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A Study on Gender and Vehicle Use in Relation to Awareness and Attitude toward Festive Season OPS

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Abstract – *This paper shall examine the role of gender and type of vehicle most frequently used by road users (car and motorcycle) in relation to their awareness and attitude towards traffic enforcement. These two factors, namely role of gender and vehicle type, have not been fully understood especially in the context of enforcement efforts. The study includes analysis of survey data from a perception study on OPS Raya Aidilfitri 2016 traffic enforcement during festive season. Nonparametric testing and mean analysis were performed to determine any association between gender and vehicle with visibility (awareness) and attitude toward enforcement activities. The findings suggest that road users specifically car drivers and motorcyclists moderately agree with the effectiveness of such enforcement efforts. Male respondents and car drivers were considerably more aware of enforcement activities compared to female respondents and motorcyclists. In addition, females were found to be more favourable in their attitude towards enforcement compared to males. Gender and vehicle use significantly influenced road users' awareness and attitude to enforcement. Thus, the authority and agencies involved in traffic enforcement should consider strategies to incorporate these variables in order to increase effectiveness of enforcement efforts. For instance, enforcers may consider placing enforcement signage and conduct roadside checks in more strategic locations to increase visibility to road users.*

Keywords: Traffic enforcement, festive season, road safety, awareness, attitude

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1.0 INTRODUCTION

With the rising statistics on road fatalities, traffic enforcement is one of the many efforts and initiatives introduced by the government to reduce road traffic crashes. Nationwide enforcement undoubtedly calls for more facilities and traffic officers to be in charge in order to implement noticeable enforcement especially on high-volume and accident-prone roads as well as public transportation hubs. Traffic laws and regulations in Malaysia are continuously amended to suit current transportation and safety needs, and upgraded to include stricter acts and penalties to curb traffic violations.

Despite stricter laws and countless initiatives introduced to lower road casualties and crashes, the statistics remain grim. This leads to the argument that what the country actually lacks was effective traffic enforcement by the various agencies involved (The Star Online, 2017). On the local front, comparisons made by road users about the enforcement in Malaysia to enforcement in other countries are not unusual. Road users can be very efficient in finding ways to flout the laws and enforcement (Malaysian Digest, 2017). These issues must be addressed properly in due time.

One way to assess the efficacy of enforcement is to examine people's attitude towards enforcement efforts and whether they are aware of the presence of enforcement activities. One of the more well-known enforcement efforts in Malaysia is the multi-agency enforcement initiative conducted twice a year; normally during two major festivities. Locally dubbed as OPS (also called *Ops Selamat* or *Ops Bersepadu* or *Ops Sikap*), this enforcement effort attempts to tackle various issues such as traffic violation, heavy vehicle safety, emergency response service, domestic crime and driving under influence. However, after many years of implementation, the effectiveness of OPS enforcement is still debated and challenged especially since the approach requires substantial use of manpower and national resources. A study by Mohd Soid and Isah (2014) argued that even though there was improvement in the perception of being caught during enforcement periods, the magnitude was not very impactful. Thus, it may be necessary to look at traffic enforcement from a slightly different angle than the usual compliance or success rate.

In Malaysia, private vehicles especially motorcars and motorcycles dominate the road in large number and traffic conflicts leading to crashes and casualties are inevitably frequent. Male and female road users have similar share of rights, regulations and responsibilities on the road. There are several indicators highlighting the influence of gender and vehicle use in regards to road safety. When it comes down to statistics, more than 15,000 males have been injured or killed due to road accidents as compared to 3,174 females (RMP, 2016).

A study on tailgating in Malaysia revealed that single male drivers showed higher probability to tailgate compared to female or married male drivers (Ab Rashid, 2016). Another study by Liew et al. (2017) which was conducted in Klang Valley found significant relation between gender and accident involvement and the history of getting traffic fines. The same study also found that men had more tendency to commit traffic offenses than women.

It is also a known fact that motorcycle fatalities far outnumber other types of vehicle or road user with 4,485 motorcyclist/pillion deaths compared to 1,489 car driver/passenger deaths in 2016 (RMP, 2016). Due to the nature of driving and riding as well as the ergonomics of the car and motorcycle, such a difference between the driver and rider is highly understandable. A survey by VicRoads (2009) found significant differences in the attitude towards road users among drivers and riders as well as different perception on crash risk. In a naturalistic study by Muttart et al. (2011) to compare drivers' and riders' behaviour, the latter were found to have less glancing time and less number of glancing toward the road and traffic than the former and thus were more exposed to risk.

All these findings echo the belief that people of different gender and vehicle use have different behaviours, risks and perception of the road and possibly towards enforcement as well. There are also clear evidences that gender and vehicle use are among the many factors that play a significant role in road safety. Unfortunately, there is a dearth of evidence to grasp if these two variables also affect enforcement activities. Thus, this paper attempts to highlight

the difference in gender and the vehicle used by road users in respect to traffic enforcement which may provide necessary insights to improve road safety through effective road enforcement strategies.

2.0 METHODOLOGY

This paper utilizes the survey data on perception, awareness (visibility) and attitude towards enforcement activities during the period of OPS Hari Raya Aidilfitri 2016. The survey was conducted in offices and malls within the urban areas of Klang Valley. A self-administered questionnaire was used where research assistants briefed the respondents and were available for assistance as each respondent completed the questionnaire. The survey took less than two months to conduct, covering the time frame slightly before and during published enforcement period. This was purposely done to coincide with the increased enforcement of OPS period. Analysis and discussion in this paper will, however, omit the data on perception and only focus on the visibility of enforcement activities and attitude of people towards those activities.

The section on visibility was designed to measure awareness towards enforcement activities by asking respondents to indicate 'Yes' or 'No' for enforcement activities they observed or experienced within the preceding one week from the time of survey. Eight items were used in a previous study by Isah et al. (2012) on the enforcement activities which include enforcement patrol on the road using patrol vehicle, conducting enforcement on certain roads, installing enforcement cameras, installing hidden cameras, conducting road blocks, enforcement signage along the roads, plain-clothed enforcement officers/ unmarked enforcement vehicles and enforcement officers stopping/checking drivers/riders by the road side. One item was added on the signage with lowered speed limit by 10km/h at stipulated road. The full list of items is available in the analysis section.

The general attitude to enforcement section contained eleven items on the general perception towards the Ops enforcement which were modified from a study by Soole (2012) in Australia. The five-point scale used for response required respondents to indicate their agreement as 1= strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree for each statement.

In order to be eligible for the survey, the respondent must be a frequent driver or rider or both. However, the distinction between car driver and motorcyclist in this study is dependent upon the most frequent vehicle used by the respondents, hence the term 'vehicle use' appear throughout this paper. Those who stated 'car' as their most frequently used vehicle will be regarded as 'car drivers' while those choosing 'motorcycle' will be considered 'motorcyclist'. Thus, throughout this paper the term 'car driver' or 'motorcyclist' involved in the study are used interchangeably to refer to respondents choosing car or motorcycle consecutively as their most-frequently-used vehicle.

Analysis was performed to uncover any trend, relationship and difference in road users' awareness and attitude towards enforcement during the festive season with respect to the respondents' gender and most-frequently-used vehicle as the independent variables. For analysis involving vehicle use, samples indicating frequent vehicle use other than car or motorcycle were excluded. To investigate the pattern of responses for each question, percentage, Chi-Square test, mean analysis and T-test for mean differences were performed. Chi-Square was used to determine any relation between the visibility (awareness) of enforcement activity and gender and vehicle use. T-test was run to check for any difference in

the attitude towards enforcement among gender and vehicle use. All the findings on the differences in awareness and attitude towards enforcement were tabulated together for each statistical test to allow for meaningful comparison.

3.0 RESULTS AND ANALYSIS

A total of 410 samples were obtained within the data collection period of the study and 23 samples were excluded due to failure to indicate their gender and most-frequently-used vehicle and for not using car/motorcycle most frequently. Samples with missing values of other variables such as ethnicity and education were still included in the analysis. In the final samples of 387, there were considerably more male (57%) respondents than females (43%). The majority of respondents were of Malay ethnicity (88%) and frequent car drivers (71%). The distribution of respondents by gender and vehicle use according to selected variables is depicted in Table 1.

Table 1: Distribution of samples according to selected variables

Variable	Gender		Most Frequent Vehicle Use	
	Male (% within male)	Female (% within female)	Car (% within car)	Motorcycle (% within motorcycle)
Ethnicity				
Malay	200 (86.6)	148 (86.5)	241 (87.6)	100 (90.1)
Chinese	11 (4.8)	10 (5.8)	16 (5.8)	5 (4.5)
Indian	18 (7.8)	11 (1.2)	15 (5.4)	5 (4.5)
Others	2 (0.9)	2 (1.2)	3 (1.1)	1 (0.9)
Age group				
16-25	56 (24.2)	27 (15.8)	35 (12.7)	45 (40.5)
26-35	82 (35.5)	85 (49.7)	122 (44.4)	41 (36.9)
36-45	52 (22.5)	29 (17.0)	57 (20.7)	17 (15.3)
46-55	19 (8.2)	19 (11.1)	34 (12.4)	2 (1.8)
Above 55	22 (9.5)	11 (6.4)	27 (9.8)	6 (5.4)
Education level				
Primary school	21 (9.2)	9 (5.4)	8 (2.9)	14 (12.6)
Secondary school	111 (48.5)	56 (33.5)	97 (35.5)	66 (60.6)
High education	97 (42.4)	102 (61.1)	168 (61.5)	29 (26.6)
Marital status				
Single	79 (34.5)	61 (36.1)	77 (28.1)	58 (52.7)
Married	150 (65.5)	108 (63.9)	197 (71.9)	52 (47.3)
Have experienced being caught or fined for traffic violations				
Yes	93 (40.3)	33 (19.3)	88 (31.9)	33 (29.7)
No	138 (59.7)	138 (80.7)	188 (68.1)	78 (70.3)
Felt that current traffic summon rates are heavy				
Yes	159 (68.8)	102 (59.6)	184 (67.6)	69 (62.2)
No	72 (31.2)	66 (38.6)	88 (32.4)	42 (37.8)

3.1 Awareness towards Enforcement Activities

3.1.1 Frequency Analysis

Awareness in this paper is measured by visibility of enforcement to the road user. Respondents were probed on whether they saw any of the enforcement activities included in the following Table 2 by indicating 'Yes' if they saw the activity or 'No' if they did not. The percentage of those who answered 'Yes' is as tabulated below. It is clear that patrol vehicle and officers manning the enforcement spot were the most visible. The most obscure activities were plain-clothed officers and unmarked patrol vehicle followed by speed limit signboards with reduced speed limit as expected. Closer examination revealed more male respondents were aware of the activities than female, except when there were officers stopping or checking vehicles at the road side. Higher percentages among car drivers were also recorded for all activities except enforcement with canopies at certain roads and plain-clothed officers or unmarked vehicle enforcement.

Table 2: Visibility of enforcement activities

Enforcement Activities	% of 'Yes' Response , *N (Total Sample)*				
	Overall	**Male**	**Female**	**Car**	**Motorcycle**
Enforcement patrol on the road using patrol vehicle.	68.3, *385*	72.5, *218*	62.9, *167*	70.1, *274*	64.0, *111*
Conducting enforcement on certain roads (using canopies) to conduct regulation checks.	39.1, 386	42.0, *219*	35.3, *167*	38.9, *275*	39.6, *111*
Installing enforcement cameras at accident prone / dangerous areas (speed limit control areas) without the presence enforcement officers.	39.4, *386*	43.4, *219*	34.1, *167*	49.6, *275*	38.7, *111*
Installing hidden cameras with the presence of enforcement officers to catch traffic offences (e.g. speed limit).	35.8, *385*	37.2, *218*	32.9, *167*	37.2, *274*	32.4, *111*
Conducting road blocks.	54.3, *385*	55.5, *218*	52.7, *167*	55.5, *274*	51.4, *111*
Enforcement signage along the roads.	42.8, *383*	45.4, *216*	39.5, *167*	47.3, *273*	31.8, *110*
Plain-clothed enforcement officers and unmarked enforcement vehicles for enforcement purposes on the roads.	14.0, *385*	16.5, *218*	10.8, *167*	12.8, *274*	17.1, *111*
Enforcement officers stopping/checking drivers/riders by the road side for traffic offences.	68.4, *386*	68.5, *219*	70.7, *167*	79.9, *275*	55.4, *111*
The speed limit posted on signboards is reduced by 10km/h during normal hours.	15.6, *385*	17.0, *218*	13.8, *167*	16.1, *274*	14.4, *111*

To test if gender and vehicle use play any role in respondent's awareness of any enforcement activities, non-parametric analysis using Chi-Square test was performed. Table 3

below shows the test results according to gender and vehicle use. Significant association between the visibility of enforcement activities and gender was found at p<0.5 only for one enforcement activity, namely patrolling using patrol vehicle. Meanwhile, the type of vehicle frequently used was significantly associated with enforcement activities involving road side signage and road side checking by enforcement officers.

Table 3: Chi-Square test on visibility of enforcement activities with gender and vehicle use

Enforcement Activities (Yes / No)	Gender (Male / Female)		Vehicle Use (Car / Motorcycle)	
	X^2 (Chi-Square)	p-value	X^2 (Chi-Square)	p-value
Enforcement patrol on the road using patrol vehicle.	4.028	0.045**	1.362	0.243
Conducting enforcement on certain roads (using canopies) to conduct regulation checks.	1.775	0.183	0.018	0.894
Installing enforcement cameras at accident prone / dangerous areas (speed limit control areas) without the presence enforcement officers.	3.394	0.065	0.027	0.870
Installing hidden cameras with the presence of enforcement officers to catch traffic offences (e.g. speed limit).	1.086	0.297	0.789	0.374
Conducting road blocks.	0.301	0.583	0.541	0.462
Enforcement signage along the roads.	1.316	0.251	7.629	0.006**
Plain-clothed enforcement officers and unmarked enforcement vehicles for enforcement purposes on the roads.	2.579	0.108	1.236	0.266
Enforcement officers stopping/checking drivers/riders by the road side for traffic offences.	0.209	0.647	13.526	0.000**
The speed limit posted on signboards is reduced by 10km/h during normal hours.	0.736	0.391	0.162	0.687

**significant at p<0.05

3.2 General Attitude

3.2.1 Mean Analysis

Mean analysis was conducted to see the mean score of each item on general perception with regard to gender and vehicle use. This aims to gauge the difference in magnitude of respondent's 5-point scale agreement on each of the items probing on attitude towards traffic enforcement. The results in Table 4 are presented in a way that allows for comparison among the overall sample scores with different gender and vehicle type scores. The mean scores should

range from 1 to 5 with a larger mean score suggesting stronger agreement as described in the methodology.

Table 4: The mean scores for each item on general attitude

General Attitude towards Enforcement	Mean Score (SD), *N*				
	Overall	**Male**	**Female**	**Car**	**Motorcycle**
Traffic enforcement during festive seasons are effective in reducing road accidents.	3.87 (1.10), *387*	3.83 (1.10), *220*	3.86 (1.11), *167*	3.85 (1.11), *276*	3.81 (1.09), *111*
Enforcement activities are not usually conducted at night*	3.00 (1.22), *386*	3.13 (1.24), *219*	2.83 (1.18), *167*	2.95 (1.24), *275*	3.13 (1.16), *111*
You can be stopped by enforcement officer at any time for conducting a traffic offence.	3.68 (1.05), *387*	3.63 (1.11), *220*	3.74 (0.98), *167*	3.70 (1.08), *276*	3.63 (1.01), *111*
Enforcement activities are not usually carried out when it is raining*	3.52 (1.21), *386*	3.59 (1.23), *219*	3.42 (1.17), *167*	3.52 (1.18), *275*	3.50 (1.28), *111*
Enforcement activities are usually carried out at accident prone areas.	3.75 (1.10), *386*	3.68 (1.01), *219*	3.85 (1.07), *167*	3.81 (1.07), *275*	3.60 (1.17), *111*
When stopped during traffic enforcement, you can still avoid being summonsed*	2.82 (1.20), *387*	2.95 (1.21), *220*	2.70 (1.18), *167*	2.78 (1.17), *276*	2.93 (1.27), *111*
Random traffic enforcement is more effective to catch traffic offenders.	3.55 (1.13), *386*	3.48 (1.13), *219*	3.65 (1.13), *167*	3.64 (1.12), *275*	3.34 (1.12), *111*
The punishment for traffic offences is heavy.	3.37 (1.18), *384*	3.28 (1.23), *218*	3.48 (1.10), *166*	3.40 (1.14), *273*	3.29 (1.27), *111*
You can still avoid paying traffic summonses after conducting traffic offences*	2.57 (1.21), *384*	2.66 (1.16), *219*	2.47 (1.27), *165*	2.55 (1.23), *273*	2.58 (1.17), *111*
Enforcement activities should be increased during festive seasons.	4.15 (1.06), *385*	4.07 (1.09), *218*	4.26 (0.98), *167*	4.21 (1.04), *274*	3.99 (1.09), *111*
Automatic enforcement is more effective than manning the road with enforcement officers.	3.39 (1.22), *386*	3.36 (1.21), *219*	3.44 (1.24), *167*	3.47 (1.19), *275*	3.20 (1.28), *111*

The most agreeable statement with the highest mean score among the eleven items was that the increased of enforcement activities during festive season is necessary followed by the effectiveness of enforcement to reduce road accidents during festive seasons. The least agreed items were on being able to avoid getting summoned and paying the summon fines. There was a mixed trend for differences in the mean scores among the different gender and vehicle use. It should be noted that four items marked with [*] in the table are statements not in favour of the enforcement. Respondent's agreement on these four items was observed to be neutral but female respondents had lower mean scores which meant lesser agreement than the male on all of the four items. For vehicle, motorcyclists had lower mean scores compared to car drivers for seven items in favour of enforcement (items not marked with asterisk). It should be noted that

the irregular number of samples, *N* was due to missing data i.e. respondents failed to answer all the questions.

3.2.2 Mean Difference

Table 5 shows the results of independent t-test for each item on attitude to enforcement according to gender and vehicle use. Only two attitude items had significant difference at $p<0.05$ among respondents of both gender or vehicle use. They were on enforcement conducted at night and effective random enforcement.

Table 5: Mean difference for attitude between gender and vehicle use

Items	t	p-value
Gender:		
Traffic enforcement during festive seasons are effective in reducing road accidents.	-0.309	0.757
Enforcement activities are not usually conducted at night*	2.374	0.018**
You can be stopped by enforcement officer at any time for conducting a traffic offence.	-1.039	0.300
Enforcement activities are not usually carried out when it is raining*	1.372	0.171
Enforcement activities are usually carried out at accident prone areas.	-1.553	0.121
When stopped during traffic enforcement, you can still avoid being summonsed*	1.736	0.083
Random traffic enforcement is more effective to catch traffic offenders.	-1.485	0.138
The punishment for traffic offences is heavy.	-1.576	0.116
You can still avoid paying traffic summonses after conducting traffic offences*	1.335	0183
Enforcement activities should be increased during festive seasons.	-1.838	0.067
Automatic enforcement is more effective than manning the road with enforcement officers.	-0.764	0.445
Vehicle Use:		
Traffic enforcement during festive seasons are effective in reducing road accidents.	0.357	0.721
Enforcement activities are not usually conducted at night*	-1.293	0.197
You can be stopped by enforcement officer at any time for conducting a traffic offence.	0.578	0.564
Enforcement activities are not usually carried out when it is raining*	0.207	0.836
Enforcement activities are usually carried out at accident prone areas.	1.687	0.092
When stopped during traffic enforcement, you can still avoid being summonsed*	-1.106	0.270
Random traffic enforcement is more effective to catch traffic offenders.	2.303	0.022**
The punishment for traffic offences is heavy.	0.834	0.405
You can still avoid paying traffic summonses after conducting traffic offences*	-0.091	0.927
Enforcement activities should be increased during festive seasons.	1.892	0.059
Automatic enforcement is more effective than manning the road with enforcement officers.	1.951	0.052

**significant at $p<0.05$

4.0 DISCUSSION

The distribution of male and female samples in this study is reasonable since female drivers/ riders are prevalent in this country even though official statistics is not available. The samples are skewed in several variables but most noticeably towards the Malay ethnic and those with high education level, which was probably caused by the convenient sampling conducted in workplaces to suit the time constraint of this study. The samples were also largely made up of respondents aged between 26-35 years old, which was not surprising as most people start working and commuting frequently around that age. Among the respondents who had been caught or fined for traffic violation, the males indicated the highest percentage which was supported by the known fact that males were more prone to risk taking behaviour (Ibrahim et al., 2012). Interestingly, male respondents also gave the highest percentage for those who felt the current traffic summon rates are heavy.

At a quick glance, the findings suggest mixed responses on the awareness and attitude towards enforcement activities among respondents of both genders and vehicle use. Visibility of the enforcement activities may well be influenced by the locations travelled or resided by respondents. As most of them were working and needed to drive or ride frequently, it is plausible to assume they were reasonably exposed to the enforcement during the heightened activity period. As expected, patrolling and manned enforcement were the activities people are most aware of while covert operation with unmarked vehicle and ordinary clothed officers had the lowest visibility. The percentage for patrolling and manned enforcement visibility should however be increased as the percentage suggests about one third of the total road users in Klang Valley were unaware of such prevalent enforcement efforts around them. This could partly be due to two reasons: the non-existence of such enforcement in their locations or road user's ignorance and obliviousness.

Surprisingly, signage and camera enforcements were found not very encouragingly visible even though at the time of this study, news and initiatives regarding this were carried on mainstream media. Behaviours and attitude among drivers such as inattentiveness may lead to lack of awareness of enforcement. Again, it may also be possible that cameras and road signage were not available in some areas while being concentrated in other locations.

Among the nine enforcement activities, visibility of patrolling and road signage came out with significant association to genders and vehicle use. Male respondents and car drivers were more aware of the presence of these two activities. This may be influenced by the nature of male and car driver in terms of many ways such as psychology, driving skills and eyesight ability. Males are known to be more confident in driving and prone to risk taking. Male drivers or riders may resort to taking their eyes from the road and thus able to see the enforcement activities. The percentage of male respondents in this study with history of being summonsed or caught was found higher than the female. Since the male also had higher tendency to commit traffic violations (Liew et al., 2017), this may trigger them to become more vigilant towards enforcement but at the same times less receptive of the effort. Car drivers on the other hand have more protection from the environment and comfort in their vehicle compared to motorcyclists, thus giving them more liberty to look around and register the presence of enforcement.

The whole attitude towards enforcement is mild at best with the average responses centred on 'neutral'. Only two items came out significantly different in agreement among both gender and vehicles use. From the mean, female respondents had more favourable attitude

towards enforcement but were less observant towards enforcement. This is shown by their higher scores on positive statements and lower for negative statements on enforcement compared to the male respondents. Similar findings were also available from a study by Turner et al. (2014) in New Zealand which found that the female were more supportive towards speed enforcement compared the male. It is reasonable that the female is more obedient and law abiding than the male and thus exhibit more support towards enforcement. However due to lack of confidence and skills, they may be more focused on the road and too occupied with their driving instead of being aware of enforcement.

Motorcyclists agree more than car drivers for statements on enforcement activities not conducted at night, able to avoid summons issuance even when stopped by enforcers and able to avoid paying summons. Interestingly, all these statements were in negative view towards enforcement and significantly different between the gender and vehicle use. Ironically, operations conducted at night targeting illegal riding among motorcyclists are very common in the country which was not reflected in the attitude of motorcyclists involved in this study. Even if the target were younger motorcyclists, the other age group of motorcyclists should have been able to see and know about it during their ride and thus should be reflected in their attitude which seemed to be not the case in this study. After observing the respondents age, it was found that almost half of motorcyclists among the respondents were aged between 16 to 35 years old. The younger group of motorcyclists may have been able to avoid night enforcement and paying summons which led to the casual attitude. Furthermore, it may be possible that the respondents may be more familiar with their daily commute to work rather than at night.

This paper does not measure compliance or how any of the enforcement activities affect road users' behaviour on the road. The main aim is to highlight the most visible enforcement activities and attitude difference specifically among the different gender and vehicle users which are quite limited in other studies regarding traffic enforcement. Understanding the gender difference as well as the type of vehicle use in relation to enforcement visibility and attitude may serve as an input on the efficacy of enforcement and in strategizing better enforcement approach in the future.

5.0 CONCLUSION

Considering all the findings of mixed responses on visibility and attitude, traffic enforcement through OPS moderately stands in positive light among drivers and riders in Klang Valley. Male respondents and car drivers were observed to be more vigilant towards enforcement activities though the female seem to have more positive attitude towards OPS enforcement than the male. On the other hand, gender and vehicle use were found to have significant association with the visibility of several enforcement activities. Significant differences among gender and vehicle use were also found in the attitude towards enforcement regarding night time and random traffic enforcement.

6.0 RECOMMENDATIONS

OPS enforcement has been held for many years at least twice annually, coinciding with major festivities or holiday seasons. There are concern that the statistics have not significantly changed and that a new approach must be formulated. The efforts should try to tackle the difference in the road user level of awareness and attitude to increase effectiveness of enforcement activities. Different enforcement activities may differently appeal more to

different gender and vehicle users and thus should be appropriately considered. For instance, enforcement signage and enforcers checking at the road side could be relocated and conducted in more strategic places to grab the attention of motorcyclists considering the fact that they ride on the left side of the road and sometimes on exclusive motorcycle lanes.

This study only covers urban areas in Klang Valley due to the fact that the area has the most and widest coverage of road network and thus requires enforcement activities. The findings may not be generalizable to the less developed areas. However, heightened enforcement can sometimes be extended to the less urban location. For more conclusive findings, the study should look into the trend for enforcement efforts in less urban or rural locations where the heightened enforcement takes place.

For future study, it may be more meaningful to have longitudinal study to compare and observe data from previous OPS enforcements since the effort has been going on for years. A study can be designed to include variables such as the period of enforcement, locations of enforcement and the after effect of the enforcement. Other variables not dealt with in this paper may also be examined to enable a more in-depth understanding on the efficacy of enforcement.

Enforcement is an approach based upon deterrence on committing violation. Making people feel that they are under constant watch by the enforcers and have a slight chance to avoid penalties upon committing traffic violations could very well be the key to increase the efficacy of enforcement. Thus, having road users with casual attitude towards enforcement should be a red flag to indicate that enforcement efforts currently executed must be improved.

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