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## SELECTION OF SAFETY CAMPAIGN MATERIALS TO MEASURE MOTORCYCLE RIDER ATTITUDE IN INDONESIAN CITIES

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### ABSTRACT

*Increasing trend of motorcycle ownership in Indonesian cities caused large number of motorcycle in the general traffic and triggers motorcycle rider behaviour problems such as unskilled rider, traffic violation, aggressive behaviour, etc. This study was aimed to select suitable safety campaign materials to measure motorcycle rider attitude in Indonesian cities. In the main future research, more than 100 respondents from four cities would be requested to fill Indonesian Motorcycle Rider Behaviour Questionnaire. Afterward, they will be asked to observe certain safety pictures and safety videos which show the effect of certain risky motorcycle rider behaviours. They will be asked to fill another questionnaire to measure their attitudes towards motorcycle safety riding after such intervention. A before and after intervention analysis will be carried out to measure the effectiveness of visual safety campaign materials. This present paper is intended to describe the selection process of readily available visual safety campaign materials (pictures and videos) developed by the government bodies. A panel of road safety experts was assigned to evaluate the appropriateness of the materials.*

**Keywords:** *safety, campaign, material, motorcycle, rider, attitude*

### INTRODUCTION

In Indonesian cities, there was increasing trend of motorcycle ownership and use to avoid congestion in the last decades. The severe congestion was due to uncontrolled land use development and unsatisfactory public transport system. Apart from problem with large number of motorcycle in the general traffic, it triggers other problems related to motorcycle rider behaviour such as unskilled rider, traffic violation, aggressive behaviour, etc.

The objective of this study was to select appropriate safety campaign materials that suitable to measure motorcycle rider attitude in Indonesian cities. The future research plan will be to ask 100 respondents from four cities (Padang representing Sumatera, Pontianak representing Kalimantan, Surabaya representing Java and Denpasar representing Bali) to fill Indonesian MRBQ (Motorcycle Rider Behaviour Questionnaire) that has been developed by [1] in the previous year of research. Afterward, they will be asked to observe certain safety pictures and safety videos which show the effect of certain risky motorcycle rider behaviours. They will be asked to fill another questionnaire to measure their attitudes towards motorcycle safety riding after such intervention. A before and after intervention analysis will be carried out to measure the effectiveness of visual safety campaign materials. This present paper is intended to describe the selection process of readily available visual safety campaign materials (pictures and videos) developed by the government bodies. A panel of road safety experts was assigned to evaluate the appropriateness of the materials.

### OBJECTIVE

The objective of this paper is to describe the selection process of readily available visual safety campaign materials (pictures and videos) developed by the government bodies.

### LITERATURE REVIEW

Before the revised version was developed by [1], Indonesian MRBQ was initially developed in 2014 by [2]. It was designed to measure motorcycle rider behaviour in Indonesia. The questionnaire was actually an adaptation of Persian MRBQ which was developed in 2011 by [3]. In Indonesian context, adaptation from Persian MRBQ was considered to be more appropriate compare to adaptation from British MRBQ which was developed in 2007 by [4]. People in developed countries such as Britain mainly ride large size motorcycle for leisure activities. So the issue of speeding

became important as well as “advanced” protective clothing such as knee protection. This is not the case for cities in developing countries such as Indonesia with severe congestion. In this situation speeding will only an issue around midnight. Although Iran and Indonesia were both classified as developing countries there were some differences between local norm / law regarding motorcycle operation. For example In Iran, “carry passenger for money using motorcycle” is illegal [3], where in Indonesia motorcycle taxis are exist although not regulated.

The Indonesian MRBQ consists of 38 statement items covering six subscales (factors), i.e. speed violations (SV), safety violations (SAV), control errors (CE), traffic errors (TE), stunts (S) and traffic violations (TV). Therefore Indonesian MRBQ covers both violations and errors. Violation is deliberate (though not necessarily reprehensible) deviations from those practices believed necessary to maintain the safe operation of a potentially hazardous system [5]. Errors is defined as the failure of planned actions to achieve their intended consequence. Errors can involve two psychologically distinct kinds of 'straying': the unwitting deviation of action from intention (*slips* and *lapses*); and the departure of planned actions from some satisfactory path towards a desired goal (*mistakes*) [5]. CMRDV (Chinese Motorcycle Rider Driving Violation) consist only violation factors, i.e. aggressive violations and ordinary violations [6].

Unfortunately, available motorcycle safety campaign materials in Indonesia (in any form, i.e. picture, audio, short video and longer testimonial video) were mainly regarding rider protection equipment ownership and use. Other common theme was vehicle check before riding. Only very few materials were about motorcycle operation [7]. Therefore the authors modified Indonesian MRBQ accordingly for the base line questionnaire before treated the respondents with pictures, audios, videos, and testimonial videos.

The Malaysian government spends a lot of money on road safety awareness campaigns especially directed to motorcyclists. However the effectiveness of such campaigns was limited. A study was conducted to evaluate the motorcyclists' awareness level after watching road safety advertisements. Its relation to the rate of road accidents involving motorcyclists was also evaluated. The study was aimed to measure the acceptance level of these television commercial, identify effect of advertisements from the cognitive, affective and conative aspects of the motorcyclists and identify contributing factors to the acceptance and effect of advertisements according to the social justice theory. The respondents in this study were motorcyclists from various government and public agencies, and students in Kuala Lumpur. They were shown five road safety advertisements and this was followed by filling a questionnaire. 90% of the advertisements were accepted by the respondents. The road safety campaigns have a high effect on the cognitive aspect (83.0%), whilst the effect on affective aspect was 55.5% [9].

Effect of Norwegian adolescent safety campaign was evaluate and the association between risk perception and traffic behaviour was examined. The study showed that a traffic safety campaign carried out among adolescents in two Norwegian counties seemed to have changed risk perception related to speeding and other traffic hazards significantly. The respondents of the post-sample also reported less risk behaviour in traffic and the number of speeding accidents were reduced. Perceived risk was not changed among adolescents in two other counties with no safety campaign. Neither were there any changes in self-reported risk behaviour. There were no significant differences between samples classified by sex, age, percentage who had a driver licence, driver experience or accidents records. Thus, it can be concluded that it was the campaign that caused the change in risk perception in the experimental group [10].

## METHODOLOGY

There were at least four type of motorcycle rider safety awareness campaign materials developed by the Ministry of Transport of Indonesia [7, 8], i.e.:

1. Picture or drawing in a form of poster/ banner/ pin etc.
2. Audio in a form of short radio advertisement (60 seconds). The advertisement can be placed in any radio broadcast slot including in a half an hour radio road safety related drama.
3. Video in a form of short television/ movie advertisement (30 seconds, 60 seconds and 3 minutes).
4. Testimonial video either performed by real accident victim or by professional artist (5 minutes)

Only campaign materials in the form of picture and short duration video will be discussed in this paper, as they were available before the observation was made by panel of experts. Campaign materials in the form of audio and testimonial video were available later.

Nine experts consist of four academics and five consultants with at least five years of experience in traffic safety studies/ projects were asked to observe thirteen safety campaign pictures and thirteen short safety campaign videos one by one. After a safety campaign material shown in the screen, each of the expert was asked to individually rate the content validity of the campaign material in column A and the possible safety attitude change if the campaign material was seen or watched by a motorcycle rider in column B. Figure 1 shows the typical questions in the questionnaire that should be filled individually by the experts. The expert should rate 1 if he or she extremely disagree, 2 if he or she disagree, 3 if he or she agree and 4 if he or she extremely agree about the content validity of the materials in column A. The expert should rate 1 if he or she extremely disagree, 2 if he or she disagree, 3 if he or she agree and 4 if he or she extremely agree that the material will potentially change respondent attitude.

Expert Name : \_\_\_\_\_

Place/Date of Birth : \_\_\_\_\_

Please fill with:

1 if you extremely disagree

2 if you disagree

3 if you agree

4 if you extremely agree

A. The campaign material described campaign objective correctly

B. The campaign material potentially change motorcycle rider safety attitude

No	File Type	File Name	Campaign objective	A	B
1	Video	Helm for children	Children should wear helmet even for short distance trip		
2	Video	Motorcycle carrying capacity	Motorcycle should only carry limited luggages within certain dimension		
3					
.					
.					
.					
13					
14	Picture	Choose the right helmet	Characteristics of standard helmet		
15	Picture	Mobile phone use	Mobile phone should not use when operating motorcycle		
16					
.					
.					
.					
26					

Figure 1: Typical Questions in the Questionnaire

The mean score of A and B for 26 campaign materials were then be calculated. A campaign material will be selected to be used in the next step of the research if mean score of A at least 3.00 (showing agreement of the campaign material content validity) and B at least 2.51 (showing tendency of agreement on campaign material power to change rider safety attitude). The use of 2.51 as a cutting point for B was deliberately determined as in general mean score of B was lower than mean score of A. If both cutting point was 3.00 to many campaign materials will be rejected. Some mean difference t-tests were also carried out to show different view of academics and consultants.

## RESULTS

Table 1 shows mean score of A and B for 26 campaign materials along with the decision to use some campaign materials and reject some others. Using the criteria that stated earlier, it was decided to use nine short videos and five pictures in the next step of the research (or in total about 54% of total 26 campaign materials). The fact that only five pictures selected were consistent with general comment of the expert that observing video as a moving picture has more power to persuade viewers to change attitude including attitude of motorcycle riders. Combination between

moving picture, conversation, and musical illustration, sound's effect, animation and text messages all together strengthen persuasive strength of the message. The message become more realistic to the viewers as if they were part of the video scene [7]. Unfortunately the selected campaign materials were mainly about standard helmet, helmet use and the use of other protective clothing such as bright colour jacket, gloves and shoes covering the ankle. Very few was showing motorcycle rider operation.

*Table 1. Mean Score of A and B and Decision on Campaign Material Usage*

General Content	Message Validity	Potential Attitude Change	Material Usage?
Children Helmet Use Video 1	3.56	3.33	Yes
Motorcycle Load Limit Video	3.11	3.00	Yes
Rider Safety Equipment Video 1	3.11	2.67	No
Children Helmet Use Video 2	3.33	3.11	Yes
Rider Safety Equipment Video 2	3.33	2.67	Yes
Children Helmet Use Video 3	3.56	3.22	Yes
Effect of Non-Standard Helmet Use Video	3.56	3.33	Yes
Effect of Road Race Video	2.67	2.89	No
Effect of Lane Splitting Video	3.00	2.89	Yes
Rider Age Limit Video	3.56	3.56	Yes
Rider Safety Equipment Video 3	3.22	3.00	Yes
Riding Preparation Video	3.22	2.89	Yes
Safe Riding Video	2.67	2.78	No
Standard Helmet Picture	3.22	3.00	Yes
Safe Riding Picture	2.56	2.44	No
Children Helmet Use Picture	3.22	2.67	Yes
Effect of Speed Limit Picture 1	2.22	2.33	No
Blank Spot Picture	2.67	2.33	No
Rider Safety Equipment Picture	2.89	2.44	No
Effect of Standard Helmet Use Picture	3.00	2.78	Yes
Effect of Bright Colour Jacket Picture Message	3.00	2.67	Yes
Effect of Speed Limit Picture 2	2.78	2.44	No
Motorcycle Passenger Number Limit Picture 1	2.89	2.67	No
Motorcycle Passenger Number Limit Picture 2	2.33	2.11	No
Motorcycle Load Limit Picture	3.11	3.00	Yes
The Benefit of Rear-view Mirror Picture Use	2.11	2.22	No

When the mean score from academicians were compared with the mean score from consultants actually only 5 out of 52 where there were statistically significant mean difference. So in general the decision from two groups of experts were similar. The only statistically significant mean difference were the content validity of:

1. Effect of non-standard helmet use video ( $\alpha=0.010$ )
2. Riding preparation video ( $\alpha=0.020$ )
3. Rider safety equipment picture ( $\alpha=0.022$ )
4. Effect of bright colour jacket picture ( $\alpha=0.048$ )

The only statistically significant mean difference on the potential attitude change was standard helmet picture ( $\alpha=0.048$ ). In all of above cases the mean scores from the academicians were higher than the mean scores from the consultants, suggesting that academicians tend to more easily agree to questionnaire statements. Interestingly four out of five of campaign materials listed above were included in list of campaign materials which will be used in the next step of the research. This suggest that four out of fourteen campaign materials (about 29%) used in the next step of the research were not selected based on same level of agreement between academicians and consultants.

## CONCLUSION AND RECOMMENDATION

In the short video, road safety campaign materials combine moving picture, conversation, musical illustration, sound's effect, animations and text messages. This feature strengthen persuasive strength of the message. Therefore compare to the number of the selected pictures, there were more short videos selected by the panel of experts in this present research.

The Directorate of Road Safety Transport should develop new campaign material, especially in the form of videos. The latest dominant risky motorcycle rider behaviours such as travelling in the opposite direction, travelling in side walk should be the prioritize theme as such behaviours endanger both motorcyclists and other road users. If national budget is limited, the government can provide technical assistance to private company to finance the development of such safety campaign as part of their corporate social responsibilities.

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