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DRIVERS' INTENTION TO COMPLY WITH THE SPEED LIMIT IN SCHOOL ZONES, IN MALAYSIA

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ABSTRACT

There has been an increasing number of fatal road crashes in Malaysia in the last two decades. Among those who die on Malaysian roads are children aged 0 to 18 years (i.e., 15.5% in 2009) (Mohamed, Wong, Hashim, & Othman, 2011). The involvement of children in road trauma, and particularly children when they are in and around school zones, generates concern among the general public. The present study utilised an extended Theory of Planned Behaviour (TPB) framework, incorporating the additional predictors of mindfulness and habit, to understand drivers' intention to comply with the school zone speed limit (SZSL). The study aimed to examine the extent to which TPB constructs, and additional predictors of mindfulness and habit, predicted drivers' behavioural intention to comply with the SZSL. Malaysian drivers (N = 210) participated in this study via an online survey. Hierarchical regression was conducted, and the results showed that attitude, subjective norm, perceived behavioural control, and habit were significant predictors of intention to comply with the SZSL. Specifically, drivers who expressed more positive attitudes towards compliance, greater belief that significant others would want them to comply, and more confidence in their control of their speed were more likely to report an intention to comply. These drivers appear to have developed a positive habit of compliance, which may simply be a result of the engineering measures in place around school zones in Malaysia. Mindfulness was not a significant predictor in the final model. These findings provide some support for the explanatory value of the extended TPB framework in understanding the factors influencing drivers' intention to comply with the SZSL. The present study also provides information of potential value in the development of interventions, such as public education and mass media campaigns, aimed at improving drivers' compliance with the SZSL.



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1 INTRODUCTION

Road crashes are a global problem and a leading cause of injury and death in children aged 15 to 19 years, as well as being the second leading cause of death among 5 to 14 year olds. It is estimated that approximately 10 million children are injured or disabled each year as a result of road crashes (Peden, Oyebite, & Ozanne-Smith, 2008).

About 5% to 10% of children killed or injured in road crashes in high-income countries are pedestrians. In contrast, in low- and middle-income countries, the figure is much higher at approximately 30% to 40% (Peden, et al., 2008). In Malaysia (a middle-income country) in 2009, almost 13% of pedestrian fatalities (i.e., a total 605 pedestrian fatalities) were child pedestrians (Malaysian Royal Police, 2010). Over the next 15 years, it is predicted that there will be significant increases in road traffic casualties involving children, particularly in low-income and middle-income countries (Peden, et al., 2008), thus highlighting the need for more to be done to understand and address contributing behaviours such as speeding in school zones.

2 CAUSE OF VEHICLE-CHILD PEDESTRIAN CRASHES IN SCHOOL ZONES

Schools can be considered as focal points for a child's daily activities, and they are associated with regular, often concentrated, periods of complex and congested traffic patterns. School zones usually operate only on a school day when most children are arriving or leaving, and operate only within a limited geographical area around the school (i.e., covering the main entry and exit points and road crossings). The peak time for usage is during the arrival and departure of school children. Previous research has found that school zones had a much higher absolute risk of child pedestrian crashes than other areas (i.e., 5.7 times higher in 150m school zones compared with 450m school zones) (Warsh, Rothman, Slater, Steverango, & Howard, 2009).

In relation to child pedestrians and school zones, previous investigations have identified three main risk factors that contribute to child pedestrian injury; namely, children themselves, environmental factors (e.g., location of school and infrastructure), and driver behaviour (Clifton & Kreamer-Fults, 2007; Congiu et al., 2008; Ellison, Greaves, & Daniels, 2011; Kingham, Sabel, & Bartie, 2011; Yarrow, 2006).

In relation to the first category of risk factors, the children themselves, previous studies have suggested that young children are less competent in traffic compared with older children and adults. This reduced competency is because young children are not only small in size and therefore difficult to see, but they are also less developed cognitively, and thus less able to deal with traffic (Congiu, et al., 2008). Second, in relation to environmental factors, various features such as the location of the school and surrounding infrastructure, high population density, high traffic volumes, and rush hour times, may increase the likelihood of vehicle-child pedestrian crashes (Kingham, et al., 2011). The third and final category of risk factors relates to driver behaviour. Although most drivers believe that speeding in school zones is an undesirable behaviour, previous studies have found that between 23% and 53% of drivers



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exceeded the speed limit of 30km/hr or 40km/hr when the school zones were in operation (Ellison, et al., 2011; Yarrow, 2006; Young, Dixon, & Board, 2003).

To sum up, studies have demonstrated that child behaviour, road environment, and driver behaviour may contribute to the incidence of child pedestrian injuries in school zones. Given that speeding in school zones appears to be a relatively pervasive behaviour, there is a need for a greater understanding of why drivers engage in speeding instead of complying with the speed limit in school zones. However, there is limited research focusing on factors that influence driver behaviour in school zones.

3 MALAYSIA AND SCHOOL ZONES

In Malaysia, there are typically two school sessions each day: one student cohort attends school for the morning session starting at 7.30am and ending at 1.00pm, while a second student cohort attends the afternoon session which starts at 1.00pm and continues until 6.30pm. The peak times for student exposure in school zones are 7.00am to 8.00am when the first cohort of students arrives, then 12.00noon to 2.00pm when the first cohort is leaving and the second cohort is arriving, and finally 6.00pm to 7.00pm when the second cohort of students is leaving. Between these times, there are also school children who go to and from school for extra classes and co-curricular activities. There are high numbers of interactions between the school children and vehicles in the morning (7.00am to 8.00am) and at noon (12.00noon- 2.00pm), which increase the risk of vehicle-child pedestrian crashes.

Furthermore, many schools are located on a major road (single or dual carriageway) and/or highway where the average posted speed limit ranges from 70km/hr to 90km/hr. Regardless of these different posted speeds, the speed limit for school zones is set at 30km/hr by the road authority and is permanent, i.e. it applies 24 hours a day during the school day. The minimum signage requirements in school zones include “children crossing” signs, 30km/hr speed limit signs, and “school zone” signs. To create further awareness among drivers, there are also signalised crossing facilities and traffic calming measures, such as transverse bars and speed humps. Furthermore, some schools have other facilities to help school children to deal with traffic (i.e., crossing the road), such as zebra crossings, pedestrian bridges, and traffic wardens or crossing guards. Despite all these engineering interventions and other countermeasures, there are still crashes in school zones involving school children. The facilities do not protect children who fail to make use of them, or when drivers choose to speed through school zones. Table 1 presents statistics on child pedestrian injuries by road crash location, indicating that school locations account for a high proportion of crashes among school age pedestrians.

The high levels of noncompliance with school zone speed limits reported in the literature constitute an important risk factor for school children, and it was noted above that factors contributing to this behaviour have received little attention. Accordingly, the current study aimed to examine psychosocial predictors of driver intention to comply with a speed limit in school zones using the extended TPB framework.

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Table 1: Total of child pedestrian injuries by location of road crash, 2007-2009

Location	1-4 years old	5-9 years old	10-14 years old	15-18 years old
Residential	168	302	179	82
Office	12	48	63	36
Shopping	20	54	38	34
Industrial/ construction	12	16	10	11
Bridge/ foot bridge	0	8	12	2
School	6	192	149	79
Other (e.g., park etc)	134	545	356	247

Source: (Mohamed, et al., 2011)

4 THEORY OF PLANNED BEHAVIOUR (TPB)

The current study was based on the TPB, which has been applied widely in social behavioural research, including road safety-related behaviour, such as driving violations (e.g., Forward, 2009b), speeding (e.g., Warner, Ozkan, & Lajunen, 2009), pedestrian road crossing behaviour (e.g., Holland & Hill, 2007), and mobile phone use while driving (e.g., Walsh, White, Hyde, & Watson, 2008).

In the TPB, actual behaviour is predicted by intention. Intention, on the other hand, is predicted by attitudes towards the behaviour (attitude), perceptions about how the behaviour would be regarded by others (subjective norms), and perceptions about how much one can control the behaviour (perceived behavioural control (PBC)). Attitude and subjective norms predict behaviour via intention, while PBC is expected to influence behaviour both indirectly (through intention) as well as directly (Ajzen, 1991). The current research aimed to test the explanatory utility of an extended TPB framework: a framework which included the additional constructs of mindfulness and habit.

Mindfulness can be defined as “enhance[d] attention to and awareness of current experience or present reality” where awareness and attention are emphasised as central features of mindfulness (Brown & Ryan, 2003). Awareness refers to monitoring the inner (e.g., emotion) and outer environment (e.g., traffic environment), which involves the ability to be aware of any changes in the inner and outer environments at any given moment. Attention, on the other hand, could be described as the process of focusing conscious awareness and being sensitive to the present situation at that time (Brown & Ryan, 2003). For instance, a driver travelling through an urban area needs to be aware and attentive to the surrounding traffic environment, which includes being aware of potential risks which may occur at any time, e.g., when entering a school zone, where the speed limit changes, and at other certain times of day when there are increased risks for child pedestrians if the driver does not slow down.

The second construct, habit, refers to a frequent behaviour pattern that has become almost involuntary and automatic in achieving certain goals (Verplanken & Aarts, 1999). For instance, with regard to speeding behaviour, if the behaviour is repeated in a consistent way by drivers, it may become habitual and committed without conscious thought or full realisation (Parker, West, Stradling, & Manstead, 1995). Although, in previous studies, habit has been measured using past behaviour (e.g., Danner, Aarts, & de Vries, 2008), in reality they are not identical. Habits are formed when using the same behaviour over and over again and consistently in a similar context for the same purpose such that the behaviour will be performed automatically (Ouellette & Wood, 1998). However, past behaviour does not

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always become habitual. For example, if a person drives 60km/hr everyday to their workplace using the same road, the way they drive may become habitual and will be performed automatically. However, if there is an accident on the road, they will not perform their habit because the context has changed (i.e., the existing road becomes narrow and movement of traffic is slow). Previous speeding related studies indicated that habit significantly influenced self-reported behaviour, both directly and indirectly, through behavioural intention, e.g., a driver with a strong speeding habit will feel it is quite hard to stick to the speed limit (De Pelsmacker & Janssens, 2007; Read & Kirby, 2002). Thus, there is a possibility of drivers speeding in school zones regardless of whether drivers or child pedestrians are in the area.

Demographic variables, such as age and driving experience, have also been found to be important factors affecting driver behaviour (Forward, 2009a; Lajunen & Summala, 1995). For instance, young drivers may take greater risks on the road or fail to perceive hazards due to lack of driving experience (Clarke, Ward, Bartle, & Truman, 2006).

To summarise, this study investigated the application of the TPB components and two additional predictors (mindfulness and habit) on drivers' intention to comply with the SZSL. Specifically, this study evaluated the additional explanatory value of psychosocial constructs and, in particular, mindfulness and habit in predicting drivers' behavioural intention compliance with the SZSL and examined the influence of demographic characteristics (i.e., age and driving experience) on intention to comply with the SZSL.

5 METHOD

This study consisted of an online survey (with the option of a pencil-and-paper survey) that was divided into two sections. In Section 1, respondents were asked general demographic questions including age, gender, and types and class of driving license. Section 2 was comprised of questions related to attitude, subjective norm, PBC, habit, mindfulness, and intention (see Table 2).

In this study, the phrase "Complying with the speed limit in school zones" refers to any occasion where the respondents are travelling at or below the speed limit of 30km/hour in a school zone on a school day (i.e., when school is in session, before classes start, and after school sessions finish). This definition was presented after the general demographic questions to ensure the respondents understood the focus of the study.

TPB variables were measured using guidelines developed by Ajzen (2006). Habit was measured using the Self-Report Habit Index (SRHI) designed by Verplanken and Orbell (2003), and mindfulness was measured using the Mindfulness Awareness Attention Scale (MAAS) (Brown & Ryan, 2003) (refer to Table 2).

Table 2: Examples of TPB, mindfulness and habit questions.

	No. of items	Range	Cronbach's α	Example of questions
Attitude	5	1-7 (strongly disagree/ strongly agree)	.96	For me, to comply with the speed limit in school zones in the next month would be: safe/unsafe.
Subjective norm	3	1-7 (strongly)	.81	Most people whose opinions I value would approve of me

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	No. of items	Range	Cronbach's α	Example of questions
		disagree/ strongly agree).		complying with the speed limit in school zones.
PBC	3	1-7 (strongly disagree/ strongly agree)	.73	I am confident that if I wanted to I could comply with the speed limit in school zones.
Habit	12	1-7 (strongly agree/ strongly disagree)	.92	Complying with the speed limit in school zones when it is operating is something that I do frequently.
Mindfulness	15	1-6 (almost always/ almost never)	.91	I drive places on 'automatic pilot' and then wonder why I went there.
Intention	4	1-5 (not at all/ definitely will)	.92	To what extent do you plan to comply with the speed limit in school zones in the next month?"

5.1 Procedure

Once ethical clearance was provided, the survey was piloted (N=10 drivers), and minor amendments were made on the basis of the feedback received from pilot participants. The final version of the survey was then launched. An invitation email explaining the study was emailed to prospective participants (i.e., staff and students of University Utara Malaysia), which included a link to the survey. The first named author also posted invitations on social networking sites such as Facebook. A reminder was emailed to prospective participants or posted on social networking sites approximately two weeks after the initial invitation.

5.2 Data analysis

All data were analysed using the Statistical Package for the Social Sciences (SPSS) Version 17.0. Prior to analysis, data were screened for accuracy of entry and missing values and the assumptions of multivariate analysis. As such, visual inspection of the data and Missing Values Analysis using SPSS were conducted. From 215 questionnaires, n=5 cases were removed from analyses because they were missing more than 80% of total responses and were, therefore, deemed to be inadequate sources of information. In relation to the assumption of normality, all of the key predictor and outcome variables (i.e., attitude, subjective norm, PBC, habit, mindfulness, and intention) were normally distributed.

6 THE RESULTS

6.1 Participants

Table 3 Participants' demographic information

	Item	Frequency	Percentage (%)
Gender	Male	83	39.5
	Female	127	60.5
Age (years)*	19 to 24	69	32.9
	25 to 35	70	33.3
	> 36	62	29.5
Relationship status	Married	109	51.9
	Single	99	47.1
	Divorced/Widowed	2	1.0
Type of driving license*	Provisional driving license	24	11.4
	Full license	184	87.6
Class of license	Car & Motorcycle	101	48.1
	Car only	107	51.0
	Motorcycle & lorry only	2	0.9
Years of driving/ riding experience*	Car : < than 5	89	42.4
	> than 5	87	41.4
	Motorcycle: < than 5	49	23.3
	> than 5	41	19.5

Note: * Missing values did not affect the overall percentages.

Out of 210 respondents, 60.5% were female and 39.5% were male. With regard to age, 32.9% of respondents were aged at least 24 years, while the rest were aged over 24 years, with nine of the respondents not disclosing their age. In terms of marital status, 51.9% of the respondents were married, 47.1% were single, and 1% were divorced or widowed. There were 87.6% of drivers who held full driving licenses and 11.4% who held provisional driving licenses. Drivers who held a car driving license constituted 51% of respondents, with a further 48.1% holding both car and motorcycle licenses, and 0.9% holding a motorcycle or a lorry license only. With regard to experience, 42.4% and 23.3% of the respondents had less than 5 years driving and riding experience respectively (refer to Table 3).

6.2 Predictors of intention to comply with the speed limit in school zones

Table 4 presents the means, standard deviations, and correlations for the study's independent and dependent variables. Generally, the directions of the correlations between intention and all of the TPB and additional predictors of habit and mindfulness were positive. Table 4 shows that the correlations of intention with the TPB constructs were strong and positive: attitude ($r=.52$, $p<.01$), subjective norm ($r=.54$, $p<.01$) and PBC ($r=.59$, $p<.01$). With respect to the additional predictors, there was a moderate correlation with habit ($r=.33$, $p<.01$) and a low correlation with mindfulness ($r=.25$, $p<.01$), both significant.

With respect to the TPB variables, the results showed that respondents who had positive attitudes and intentions to comply with the SZSL perceived that they would receive social approval for complying and that important others would comply themselves (i.e., means for

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intention, attitude, subjective norm, and PBC were above the mid-point of the scale). In relation to the additional variables, the mean scores for habit and mindfulness were also above the mid-point of the scale, suggesting that respondents, on average, reported that complying with the SZSL had become a habit and that they carried out the behaviour mindfully (see Table 4).

Table 4 Descriptive statistics for TPB variables, habit and mindfulness.

Variables	Mean	SD	1	2	3	4	5	6
1. Attitude	6.26	1.22		.34**	.35**	.23**	.13	.52**
2. Subjective norm	5.48	1.31			.70**	.17*	.19**	.54**
3. PBC	5.57	1.26				.15*	.26**	.59**
4. Habit	4.52	1.36					.14*	.33**
5. Mindfulness	3.94	.89						.25**
6. Intention	4.07	.89						

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Hierarchical regression analysis was performed with intention to comply with the SZSL as the dependent variable, and attitude, subjective norm, PBC, habit and mindfulness as the independent variables. The order in which the independent variables were entered into the analysis was determined by the theory and literature: specifically, in step 1, attitude, subjective norm, and PBC were added. In step 2, habit was entered, and finally, in step 3, mindfulness was added. Table 5 displays the results of the hierarchical regression analysis.

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Table 5. Summary of hierarchical regression analysis predicting the intention to comply with speed limit in school zones.

Step	Predictors	R ²	ΔR ²	ΔF	Unstandardised Coefficients		Standardised betas (β)	t	Sig
					B	Std. Error			
1	Attitude	.47	.47	61.57	.248	.040	.339	6.199	.000
	Subjective norm				.125	.049	.184	2.574	.011
	PBC				.238	.051	.337	4.682	.000
2	Attitude	.50	.03	12.66	.224	.040	.305	5.646	.000
	Subjective norm				.115	.048	.169	2.421	.016
	PBC				.235	.050	.333	4.753	.000
	Habit				.119	.033	.181	3.558	.000
3	Attitude	.51	.004	1.83	.222	.040	.303	5.625	.000
	Subjective norm				.116	.047	.170	2.436	.016
	PBC				.223	.050	.316	4.444	.000
	Habit				.114	.034	.174	3.411	.001
	Mindfulness				.069	.051	.069	1.351	.178

Note: At the final stage, the significant predictors have been shaded.

*p <.05; **p <.01; ***p <.001.

As can be seen in Table 5, the overall TPB variables explained a significant 47% of the variance in intention to comply with the SZSL. After habit had been included, the model explained a significant 50% of the variance in intention. When mindfulness was entered in step 3, the overall model explained a significant 51% of the variance in intention; however, the addition of mindfulness did not appear to be a significant predictor in this final step. The results presented in Table 5 show that four variables were significant predictors of the intention to comply with the SZSL at the final step of the model when all predictors were entered. They were attitude [β=.30, p<.001], subjective norm [β=.17, p<.05], PBC [β=.32, p<.001], and habit [β=.17, p<.01].

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6.3 Additional analyses

An ANOVA analysis was conducted to explore the impact of age on individuals' intention to comply with the SZSL. Respondents were divided into three age groups: Group 1: ≤ 24 years old; Group 2: 25 to 35 years; Group 3: ≥ 36 years. The results revealed a statistically significant difference in intention scores for the three age groups, $F(2, 198)=19.35$, $p=.001$. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Group 1 ($M=3.57$, $SD=.82$) was significantly less than the mean scores reported by both Group 2 ($M=4.30$, $SD=.82$) and Group 3 ($M=4.37$, $SD=.85$). Group 2, however, did not differ significantly from Group 3.

To investigate whether there were significant differences in intention to comply with the SZSL mean scores of drivers as well as riders of different levels of driving experience, independent-samples t-tests were also conducted (i.e., one for drivers and one for riders). In relation to the drivers, drivers of more experience (i.e., >5 years) were significantly more likely to report intention to comply than drivers with less experience (i.e., ≤ 5 years) ($M=4.38$, $SD=.76$ and $M=3.64$, $SD=.88$, respectively; $t(174)=-5.87$, $p=.001$). The results were similar for motorcycle riders: riders with more experience (i.e., >5 years) ($M=4.25$, $SD=.87$) were significantly more likely to report an intention to comply with the SZSL than less experienced riders (i.e., ≤ 5 years) ($M=3.68$, $SD=.92$), ; $t(88)=-3.00$, $p=.004$.

An independent-samples t-test was also conducted to compare the mean intention to comply with the SZSL score of drivers who currently held a car only license and those participants who held both a car and motorcycle license. The results showed that there was no significant difference between the mean intention scores of those who held a car license only ($M=4.55$, $SD=1.32$) with drivers who held both a car and a motorcycle license ($M=4.46$, $SD=1.40$), $t(205)=.481$, $p=.631$.

7 DISCUSSION

The present study was based upon a well-established social psychological model, the TPB, which was used to explore the predictors of drivers' intention to comply with the school zone speed limit (SZSL). Moreover, the model incorporated measures of habit and mindfulness to understand such behaviour. The results of this study provided support for the application of the TPB to drivers' compliance with the SZSL. Attitude, subjective norm, and perceived behavioural control were all significant predictors of intention and, together, accounted for a significant 47% of the variance in drivers' intention to comply with the SZSL. These results compare favourably with previous TPB research that focused on speeding and complying with a speed limit (e.g., Elliott & Armitage, 2003; Elliott, Armitage, & Baughan, 2007; Parker, Manstead, Stradling, & Reason, 1992a), and which also found the TPB to explain between 47% and 54% of the variance in intention relating to these behaviours.

In relation to the additional predictors of habit and mindfulness, the present study did not use past behaviour as an indicator to reflect habit, as has been done in other research (e.g., Danner, Aarts, & de Vries, 2008); but, instead applied the Self-Report Habit Index (SRHI) devised by Verplanken and Orbell (2003). The results are in line with other habit-related research where habit influenced intention to perform a behaviour (e.g., Gardner, de Bruijn, & Lally, 2011). This suggests that the SRHI is a potentially useful scale that could be used in

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future research, specifically, road safety-related research. Whereas one of our previous studies (Abdul Hanan et. al, 2012) and Chatzisarantis and Hagger (2007) found that mindfulness emerged as a significant predictor alongside attitude and PBC, in the present study, the result was different (i.e., mindfulness was not a significant predictor). The result may be due to the differences in the context of the study. Our previous study focused on compliance with the speed limit in an Australian setting, and Chatzisarantis and Hagger (2007) applied mindfulness in a physical exercise study, with both of these studies representing different settings and contexts from the present study.

The additional analysis revealed that there were differences between drivers of varying age groups and driving/riding experience in relation to their intention to comply with the SZSL. Specifically, young drivers were found to be less likely than the older drivers (i.e., age groups 25 to 35 years and more than 35 years old) to report an intention to comply with the SZSL. This result is in line with other studies that indicated young drivers were likely to report intention to speed (e.g., Cestac, Paran, & Delhomme, 2011; Horvath, Lewis, & Watson, 2012). In relation to driving and riding experience, differences were found between drivers and riders of varying levels of experience in relation to their reported intention to comply with the SZSL. Specifically, those who had less than 5 years experience driving or riding were less likely to report intention to comply with the SZSL compared with those who had more than 5 years driving or riding experience. This result suggests that the drivers' or riders' intention to comply increased as the experience of driving or riding increased. A possible explanation of this finding is that the more experienced drivers and riders became, the more they may have observed school zones as high risk areas for crashes if not aware or paying attention when driving or riding.

The findings provide support for the utility of an extended TPB model in predicting intention to comply with the SZSL context, more specifically, all of the TPB variables (i.e., attitude, subjective norm and PBC) as well as the additional variable of habit were found to significantly predict drivers' intention to comply with the SZSL in Malaysia. The results of the present study suggest that road safety interventions, such as advertising or public education strategies, may be most successful if they focus on individuals' attitude, subjective norm and perceived behavioural control. For instance, strategies could benefit from reinforcing the positive consequences associated with complying with the SZSL, heightening the perception that a range of referents would approve of this behaviour, and emphasizing that compliance behaviour could be performed easily.

In addition, given that habit also emerged as a significant predictor of intention, positive driving behaviour in terms of compliance with the SZSL should be promoted so that individuals develop the habit of complying. Enforcement as well as public education strategies could be beneficial strategies in promoting compliance with speed limit behaviour. Finally, in relation to the findings regarding differences in the intention to comply of drivers and riders of varying levels of experience and age, such findings highlight the need to target interventions, such as education and advertising strategies, according to these key demographic characteristics. For instance, one practical implication could be to increase learning hours for driving and riding among young drivers (i.e., learner drivers).

Despite clear support for the TPB model, there are a number of limitations of the study that warrant consideration. The most important of these is that the present study measured intention but not behaviour. A meta-analysis of TPB studies demonstrated that, on average, intentions accounted for 27% of the variance in behaviour (Armitage & Conner, 2001). Such



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evidence suggests that while intentions are likely to be a good predictor of future compliance behaviour with the SZSL, they are not perfect predictors. Nevertheless, future research is needed to measure behaviour as well as intentions when assessing the utility of the TPB to predict drivers' compliance with the SZSL. A second limitation of the study is the moderate sample size. This raises questions about the extent to which the current results can be generalised to the broader driving population. Finally, the data were based solely on self-reports of intention. Therefore, there is the possibility that respondents made socially acceptable responses. However, the respondents completed the questionnaires anonymously and could not gain anything by giving biased responses.

8 CONCLUSIONS

In conclusion, the present study demonstrates the applicability of the TPB in explaining drivers' intention to comply with the SZSL among Malaysian drivers. Specifically, all of the TPB's direct measures of attitude, subjective norm, and PBC were found to be significant predictors of intention. In addition, some support was also provided for the extended TPB framework, with habit, but not mindfulness, emerging as a significant predictor of intention. The results revealed that drivers with a more positive attitude towards compliance with the SZSL are more likely to intend to perform the behaviour. Furthermore, drivers who believed that people important to them would approve of their behaviour, and to perceive that they had control over whether or not they engaged in the behaviour, were more likely to intend to comply with the speed limit in school zones. In addition, drivers who had developed a habit (as conceptualised according to Verplanken & Aarts, 1999) of complying with the speed limit were more likely to intend to comply with the SZSL. While the results, overall, provide support for the present theoretical framework, they also demonstrate the need for road safety interventions to be carefully targeted, taking into account the different predictors of intention to comply with the SZSL.

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