10 kali
- ☐ **1 TO 2 TIMES** ☐ **6 TO 10 TIMES**
1 ke 2 kali 6 ke 10 kali
- A19 **AS A MOTORCYCLIST, HOW MANY TIMES HAVE YOU BEEN INVOLVED IN ROAD CRASHES IN THE LAST 12 MONTHS?**
Sebagai penunggang motosikal, berapa kali anda pernah terlibat dalam kemalangan jalan raya sepanjang 12 bulan yang lalu?
- ☐ **NEVER** ☐ **3 TO 5 TIMES** ☐ **MORE THAN 10 TIMES**
Tidak pernah 3 ke 5 kali Lebih 10 kali
- ☐ **1 TO 2 TIMES** ☐ **6 TO 10 TIMES**
1 ke 2 kali 6 ke 10 kali
- A20 **AS A MOTORCYCLIST, HOW OFTEN DO YOU USE A TRAFFIC LIGHT WHEN CHANGING LANES OR TURNING AT INTERSECTIONS?**

Sebagai penunggang motosikal, berapa kerap anda menggunakan lampu isyarat semasa menukar laluan atau membelok di persimpangan?

☐ **NEVER (GO TO QUESTION A21)**

Tidak pernah (terus ke soalan A21)

☐ **HARDLY EVER (GO TO QUESTION A21)**

Sangat jarang (terus ke soalan A21)

☐ **OCCASIONALLY (GO TO QUESTION A21)**

Kadang-kadang (terus ke soalan A21)

☐ **QUITE OFTEN**

Agak kerap

☐ **FREQUENTLY**

Sangat kerap

☐ **NEARLY ALL THE TIME**

Hampir setiap masa

A21

WHY DON'T YOU USE THE TRAFFIC LIGHT OFTEN WHEN CHANGING LANES OR TURNING AT INTERSECTIONS? (CAN TICK MORE THAN ONE (1) OPTION)

Kenapa anda kurang kerap menggunakan lampu isyarat semasa menukar laluan atau membelok di persimpangan? (boleh tanda lebih dari satu (1) pilihan)

☐ **LAZY**

Malas

☐ **FORGOT**

Terlupa

☐ **UNIMPORTANT**

Tidak penting

☐ **DO NOT HAVE TIME TO GIVE SIGNAL**

Tiada masa untuk memberi isyarat

☐ **OTHER MOTORCYCLISTS NOT GIVING SIGNAL**

Penunggang motosikal lain tidak memberi isyarat juga

☐ **NOT NECESSARY**

Tidak perlu

☐ **OTHERS (PLEASE SPECIFY):**

Lain-lain (sila nyatakan):

PART B: MOTORCYCLIST BEHAVIOUR																			
BAHAGIAN B: TINGKAH LAKU PENUNGGANG MOTOSIKAL																			
AS A MOTORCYCLE RIDER, HOW OFTEN HAVE YOU DONE THE FOLLOWING ACTIVITIES OVER THE PAST 12 MONTHS?																			
PLEASE CIRCLE YOUR ANSWER USING A <u>SCALE OF 1 TO 6</u> AS FOLLOWS:																			
Sebagai penunggang motosikal, berapa kerap anda melakukan perbuatan berikut sepanjang 12 bulan yang lalu? Sila BULATKAN jawapan anda dengan menggunakan skala 1 hingga 6 seperti di bawah:																			
<table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 16.6%;">1</td> <td style="width: 16.6%;">2</td> <td style="width: 16.6%;">3</td> <td style="width: 16.6%;">4</td> <td style="width: 16.6%;">5</td> <td style="width: 16.6%;">6</td> </tr> <tr> <td>NEVER Tidak pernah</td> <td>HARDLY EVER Sangat Jarang</td> <td>OCCASIONALLY Kadang-kadang</td> <td>QUITE OFTEN Agak kerap</td> <td>FREQUENTLY Sangat kerap</td> <td>NEARLY ALL THE TIME Hampir setiap masa</td> </tr> </table>								1	2	3	4	5	6	NEVER Tidak pernah	HARDLY EVER Sangat Jarang	OCCASIONALLY Kadang-kadang	QUITE OFTEN Agak kerap	FREQUENTLY Sangat kerap	NEARLY ALL THE TIME Hampir setiap masa
1	2	3	4	5	6														
NEVER Tidak pernah	HARDLY EVER Sangat Jarang	OCCASIONALLY Kadang-kadang	QUITE OFTEN Agak kerap	FREQUENTLY Sangat kerap	NEARLY ALL THE TIME Hampir setiap masa														
B1	Fail to notice that pedestrians are crossing when turning into a side street from a main road <i>Gagal untuk menyedari pejalan kaki yang menyeberangi jalan ketika saya membelok untuk masuk ke jalan sampingan dari jalan utama</i>	1	2	3	4	5	6												
B2	Not notice someone stepping out from behind a parked vehicle until it is nearly too late <i>Tidak menyedari pejalan kaki yang keluar dari belakang kenderaan yang sedang parkir sehingga saya hampir melanggar pejalan kaki tersebut</i>	1	2	3	4	5	6												
B3	Not notice a pedestrian waiting to cross at a zebra crossing, or a pelican crossing that has just turned red <i>Tidak menyedari pejalan kaki yang sedang menunggu untuk melintas di lintasan zebra, atau di tempat lampu isyarat yang baru bertukar merah</i>	1	2	3	4	5	6												
B4	Pull out on to a main road in front of a vehicle that you had not noticed, or whose speed you have misjudged <i>Keluar ke jalan utama tanpa menyedari kehadiran kenderaan lain di jalan tersebut, atau salah menganggar kelajuan kenderaan tersebut</i>	1	2	3	4	5	6												
B5	Miss "Give Way" signs and narrowly avoid colliding with traffic having the right of way <i>Terlepas pandang papan tanda "Beri laluan" dan hampir melanggar kenderaan yang mempunyai hak laluan</i>	1	2	3	4	5	6												
B6	Fail to notice or anticipate that another vehicle might pull out in front of you and have difficulty stopping <i>Gagal untuk menyedari atau menjangka kenderaan lain mungkin memasuki laluan di hadapan anda dan anda menghadapi kesukaran untuk berhenti</i>	1	2	3	4	5	6												
B7	Queuing to turn left on a main road, you pay such close attention to the main traffic that you nearly hit the vehicle in front <i>Ketika menunggu untuk membelok ke kiri untuk memasuki jalan utama, anda terlalu fokus kepada trafik di jalan utama tersebut sehingga anda hampir melanggar kenderaan di hadapan anda</i>	1	2	3	4	5	6												
B8	Distracted or pre-occupied, you belatedly realise that the vehicle in front has slowed and you have to brake hard to avoid a collision.	1	2	3	4	5	6												

	<i>Bila anda terganggu atau terleka, anda terlambat untuk menyedari bahawa kenderaan di hadapan anda telah memperlahankan kelajuannya dan anda terpaksa menekan brek dengan kuat untuk mengelak dari berlakunya pelanggaran</i>						
B9	Attempt to overtake someone that you had not noticed to be signalling a right turn <i>Secara tidak sedar, anda cuba untuk memotong kenderaan yang telah memberi lampu isyarat ke kanan</i>	1	2	3	4	5	6
B10	When riding at the same speed as other traffic, you find it difficult to stop in time when a traffic light has turned against you <i>Ketika menunggang pada kelajuan yang sama seperti kenderaan lain, anda menghadapi kesukaran untuk berhenti ketika lampu isyarat bertukar</i>	1	2	3	4	5	6
B11	Ride so close to the vehicle in front that it would be difficult to stop in an emergency <i>Menunggang sangat rapat dengan kenderaan di hadapan sehingga anda menghadapi kesukaran untuk berhenti jika berlaku kecemasan</i>	1	2	3	4	5	6

PART B: MOTORCYCLIST BEHAVIOUR																					
BAHAGIAN B: TINGKAH LAKU PENUNGGANG MOTOSIKAL																					
AS A MOTORCYCLE RIDER, HOW OFTEN HAVE YOU DONE THE FOLLOWING ACTIVITIES OVER THE <i>PAST 12 MONTHS</i> ?																					
PLEASE CIRCLE YOUR ANSWER USING <i>THE SCALE OF 1 TO 6</i> AS FOLLOWS:																					
Sebagai penunggang motosikal, berapa kerap anda melakukan perbuatan berikut <i>sepanjang 12 bulan yang lalu</i>? Sila bulatkan jawapan anda dengan menggunakan <u>skala 1 hingga 6</u> seperti di bawah:																					
<table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 16.6%;">1</td> <td style="width: 16.6%;">2</td> <td style="width: 16.6%;">3</td> <td style="width: 16.6%;">4</td> <td style="width: 16.6%;">5</td> <td style="width: 16.6%;">6</td> </tr> <tr> <td>NEVER Tidak pernah</td> <td>HARDLY EVER Sangat Jarang</td> <td>OCCASIONALLY Kadang-kadang</td> <td>QUITE OFTEN Agak kerap</td> <td>FREQUENTLY Sangat kerap</td> <td>NEARLY ALL THE TIME Hampir setiap masa</td> </tr> </table>										1	2	3	4	5	6	NEVER Tidak pernah	HARDLY EVER Sangat Jarang	OCCASIONALLY Kadang-kadang	QUITE OFTEN Agak kerap	FREQUENTLY Sangat kerap	NEARLY ALL THE TIME Hampir setiap masa
1	2	3	4	5	6																
NEVER Tidak pernah	HARDLY EVER Sangat Jarang	OCCASIONALLY Kadang-kadang	QUITE OFTEN Agak kerap	FREQUENTLY Sangat kerap	NEARLY ALL THE TIME Hampir setiap masa																
B12	Run wide when going round a corner <i>Mengambil banyak ruang ketika melalui selekoh</i>	1	2	3	4	5	6														
B13	Ride so fast into a corner that you feel like you might lose control <i>Menunggang dengan sangat laju di selekoh sehingga anda hampir hilang kawalan</i>	1	2	3	4	5	6														
B14	Exceed the speed limit on a country/rural road <i>Melebihi had laju yang ditetapkan di jalan perkampungan/luar bandar</i>	1	2	3	4	5	6														
B15	Disregard the speed limit late at night or in the early hours of the morning <i>Tidak mengendahkan had laju yang ditetapkan ketika menunggang pada waktu tengah malam atau awal pagi</i>	1	2	3	4	5	6														
B16	Exceed the speed limit on a highway <i>Melebihi had laju yang ditetapkan di lebuh raya</i>	1	2	3	4	5	6														
B17	Exceed the speed limit on a residential area <i>Melebihi had laju yang ditetapkan di kawasan perumahan</i>	1	2	3	4	5	6														
B18	Race away from traffic lights with the intention of beating the driver/rider next to you <i>Memecut dengan laju ke hadapan daripada lampu isyarat dengan niat untuk mengalahkan pemandu/penunggang lain di sebelah anda</i>	1	2	3	4	5	6														
B19	Open up the throttle and just 'go for it' on country roads <i>Buka pendikit (throttle) dan "pandu sesuka hati" di jalan perkampungan</i>	1	2	3	4	5	6														
B20	Ride between two lanes of fast moving traffic <i>Menunggang di antara dua lorong semasa trafik sedang bergerak pantas</i>	1	2	3	4	5	6														
B21	Get involved in unofficial 'races' with other riders or drivers <i>Terlibat di dalam perlumbaan tidak rasmi dengan penunggang atau pemandu yang lain</i>	1	2	3	4	5	6														
B22	Ride so fast into a corner that you scare yourself <i>Memandu sangat laju di selekoh sehingga menakuti diri sendiri</i>	1	2	3	4	5	6														
B23	Attempt to do, or actually do, a wheelie	1	2	3	4	5	6														

	Mencuba atau melakukan aksi mengangkat roda motosikal (wheelie)						
B24	Pull away too quickly and your front wheel comes off the road <i>Bergerak terlalu cepat sehingga tayar depan motosikal anda terangkat</i>	1	2	3	4	5	6
B25	Intentionally do a wheel spin <i>Melakukan putaran roda (wheel spin) dengan sengaja</i>	1	2	3	4	5	6
B26	Unintentionally do a wheel spin <i>Melakukan putaran roda (wheel spin) secara tidak sengaja</i>	1	2	3	4	5	6
B27	Wear riding boots? <i>Memakai kasut khas motosikal</i>	1	2	3	4	5	6
B28	Wear protective trousers (leather or non-leather)? <i>Memakai seluar khas motosikal (protective trousers)</i>	1	2	3	4	5	6
B29	Wear a protective jacket (leather or non-leather)? <i>Memakai jaket khas motosikal (protective jacket)</i>	1	2	3	4	5	6
B30	Wear body armour (elbow pads, shoulder pads, knee pads, etc) <i>Memakai peralatan perlindungan anggota badan (pad siku,pad bahu,pad lutut)</i>	1	2	3	4	5	6
B31	Wear no protective clothing? <i>Tidak memakai sebarang pakaian perlindungan</i>	1	2	3	4	5	6
B32	Wear gloves? <i>Memakai sarung tangan khas motosikal (gloves)</i>	1	2	3	4	5	6
	 Question B27 (Shoes) <i>Soalan B27 (kasut)</i>	 Question B28 (Trousers) <i>Soalan B28 (seluar)</i>	 Question B29 (Jacket) <i>Soalan B29 (jaket)</i>	 Question B30 (elbow pad, shoulder pad, knee pad) <i>Soalan B30 (pad siku,pad bahu,pad lutut)</i>	 Question B32 (gloves) <i>Soalan B32 (gloves)</i>		

PART B: MOTORCYCLIST BEHAVIOUR**BAHAGIAN B: TINGKAH LAKU PENUNGGANG MOTOSIKAL**

AS A MOTORCYCLE RIDER, HOW OFTEN HAVE YOU DONE THE FOLLOWING ACTIVITIES OVER THE PAST 12 MONTHS?

PLEASE CIRCLE YOUR ANSWER USING THE SCALE OF 1 TO 6 AS FOLLOWS:

Sebagai penunggang motosikal, berapa kerap anda melakukan perbuatan berikut **sepanjang 12 bulan yang lalu?**
Sila bulatkan jawapan anda dengan menggunakan **skala 1 hingga 6** seperti di bawah:

1	2	3	4	5	6
NEVER Tidak pernah	HARDLY EVER Sangat Jarang	OCCASIONALLY Kadang-kadang	QUITE OFTEN Agak kerap	FREQUENTLY Sangat kerap	NEARLY ALL THE TIME Hampir setiap masa

B33	Wear bright/fluorescent strips/patches on your clothing <i>Saya memakai tampalan yang berwarna terang (fluorescent strips/patches) di pakaian saya semasa menunggang</i>	1	2	3	4	5	6
B34	Use dipped headlights on your bike <i>Saya memasang lampu motosikal pada siang hari</i>	1	2	3	4	5	6
B35	Brake or throttle-back when going round a corner or bend <i>Saya menekan brek atau melepaskan pendikit (throttle) ketika mengambil selekoh</i>	1	2	3	4	5	6
B36	Change gear when going round a corner or bend <i>Saya menukar gear apabila mengambil selekoh</i>	1	2	3	4	5	6
B37	Find that you have difficulty controlling the bike when riding at speed (e.g. steering wobble) <i>Saya mendapati bahawa sukar untuk mengawal motosikal apabila menunggang dengan laju (contoh: alat kemudi motosikal bergegar)</i>	1	2	3	4	5	6
B38	Skid on a wet road or manhole cover <i>Saya pernah tergelincir semasa menunggang di atas jalan raya yang basah atau semasa melalui penutup lurang (manhole)</i>	1	2	3	4	5	6
B39	Have trouble with your visor or goggles fogging up <i>Saya mengalami masalah visor atau gogal (goggle) yang berkabus</i>	1	2	3	4	5	6
B40	Driver deliberately annoys you or puts you at risk <i>Pemandu lain dengan sengaja menyakiti hati saya atau meletakkan saya dalam keadaan berisiko</i>	1	2	3	4	5	6
B41	Ride when you suspect you might be over the legal limit for alcohol or under the influence of drugs <i>Masih menunggang motosikal meskipun saya syak yang saya mungkin melebihi had kandungan alkohol yang dibenarkan atau di bawah pengaruh dadah</i>	1	2	3	4	5	6
B42	Wear a leather one-piece suit? <i>Saya memakai sut kulit yang lengkap semasa menunggang</i>	1	2	3	4	5	6
B43	Wear bright/fluorescent clothing? <i>Saya memakai pakaian berwarna terang (atau fluorescent) semasa menunggang</i>	1	2	3	4	5	6
B44	Cross a junction while the traffic light is red	1	2	3	4	5	6

	<i>Saya melintas simpang semasa lampu isyarat berwarna merah</i>						
B45	Ride in the opposite direction of the traffic flow/road way <i>Saya menunggang secara melawan arus di lorong atau laluan yang bertentangan</i>	1	2	3	4	5	6
B46	Ride on the sidewalk <i>Saya menunggang di atas laluan pejalan kaki</i>	1	2	3	4	5	6
B47	Talk on a mobile phone while riding. <i>Saya menggunakan telefon bimbit untuk bercakap dengan seseorang semasa menunggang</i>	1	2	3	4	5	6
B48	Type text messages on a mobile phone while riding <i>Saya menaip mesej di telefon bimbit semasa menunggang</i>	1	2	3	4	5	6
B49	Read text messages on a mobile phone while riding <i>Saya membaca mesej di telefon bimbit semasa menunggang</i>	1	2	3	4	5	6
B50	I brought more than one passenger <i>Saya membawa lebih dari seorang pembonceng</i>	1	2	3	4	5	6
B51	Ride without wearing a helmet for a short trip (example: residential area) <i>Saya tidak memakai topi keledar untuk perjalanan yang dekat (contoh: kawasan perumahan)</i>	1	2	3	4	5	6
B52	Wear a helmet without the chinstrap <i>Saya memakai topi keledar tanpa mengikat talinya</i>	1	2	3	4	5	6
B53	Use a motorcycle lane when provided <i>Saya menggunakan lorong motosikal jika disediakan</i>	1	2	3	4	5	6
B54	Ride above the speed limit in the motorcycle lane <i>Saya menunggang melebihi had laju yang ditetapkan di lorong motosikal</i>	1	2	3	4	5	6
B55	Try or done a "stoppie" action (sudden stop until the rear wheel is lifted) <i>Saya pernah mencuba atau melakukan aksi "stoppie" (berhenti mengejut sehingga roda belakang terangkat)</i>	1	2	3	4	5	6
B56	Try or done superman action <i>Saya pernah mencuba atau melakukan aksi superman</i>	1	2	3	4	5	6
B57	Give signal when turning right at the intersection <i>Saya memberi isyarat semasa membelok di persimpangan</i>	1	2	3	4	5	6
B58	Give signal when changing lanes on the highway <i>Saya memberi isyarat semasa menukar laluan di lebuh raya</i>	1	2	3	4	5	6
B59	Give signal when changing lanes on a commercial road (not the highway) <i>Saya memberi isyarat semasa menukar laluan di jalan biasa (bukan lebuh raya)</i>	1	2	3	4	5	6



APPENDIX 3

ETHICAL APPROVAL