Original Article

Knowledge, Attitude and Practice Regarding Motorcycle Helmet Usage among Secondary School Students in Kuantan, Malaysia

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ABSTRACT*: Malaysia has the highest road fatality risk (per 100,000 populations) compared to other ASEAN nations and more than 50% of the road accident fatalities involving motorcyclists. Hence, this becomes the leading cause of death among young people, aged 15-29 years. The most common cause of fatalities involving motorcyclist is the head injury., This study aimed to evaluate the knowledge, attitude, and practice on motorcycle helmet usage among secondary school students in Kuantan, Malaysia. A descriptive cross-sectional design (two months of data collection) was used in this study. Questionnaires were distributed to 200 participants from two schools in Kuantan. The main finding of this study suggests that common reason for the participants to wear a helmet is that 'it can save a life'. Besides that, the poor practice regarding helmet usage was also found as only 4.5% of them wore the helmet all the time. However, the overall result showed that most of the participants have a good knowledge and positive attitude regarding utilization of helmet.*

Keywords – *Attitude, Head Injury, Helmet Usage, Knowledge, Practice*

1.0 INTRODUCTION

The motorcycle has become an important mode of transport among Malaysians yet currently, Malaysia ranks seventh place for motorcycle fatalities among ASEAN countries (Abdul Manan & Varhelyi, 2012). Serious head injury or traumatic brain injury (TBI) is the leading cause of the fatality and severity of motorcycle accident due to the lack of safety procedure compliance particularly by not wearing a head protector during a motorcycle ride (Olakulehin *et al*., 2015). Surprisingly, 43.9% of the collisions between motorcycles involved students and 37.7% of those who sustained head injuries are in the 10-16 age groups (Oxley *et al*., 2013). Road Safety Annual Report in Malaysia revealed that 63% of road deaths are among motorcyclists and the fatality rate increasing in trend between years 2000 to 2015 by 19% (ITF, 2017). Besides that, according to World Health Organization (2018), road traffic injuries are the leading cause of death among young people aged 15–29 years. An accident involving young people between 16-20 years was reported fluctuating in number from the year 2012 to 2015 which is 1032, 960, 1131, and 934 cases respectively (ITF, 2017).

Pahang state has 31.4% population of children under 18 years old which is about 1648000 (The Office of Chief Statistician Malaysia, 2017). According to Ministry of Transport Malaysia (2016), Pahang shown the highest incident rate for road accident (19635 cases) and death rate (532 cases) caused by road accident compare with other east coast regions in Malaysia. Students who withstand road traffic injuries (RTI) frequently require long-term care, depriving them of education and social advancement chances (Mohamed, Voon, Hashim & Othman, 2011). There is a study that has been conducted on knowledge, attitude, and practice regarding safety helmet usage among motorcyclist in Selangor (Ambak, Ismail, Rahmat & Shokri, 2011), however, the study did not specifically do among secondary school children especially in Kuantan. Therefore, this study is undertaken in order to evaluate the knowledge, attitude, and practice regarding motorcycle helmet usage among secondary school students in Kuantan. The hypotheses of this study are: 1) there is no significant relationship between demographic data with knowledge, attitude, and practices of helmet usage; and 2) there is no association between dependence variables (knowledge, attitude, practice) toward helmet usage.

2.0 METHOD

The location of this cross-sectional study was in Kuantan, Pahang. Two secondary schools out from 44 schools were selected from two different areas (Fig. 1). One of the schools represented an urban location, and another represented the suburban area. A purposive sampling method was used in this study where the participants must be within the range of 16-19 years old as 16 years old is the legal age to get a motorcycle license in Malaysia, and the participants must ride a motorcycle to school. A set of questionnaire adapted from a previous study (Bachani, Ismail, Rahmat & Shokri, 2011) was used as an instrument for this study. The sample size used in this study was 200 participants. The calculation was done using Roasoft software with a confidence level of 95%. The pilot study was done before distributing the questionnaire to the actual participants and the Cronbach alpha for each part: knowledge; 0.717, attitude; 0.700, and practice; 0.730.

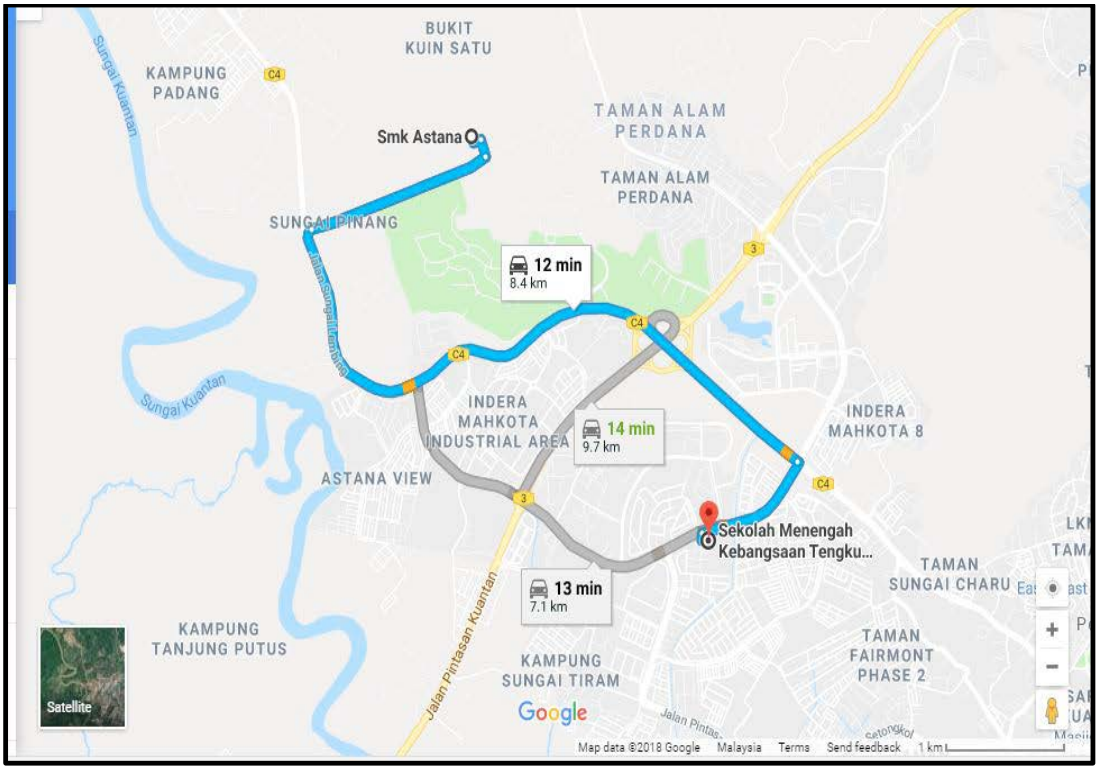

Figure 1: Location of the Schools

The 200 participants were successfully selected and willing to answer the questionnaire after the objectives and purposes of the study were explained to them. The questionnaire consisted of four parts, namely, Part A: social-demographic data, Part B: the participants' knowledge about helmet usage, Part C: the attitude of the participants about helmet usage, and Part D: their helmet usage practices. The completed questionnaires were collected by the researcher after 30 minutes of distribution.

Ethical approvals were obtained from Kulliyyah of Nursing Postgraduate and Research Committee (KNPGRC), IIUM Research Ethics Committee (IREC), Ministry of Education Malaysia (MOE), Jabatan Pendidikan Negeri Pahang (JPNP) and the principals of the selected schools. All the participants were provided with written consent. The identities of all participants were kept confidential in the study. The participants had the right to drop out of the study if they chose to do so.

Statistics

The Statistical Package for the Social Sciences (SPSS) version 19.0 was used to analyze the data of this study. Descriptive frequency and Chi-square were used to analyze the collected data.

3.0 RESULTS

3.1 Demographic data

Data collection was conducted from February 2017 – March 2017 and the total numbers of participants for this study were 200 students, comprising of 129 males (64.5%) and 71 females (35.5%). One hundred and twenty-three participants (61.5%) were aged 16 years old, and they formed the majority of the participants. A hundred participants were selected from each school. Out of 200 participants, 149 participants (74.5%) did not have a motorcycle license. Thirty-four or 66.7% of the participants had a license hold the license less than six months from the survey period, and 24 (47.1%) of them had a Learner's Driving License (LDL). Table 1 shows the demographic data of participants.

Table 1: Demographic Data of Participants

Characteristic	Frequency (N=200)	Percentage (%)
Gender		
Male	129	64.5
Female	71	35.5
Age		
16 years old	123	61.5
18 years old	63	31.5
19 years old	14	7.0
School		
School A (urban) School B (sub-urban)	100 100	50 50
Having license		
Yes	51	25.5
No	149	74.5
Period of having a license		
≤ 6 months	34	66.7
6 months - 1 year	6	11.8
≥ 1 year	11	21.6
Type of license		
Learner Driving (LDL)	24	47.1
Probationary Driving	21	41.2
Competent Driving	6	11.8

3.2 Knowledge about safety helmet usage

Table 2 reveals that 131 participants (65.5%) from the whole populations state that by wearing a helmet can save their life. However, only 18.5% (37 participants) wore their helmet when traveling long distances.

Table 2: Knowledge of the Importance of Wearing a Helmet

Response	Frequency (N=200)	Percentage (%)
It can save my life	131	65.5
It protects against sunlight and dust	59	29.5
I travel long distances	37	18.5
I travel on a highway	60	30.0
To prevent the head injury	118	59.0

3.3 The attitude of secondary school students regarding helmet usage

Based on Table 3, 123 of participants (61.5%) do not wear a helmet because they only traveled a short distance. Only 27 out of 200 participants accounted for not wearing a helmet due to the price of the helmet.

Table 3: Reason for Not Wearing a Helmet

Response	Frequency	Percentage (%)
Messes up my hair	49	24.5
Only traveling a short distance	123	61.5
Traveling on the local road	75	37.5
Helmet price is expensive	27	13.5
No police/ laws enforcement in this community	59	29.5

3.4 The practice of helmet usage

As tabulated in Table 4, the highest result of the practice of helmet usage is accounted by 73 of participants (36.5%) who choose to wear their helmets 'rarely' while 58 participants (29%) wear them 'sometimes'. On the other hand, only 4.5% (9 participants) wear the helmet 'all the time' when riding their motorcycles.

Table 4: Practicing on Wearing a Helmet in Past 30 Days

Responses	Frequency	Percentage (%)
All the time	9	4.5
Most of the time	32	16.0
Sometimes	58	29.0
Rarely	73	36.5
Never	28	14.0
Total	200	100

3.5 The relationship between the selected demographic status of the participants with the knowledge, attitude, and practices regarding helmet usage

From the results, it can be concluded that there is a significant relationship (p<0.05) between attitude on helmet usage with gender and location of the school (Table 6). The same result also found between gender and practice on helmet usage (Table 7). However, no significant relationships were found between knowledge on helmet usage with gender and location of the school (Table 5), and between locations of the school with practices on helmet usage (Table 7).

Table 5: Relationship between Knowledge of Helmet Usage against Gender and Location of the School

Variables		N	Knowledge Yes (%)	Knowledge No (%)	X^2 statistics	P value
Gender	Male	129	123 (95.3)	6 (4.7)	3.404 (1)	0.069
	Female	71	71 (100)	0 (0)		
Location	Urban	100	95 (95)	5 (5)	0.740 (1)	0.284
	Suburban	100	92 (92)	8 (8)		

Table 6: Relationship between the Attitude of Helmet Usage against Gender and Location of the School

Variables		N	Attitude Yes (%)	Attitude No (%)	X^2 Statistics	P value
Gender	Male	129	103(79.8)	26 (20.2)	4.668(1)	0.022
	Female	71	65(91.5)	6 (8.5)		
Location	Urban	100	92(92)	8 (8)	9.524(1)	0.002
	Suburban	100	76(76)	24 (24)		

Table 7: Relationship between Practices of Helmet Usage against Gender and Location of the School

Variables		N	Practice Yes (%)	Practice No (%)	X^2 Statistics	P value
Gender	Male	129	109(84.5)	20(15.5)	22.558(1)	0.0001
	Female	71	38(53.5)	33(46.5)		
Location	Urban	100	78(78)	22(22)	2.079(1)	0.100
	Suburban	100	69(69)	31(31)		

3.6 Association between dependence variables toward helmet usage

Tables 8, 9 and 10 show the association between knowledge with attitude, the association between knowledge with practice, and the association between attitudes with practice regarding helmet usage. Results from Chi-square tests suggested that the *p*-value for knowledge with attitude, knowledge with practice, and attitude with practice are 0.134, 0.281 and 0.321, respectively. Therefore, indicating that there was no association between all the dependent variables with helmet usage. The location of the schools which is quite near to each other (about 7 to 9 kilometers) might influence the result with the assumption that they need to follow the same law enforcement. Besides, the number of participants may also contribute to such result.

Table 8: Association between Knowledge and Attitude of Helmet Usage

Variable	N	Knowledge Yes (%)	Knowledge No (%)	X^2 Statistics (DF)	P value
Attitude (Yes)	168	159 (94.6)	9 (5.4)	2.257(1)	0.134
Attitude (No)	32	28(87.5)	4(12.5)		

Table 9: Association between Knowledge and Practice of Helmet Usage

Variable	N	Knowledge Yes (%)	Knowledge No (%)	X^2 Statistics (DF)	P value
Practice (Yes)	147	136(92.5)	11(7.5)	0.882(1)	0.281
Practice (No)	53	51(96.2)	2(3.8)		

Table 10: Association between Attitude and Practice of Helmet Usage

Variable	N	Attitude Yes (%)	Attitude No (%)	X^2 Statistics (DF)	P value
Practice (Yes)	147	125(85)	22(15)	0.441(1)	0.321
Practice (No)	53	43(81.1)	10(18.9)		

4.0 DISCUSSION

4.1 Demographic Data

In this study, the researcher found that 64.5% of the participant was males. This is similar to the findings of other studies. Even in the African culture, they also found more male than female motorcyclists (Olakulehin *et al.*, 2015). As for the license status, the study revealed that only 25.5% (51 participants) had motorcycle license whereas the others 74.5% (149 participants) did not have any licenses. The same pattern also occurred in India where out of 158 (32.57%) students who rode motorcycles, only four of them had a driving license. Oxley *et al.* (2013) suggested few interventions that should be implemented in order to reduce the number of road fatality rate among younger-aged includes monitoring on unlicensed riders and encourage helmet wearing.

4.2 Knowledge about safety helmet usage

The most popular responses from the participants were 'it can save my life' and 'to prevent head injury' which accounted for 131 participants (65.5%) and 118 participants (59%) respectively. The same findings could be witnessed in a previous study which stated that 56% of the respondents strongly agreed that the correct use of a helmet might keep the head from being injured (Ambak, Ismail, Rahmat & Shokri, 2011). In another study, it was recorded that 99.2% of the respondents who always wear helmets claimed that wearing a head protector could save their head from injury (Wadhwaniya *et al*., 2015).Participant in this study response that, 'I travel long distances' (18.5%) as the reason least to wear a helmet. Contrary, one study in Malaysia found that long distance travels (more than 5 km) are not solely the reason to wear a helmet as proven that one-third (33%) of the respondents disagreed that the helmet is only fit for long distance travels (Ambak, Ismail, Rahmat & Shokri, 2011). All the above result indicate that the young generation is still not fully aware or maybe not receive sufficient information on this issues.

4.3 The attitude of secondary school student regarding helmet usage

In this study, more than half of participants (61.5%) believe that the common reason for them to not wear a helmet was due to short distance travel. Other studies also revealed that the adolescents rarely wear helmets especially in short distance journey which are less than 2 kilometers (Ahmed, Ambak, Raqib & Sukor, 2013). It is because they believe that the possibility of any casualty and crash is remote if they only traveled in short distances (Jiwattanakulpaisarn *et al*., 2013). However, this perception had been demonstrated to be wrong by the Trauma Registry information from the Khon Kaen Regional Hospital, which showed that the most motorcycle injuries happened because of street accidents occurring inside 1 km of their homes (Jiwattanakulpaisarn *et al*., 2013). Fifty-nine of participants out of 200 (29.5%) from this study claimed that it was not necessary for them to wear a helmet all the time as there was no police/ laws enforcement in their community. This had been supported by a previous study which showed that 44% of the respondents agreed that the lack of enforcement made motorcyclist disobey the law about helmet wearing and 36% of the respondents agreed that RM100 compound is still considered inexpensive (Ambak, Ismail, Rahmat & Shokri, 2011). Because of this reason, it can be observed that still many of the riders chose not to wear a helmet.

4.4 The practice of helmet usage

ITF (2017) mentioned that wearing a helmet has been compulsory for motorcyclist since 1973, and highest fatality rate happens among young population (18-20 years old) and the senior population (above 65 years old) about 30 deaths per 100 000. In this study, it showed that the participant had a poor practice of helmet usage as only 4.5% (9 participants) wore the helmet 'all the time' and 16% (32 participants) wore it 'most of the time'. These results were different with the finding from a previous study done in Malaysia where it had a slightly positive outcome which was 36.3% (109) of the respondents admitted they often wore a helmet (Ambak, Ismail, Rahmat & Shokri, 2011). Rabihah et al. (2015) revealed that helmet wearing rate is high (94.40%) and the rate of proper helmet wearing is 77.05%. As mention by Mohamed Ghazali, Khairil and Mohd Pozi (2012), wearing a helmet properly is one of the precautions that can be practiced by motorcyclists in order to protect them from injury. It can be said that factor contributed to compliance on helmet wearing was due to a comprehensive knowledge of the life-saving action, laws enforcement, and also the education level (Bachani, Ismail, Rahmat & Shokri, 2011). Disappointedly, 29% of the participants in this study claimed that they had rarely worn a helmet during motorcycle rides, and this is higher compared to a previous study by Bachani, Ismail, Rahmat and Shokri (2011) which accounted only 1.7% (5) of respondents who have never used a helmet. An effective action should be considered into account in order to enhance practice on helmet wearing especially for the young population since the campaign alone seemed not really effective to give awareness on it.

4.5 The relationship between selected demographic status with knowledge, attitude, and practices of helmet usage

Both female and male participants showed similar knowledge level regarding helmet usage (100% and 95.3%, respectively). However, for attitude and practice, the result was differing between male and female participants. Male show 79.8% while female 91.5% for their attitude toward helmet usage. However, for the practice of helmet usage, the result showed the opposite result where 84.5% male revealed good practice on helmet usage, while female only 53.5%. In contrast, a study done in Thailand did not find any relationship between gender and deficiency of intention to use a helmet and non-helmet use (Siviroj, Peltzer, Pengpid & Morarit, 2012). As for the attitude, it was found that the female participants had a more

positive attitude (91.5%) toward helmet usage compared to the male participants (79.8%). This had been proven by a similar result in Hyderabad that found men to be at a higher risk of not wearing helmets; but in terms of practice, the male participants (84.5%) were more likely to use helmet than female riders (53.5%) (Wadhwaniya *et al*., 2017). Such scenario happened may be because the male regularly rode motorcycles than the females. Conversely, Ambak, Ismail, Rahmat and Shokri (2011) stated that in Malaysia, female riders are more likely to use helmets compared to male riders.

Furthermore, this study revealed that the attitude regarding helmet usage was statistically significant (p=0.002) with the location of the school itself. A study conducted in Klang Valley found that the distribution of helmet use among the respondents in urban schools is higher than in non-urban (Hamzah, Ahmad, & Voon, 2009) and the same result noted in this study. Study byRabihah et al. (2015) mention that helmet wearing rate in primary roads in Malaysia is as high as 94.4%, but the rate is decreased when an aspect of properly wearing a helmet takes into account, and Pahang state showed 83.22% from population wearing a helmet. Although there was no significant difference in terms of knowledge (p=0.284) and practice (p=0.100) in this study, the finding showed a positive link between knowledge and practice as all of these elements were recorded as most of the participants had comprehensive knowledge, and practice as well as attitude regarding helmet usage.

4.6 Association between dependence variables toward helmet usage

The findings of the study illustrated that there were no associations between knowledge attitude, knowledge and practice, and also an association between attitude and practice toward helmet usage as represented by the p-values 0.134, 0.281 and 0.321 respectively. These contradict from the results of the previous study (Rezazadeh *et al*., 2015) which reported a significant relationship between knowledge and attitude and age, marital status, occupation, level of education, place of residence, and having driver's license. However, no significant relationship was found between knowledge and attitude with the history of the accident (Rezazadeh et al., 2015). This means that the association between knowledge and attitude also depend on others variables. Meanwhile, others found that knowledge and practice had a significant link as inconsistent helmet wearing was secondary to ineffective law enforcement of helmet usage and from this, it was suggested that that low level of helmet use may be partly attributed to the lack of knowledge of the protective benefits of helmets and low law enforcement is regarding helmet use (Mwakapasa & Outwater, 2012).

5.0 CONCLUSION

The objective of this study has been achieved when it was revealed that both males and females had good knowledge and attitude on helmet usage. However, in general, they had a poor practice on helmet usage as the majority of them rarely wearing the helmet. Participants also had positive knowledge, attitude and practice about helmet usage regardless the location of the school, whether it is urban or suburban. Unfortunately, the researcher believes that the finding is not significant as the environment of both locations were quite similar.

This study can be a baseline data for the school in promoting the awareness of helmet usage to their students. Besides that, it is hoped that this study will provide insight for healthcare providers in implementing helmet usage campaigns and programs with different strategies to increase awareness about it in order to decrease the severity and mortality rate among motorcyclists due to head injuries. In order to obtain a more accurate data, it is suggested that future studies conduct a study with different approaches such as interventional or observational study among secondary school children in Kuantan. Further study is also recommended to test the association of knowledge, attitude and practice to each other in order to identify another factor that may be related to them.

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