PERCEIVED RISK OF BEING CAUGHT AMONG ROAD USERS FOR TRAFFIC INFRINGEMENT IN MALAYSIA

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ABSTRACT

The ‘balik kampung’ or visiting hometown among city dwellers generates high volume of traffic due to increasing number of vehicle on the road during festive seasons. As a result, there will be an increment in the number of fatalities recorded. In consequence, a series of enforcement intervention within two weeks were conducted by respective agencies during festive season in order to minimise the problem. This study set out to determine road users’ perceived risk of being caught for traffic infringement before and during enforcement programmes throughout OPS Chinese New Year 2014. Series of survey to 1,199 licensed drivers and riders was conducted at selective region in Malaysia. Their perceived risk of being caught was measured before and during the enforcement programmes. The results highlighted that road users’ perceived risk of being caught was increased during (M= 4.67, SD = 2.158; t (1197) = -3.459, p = .001) the enforcement programmes implementation as compared to before (M = 4.20, SD = 2.554) it was started. The study conclude that even despite the fact that the enforcement programmes conducted has positive impact on perceived risk of being caught level, the magnitude of impact was still not very encouraging. Hence, the respective enforcement agencies should review their current enforcement strategies in order to instil discipline among the road users.

Field of Research: perception of being caught, traffic enforcement, road safety.

1. Introduction

Holidays are meant to be times of enjoyment and festivity. Holidays are also associated with a large increase in recreational private travel resulting in longer trip distances, and more travel in rural and unfamiliar environment. Unfortunately, holiday periods are commonly viewed as times of heightened danger on the roads resulting in fatal and injurious traffic collisions. Hence, unwanted fatalities was resulted from these unfortunate travelling road users.

The increasing number of fatalities due to road traffic crashes in Malaysia is worrying especially during these festive seasons. According to recent statistic of Royal Malaysian Police (2012), a total of 33,761 traffic crashes were recorded in Malaysia. Almost one third of overall total traffic crashes involved fatal crashes is mainly caused by speeding with a total number of 383 cases. Admitting the current scenario of traffic crashes in Malaysia is worsening, the Malaysian government has taken a number of initiatives to reduce the number and one of it by creating the perception of being caught (POBC) among the road users.

Enforcement is one of the essential components in changing road user behaviour (Loner et al. 1995). Traffic enforcement seeks to generate a general deterrence effect on motorists. General deterrence is based on road user’s perception of being cited or arrested for a traffic violation. The potential violators believe there is a strong probability that they will be caught, some of them will avoid committing traffic offences, at least some of the time. The overall goal is to increase compliance by
motorists to traffic laws, resulting in reduced vehicle crashes (National Highway Traffic Safety Administration 2005; McGee and Eccles 2003).

Launching of enforcement programme during festive seasons were one the efforts in ensuring high POBC among the road users. Many countries have performed this traffic enforcement during Christmas, Easter day and New Year celebrations. They were focusing on the fatal fives; which includes speeding, drink or drug driving, not wearing a seatbelt, fatigue, inattention and distraction (Queensland Government, 2013; Metropolitan South Brisbane Police, 2012; New Zealand Police, 2012). In Queensland, Australia, an Easter Road Safety Campaign was executed during Easter holiday break in year 2013. The objective was to ensure safe road behaviours over Easter (Queensland Government, 2013).

As reported by Department of Transport (2012), a pre-December holiday traffic law enforcement operations traffic enforcers was conducted as regards to Christmas holiday. They have been practising ‘stop and check’ approach to every single type of vehicles in South Africa. Besides that, no compromise on the traffic punishment if found guilty. The sentences imposed by the courts include hefty fines, imprisonment without the option of a fine as well as suspension/cancellation of driving licences. These motorists now also have criminal records. High visibility patrols and traffic enforcement operation over the holiday period were also conducted in support of the ‘Anywhere – Anytime’ strategy. Over this period, police will be deployed across the state and will use covert and marked mobile speed cameras, marked and unmarked police patrols, fixed speed cameras, hand-held speed detection devices and the automatic number plate recognition system (Metropolitan South Brisbane Police, 2012).

Furthermore, awareness campaign was conducted to complement the enforcement intervention. An ad campaign called ‘Better Slow Down’ were launched by targeting young male drivers aged 17 – 24 years old who over representative of fatal speed crashes in Queensland (Queensland Government, 2013). In New Zealand, awareness campaign themed ‘Road Safety is everyone’s responsibility’ was a successful. The results have yielded more than 500 crashes occurred but none of them involved in fatality. This is a considerable reduction when compared to last Easter when there were almost 600 crashes occurred. (New Zealand Police, 2012).

In Malaysia, similar strategies have been conducted during festive seasons. The most common enforcement programme conducted is OP Selamat or previously known as Ops Sikap. It is focused on behavioural changes imposed through traffic enforcement. The Ops had now been a practice of the nation in preventing road crashes and fatalities. Its main goal is to reduce the number of fatal crashes by ensuring road users obedience to traffic rules especially on speeding. OP Selamat is a strategy that is still applicable and effective in changing the behaviour of road users in Malaysia. In order to instil discipline among road users, various initiatives and preventive measures with regard to the enforcement aspect had been undertaken by the respective government agencies.

OP Selamat has been practiced for years now which resulted in the abundance of rich data, however, yet, information germane to the effectiveness of such enforcement programme in creating POBC among the road users is still unclear and inadequate. In response to this, this study aims to measure the effectiveness of OP Selamat in increasing POBC among the road users by measuring the level of effectiveness of OP Selamat in creating POBC based on the period the Ops being conducted.

2. The importance of enforcement in reducing traffic crashes

Relying on enforcement to further reduce the number of traffic crashes is vital. A study in Norway by Assum and Ingebrigtsen (1990) indicated that the elimination of traffic offences could reduce
crashes by 20% to 25%. Moreover, Haglund and Aberg (2000) and Elliot et al. (2007) state that police surveillance and enforcement activities can have a significant effect on the compliance of traffic rules and regulations. As reported by Institute for Road Safety Research (SWOV) (2010), different method of speed enforcement helps to reduce speeding offences and crashes. It was shown as speed cameras reduce 20% of injury crashes at road sections. A total of 95% of respondents consider red light running enforcement were meaningful. This is accordance with road users believed of higher risk of being caught if punishment and enforcement are stronger.

To date, a number of studies across the globe have proven on the effectiveness of POBC in reducing the number of traffic crashes especially the one related to speeding (Beck et al., 2009; Mannering 2008; Blincoe 2006; Glendon 2003; Waard & Rooijers 1994; Summala, 1985). In a study done by Summala (1985), has accentuated that POBC is effective measure in obtaining traffic law compliance. It is also generally accepted that risk of detection; rather than severity of punishment is the most important factor behind compliance with law. A study done by Mannering (2008) on the probability of being caught for speeding found that on the average the drivers believe that they will only be fined for speeding if they drive 10.88 km/h over the speed limit. He also found out that drivers associated safety measurements with the likelihood to be fined. They believe that they will only be fined by the police if safety is threatened. Meanwhile, Waard & Rooijers (1994) found that the perception of being caught plays an important role in speed choice which reduces the driver’s tendency to speed. Other than that, Glendon (2003) in his study has concluded that drivers who witness other drivers being stopped by the police are more likely to reduce their speed accordingly. In another perspectives by Beck et al. (2009), drivers with higher POBC are found to be more likely to be non-white and less likely to drive 10 mph above the speed limit.

Furthermore, another study by Adams-Guppy and Guppy (1995) have looked onto the role of the perceived probability of adverse events (perceived risk) together with utility measures (e.g. the importance of getting to a destination on time) in predicting self-reported behaviours. In their study, respondents were asked to indicate on their frequency of speeding on motorways at 10 mph and 20 mph above the speed limit. Analysis performed has confirmed that while perceptions of the risk of injury were not good predictors, things are going the other way around for time pressure. Such results indicate that more frequently occurring positive factors are better predictors of behaviour than rare, but negative, events. Brown and Cotton (2003) on the other hand have looked onto drivers perceptions of risk in relation to speeding, and risk-mitigating beliefs (the common-sense notions that a driver might employ to justify their speeding, e.g. that it is acceptable to speed when there are no cars around or when driving on a straight road). They manage to conclude that those who adopt risk-mitigating beliefs possess higher levels of speeding. In addition, as estimates of risk partially mediated this effect, the implication is that these risk-mitigating beliefs may serve to reduce perceptions of the risk of speeding.

3. Methodology

3.1 Sample and data collection method

The data used in this study is obtained from POBC studies conducted during OP Selamat of Chinese New Year 2014. The respondents for this study comprised motorists and motorcyclists who were fully-licensed drivers. This study involved a total of 1,199 respondents and was conducted at the selected places such as i) federal roads (which were Klang and Puchong in Selangor; Taiping and Ipoh in Perak); and ii) expressway locations (which were RnR Tapah, Perak and RnR Seremban in Negeri Sembilan). The purpose of this survey was to monitor the road users’ perceived risk of being caught every festive season. Selection of the survey sites was primarily based on high fatality rates. The subjects were approached by team members at each locations. They were informed about the
objectives of the study and were assured that the information obtained would remain confidential. No names or identification card numbers were recorded to keep the questionnaires anonymous.

3.2 Instrumentation

A self-administered questionnaire was developed in the national language and examined for face and content validity. Specifically, this study measures several variables namely:

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Demographic profile</td>
<td>Gender, age, races, level of education, monthly income and other additional information such as vehicle characteristics and experience of being summoned.</td>
</tr>
<tr>
<td>2.</td>
<td>Road Users’ POBC for ten (10) specific offenses</td>
<td>Each construct is measured by 10 specific traffic offenses with varied rating scales. Respondents were asked how strongly they agreed with the statements above for the construct using 11-point scale with 0 – 3 indicating that their POBC was low; 4 – 7 moderate and 8 - 10 high.</td>
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<tr>
<td>3.</td>
<td>Level of Visibility of Enforcement Activities</td>
<td>Respondents were asked to what extent the level of enforcement that they have seen during the week with an 11 point scale (0 = Very low up to 10 = Very High).</td>
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</table>

3.3 Analysis

Based on the data gained, descriptive statistics was performed to describe the overall POBC while inferential statistics, independent t-test and ANOVA were performed to achieve two main attempts of the study which were to measure the success of OP Selamat in creating POBC among the road users. Another, was comparing the difference of POBC by the year 2013 and 2014 OP Selamat conducted during Chinese New Year.

4. Finding & Discussion

4.1 Demographic profile of respondents

The findings showed that the distribution of gender was almost equal for male and females with 592 male respondents (49.4%) and 607 female respondents (50.6%). The average age of the respondents were 32 years old with range from 17 to 74 years old. Most of them earned salary about RM 2,050.10 per respondents. Majority of the respondents have no experience of being summons for traffic infringement (54.1%). However, for they who have experienced, only few of them reported to have received more than 10 summons (8.6%).

Table 1: Characteristics of the sample

<table>
<thead>
<tr>
<th>Gender (%)</th>
<th>n (%)</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>592 (49.4)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>607 (50.6)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age group (%)</th>
<th>n (%)</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-25 years old</td>
<td>456 (38.0)</td>
<td>32.0 (11.1)</td>
</tr>
<tr>
<td>26-35 years old</td>
<td>374 (31.3)</td>
<td></td>
</tr>
<tr>
<td>36-45 years old</td>
<td>196 (16.3)</td>
<td></td>
</tr>
</tbody>
</table>
4.2 Perceived risk of being caught among road users

Often several indicator were measured in order to evaluate the effectiveness of the implementation of the OPS, for this paper, only perceived risk of being caught will be discussed. Table 3 illustrates the summary of the percentage of road users’ perception of being caught for 2014 OPS Chinese New Year. In order to observe the pattern of the perception of being caught, the collected data was categorized into two main time periods, namely before the OPS and during the OPS.

Before the OPS, the percentages of road users’ overall perception of being caught were at medium level (42%). The percentages increased to 46.7% right after during the OPS with a variance of 4.7% only. This indicates clearly that road users were aware of the actual increased enforcement activities due to the daily advocacy of enforcement activities thru media.

The percentages of overall perception of being caught for both categories of road users which include motorists and motorcyclists were calculated. For motorists, the perception of being caught was 41% before the OPS. There was an increase in the percentage of perception of being caught during (46.6%) implementation of the OPS of 5.6%. However, motorcyclists perceived that the probability of being caught for traffic offences was somewhat similar to that of before and during the implementation of the OPS with a variance of 3.7% only.

Table 3: The Perception of Probability of Being Caught among Motorists and Motorcyclists at all Locations

<table>
<thead>
<tr>
<th>Period</th>
<th>OPS CNY 2014</th>
<th>Overall</th>
<th>Motorists</th>
<th>Motorcyclists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before Ops</td>
<td>42.0%</td>
<td>41.0%</td>
<td>43.1%</td>
<td></td>
</tr>
<tr>
<td>During Ops</td>
<td>46.7%</td>
<td>46.6%</td>
<td>46.8%</td>
<td></td>
</tr>
</tbody>
</table>

Table 4 shows a comparison in perception of being caught throughout the Chinese New Year 2014 OPS for road users. An independent-samples t-test was performed to compare the mean scores of road users’ overall POBC for OPS Chinese New Year period. The result reveals that there was significant difference in mean scores for before OPS (M = 4.20, SD = 2.554) and during OPS, M = 4.67, SD = 2.158; t (1197) = -3.459, p = .001.

Table 4: Comparison of road users’ perception of being caught between OPS period for Chinese New Year 2014
To compare the effect of present enforcement programme with those done in the previous year, the POBC during OPS in year 2013 and 2014 was analysed. The aim is to explore the effect of OPS enforcement programme between year 2013 and 2014 on mean scores of road users’ overall POBC for traffic offences. An independent-samples t-test was conducted to compare the mean scores of road users’ overall POBC for 2013 ad 2014 OPS Chinese New Year. Based on Table 5, it can be seen that there was a statistically significant decrease in mean scores for OPS Chinese New Year 2014 (M = 4.67, SD = 2.158) as compared to OPS Chinese New Year 2013 (M = 5.02, SD = 3.082); t (1198) = 2.266, p = .024. Apart from that, road users’ reported that the implementation of OPS CNY in terms of enforcement strategy used for both years 2013 and 2014 was somewhat similar could be the reason why the POBC were decreases.

Table 5 : Comparison of road users’ perception of being caught for OPS CNY between year 2013 and 2014

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Mean</th>
<th>SD</th>
<th>Independent sample t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPS CNY 2013</td>
<td>5.02</td>
<td>3.082</td>
<td>t (1198) = 2.266, p = .024</td>
</tr>
<tr>
<td>OPS CNY 2014</td>
<td>4.67</td>
<td>2.158</td>
<td></td>
</tr>
</tbody>
</table>

4.3 Traffic enforcement visibility from road users’ perspective at federal roads during the OPS enforcement programme

The respondents was asked to rate the visibility level of traffic enforcement during the implementation of OPS. The responds was obtained in two separate locations; which i) without enforcement activities; and ii) with enforcement activities. These location was determined based on the locations where JPJ and PDRM will conducted their enforcement activities.

From the results, it was found out that a majority of the respondents stated that both locations reported medium visibility of enforcement activities. Based on Figure 1, findings revealed that majority of respondents’ perceived that the level of traffic enforcement visibility was at medium along federal roads; 51.9 % at no enforcement activities conducted. Respondents with low and high visibility were almost same percentage with 23.5% and 24.6% respectively.
Figure 1: Level of traffic enforcement visibility at federal roads

However with enforcement locations, there was a 5.2% increment in medium visibility (from 51.9% to 57.1%). Meanwhile there was also increase in reporting of high visibility (32.1%) at with enforcement locations. Vice versa, for those who perceived low visibility of traffic enforcement were decreases along the federal roads (10.7%) during OPS. Overall, there was an increase of enforcement visibility at the enforcement location as compared to no enforcement locations.

A Mann-Whitney test was performed to test the difference in the enforcement visibility scores during OPS CNY 2014.

The test revealed that there was significant difference in the enforcement visibility scores for two type of federal roads. The enforcement visibility scores for federal roads with enforcement activities (Mean Rank = 206.43, n = 196) were significantly higher than federal roads without enforcement activities (Mean Rank = 176.88, n = 187), U = 15498, z = -2.902, \( p = .004 \).

Although the percentage of visibility of enforcement throughout the implementation of the OPS is in the category of medium to high, results from the inferential statistical analysis clearly show a significant difference for two type of federal roads. Road users perceived that they saw a significant increase at locations of enforcement activity carried out by the authorities during the implementation of the OPS Selamat (refer to Table 6).

Table 6: Comparison of enforcement visibility scores for federal locations with or without enforcement within two weeks

<table>
<thead>
<tr>
<th>Enforcement visibility scores</th>
<th>Federal Roads</th>
<th>Mean Rank</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>With Enforcement</td>
<td>206.43</td>
<td>.004</td>
<td></td>
</tr>
<tr>
<td>Without Enforcement</td>
<td>176.88</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. Conclusion and Future Recommendation

Overall, the OPS CNY conducted in year 2014 has the positive impact on POBC level, but the magnitude of impact was still not very encouraging. Road users are of the opinion that despite committing traffic offences, their probability of being fined by the authorities is still low.

However, as compared to the previous OPS CNY 2013, the current OPS CNY 2014 has significant decrease in the overall road users’ perception of probability of being caught for committing traffic offences. Although the percentage of visibility of enforcement throughout the implementation of the OPS is in the category of medium to high, results from the inferential statistical analysis clearly show a significant difference for locations with and without enforcement activities. Road users perceived that they saw an increase in enforcement activity carried out by the authorities during the implementation of the OP Selamat.

The level of enforcement and the visibility of the police are the key factors in drivers’ adherence to speed limits. The significance of police visibility has been demonstrated in a study by Tay (2009), in which automated speed cameras were compared to manned enforcement. While, it was found that even though both surveillance methods reduced the overall number of accidents, manned enforcement also produced a significant reduction in the number of serious accidents.

This findings should be taken positively as a guide for planning next OPS implementation. More strict approach in the interventions should be taken by the respective enforcement agencies in order to strengthen the perception of being caught impact of police apprehension. Furthermore, specific targeted enforcement approaches should be implemented as to ensure maximum possible accident reduction benefits i.e. speed, DUI, seatbelt use, helmet use. Next, traffic enforcement activities should be executed throughout the year instead of festive seasons as to increase enforcement visibility on the roads in order to increase public perception level.

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