

## MOTORCYCLE RIDER BEHAVIOUR OF TARUMANAGARA UNIVERSITY LECTURER AND EMPLOYEE

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### Abstract

In Indonesian cities, usually a car owner also own a motorcycle to avoid congestion. This cause many problem such as unskilled rider, traffic violation, aggressive behaviour etc. Instruments to assess motorcycle rider behaviour were developed in England, Iran, Turkey, China and Australia. Putranto and Anjaya (2014) propose Indonesian Motorcycle Rider Behaviour Questionnaire (MRBQ) as MRBQ was prove to be sensitive to local culture and social system. This paper is further development of Indonesian MRBQ. Previously the instrument was prepared without strong theoretical basis. In this present paper the instrument was adjustment of Persian MRBQ. After an FGD with experts in motorcycle rider behaviour only 42 items from 48 items in Persian MRBQ were used in in this study. All valid and reliable items were analysed to compare whether there are different behaviour between different gender, age, wealth level, job, ethnicity, etc. Respondents were lecturers and employees of Tarumanagara University.

**Keywords:** *Motorcycle Rider Behaviour Questionnaire, Indonesian, different behaviour*

### Abstrak

Pemilik mobil di pekotaan Indonesia biasanya juga memiliki sepeda motor untuk menghindari kemacetan. Hal ini menimbulkan banyak masalah seperti pengendara motor yang tidak terampil, pelanggaran aturan lalu lintas, perilaku agresif dll. Instrumen untuk mengukur perilaku pengemudi sepeda motor telah dikembangkan di Inggris, Iran, Turki, Tiongkok dan Australia. Putranto dan Anjaya (2014) mengembangkan pada tahap awal Kuesioner Perilaku Pengendara Sepeda Motor Indonesia mengingat instrumen ini terbukti dipengaruhi budaya dan sistem sosial lokal. Makalah ini merupakan pengembangan lanjutan instrumen tersebut. Jika sebelumnya instrumen disusun tanpa dasar teori yang kuat, makalah ini disusun berdasarkan penyesuaian atas instrumen sejenis dari Iran. Setelah FGD dengan para pakar di bidang perilaku pengendara sepeda motor hanya 38 dari 48 butir pertanyaan yang ada di instrumen sejenis dari Iran yang digunakan. Seluruh butir yang valid dan reliabel dianalisis untuk membandingkan kemungkinan perbedaan perilaku akibat perbedaan jenis kelamin, umur, kesejahteraan, pekerjaan, etnisitas, dll. Responden adalah dosen dan karyawan Universitas Tarumanagara.

**Kata Kunci:** *Kuesioner Perilaku Pengendara Sepeda Motor, Indonesia, perbedaan perilaku*

## **INTRODUCTION**

In Indonesian cities, it is common that a car owner also own a motorcycle to avoid congestion. The problem become more complicated than only large number of motorcycle in the general traffic but trigger other problems related to motorcycle rider behaviour such as unskilled rider, traffic violation, aggressive behaviour, etc. Driver behaviour questionnaire has been developed in western countries for a long period as logical consequences for car dominated countries. As such instrument can not directly be used to assess motorcycle rider behaviour, there have been some research in England (Elliott et al, 2007), Iran (Ali et al, 2011 and Motevalian et al 2011), Hong Kong (Cheng et al, 2010), Australia (Sakashita et al, 2014) and Turkey (Ozkan et al, 2012) to develop motorcycle rider behaviour questionnaire (MRBQ).

Very little has been done in Indonesia to develop MRBQ. Putranto and Anjaya (2014) propose Indonesian MRBQ. However, the items in this instrument were developed without robust theoretical basis. It was based on adaptation on underlying theory for development of driver behaviour questionnaire, DBQ (Reason et al, 1990) research on external disturbance (Putranto and Kurniawan, 2013). Elliot et al (2007) stated clearly the distinction between DBQ and MRBQ, i.e. in the context of motorcyclists' behaviour, it could be hypothesised that a type of behaviour relating to control of the vehicle is likely to be more important than it is for car driving. This is because motorcycling is inherently much more demanding than car driving with respect to certain aspects of control skills (Elliot et al, 2007).

Furthermore, MRBQ is sensitive to local culture and social system. Items about protective clothing in England (Elliot et al, 2007) were not relevant in developing countries such as Iran (Motevalian et al, 2011) and Indonesia. In Iran, "carry passengers for money" seems to be illegal (Motevalian e al, 2011), whilst in Indonesia "motorcycle taxi" (called as "ojek" in local term) is a common "public transport" although not formally mentioned in Indonesian transport legislation. Therefore the needs to develop Indonesian MRBQ is justified. The aim of this paper is to develop Indonesian MRBQ with more robust theoretical basis and use the instrument to observe the difference of motorcycle rider behaviour between university lecturer and university employee.

## **LITERATURE REVIEW**

Reason et al (1990) defined violations as deliberate deviations from those practices believed necessary to maintain the safe operation of a potentially hazardous system. Reason et al (1990) defined errors as the failure of planned actions to achieve their intended consequences. Errors were further classified into slips and lapses (the unwitting deviation of action from intention, i.e. the behaviour is not what was intended) versus mistakes (the departure of planned actions from some satisfactory path towards a desired goal, i.e. the intention to behave in a certain way was not appropriate). These definitions were originally stated when DBQ was developed.

Considering the different characteristics of motorcyclist behaviour compare to car driver, in the development of MRBQ in England, Elliots et al (2007) extracted 43 items into 5 subscales, i.e. traffic errors, speed violations, stunts, control errors and safety equipment. In Persian MRBQ (Motevalian et al, 2011) the first four subscales were the same with English MRBQ, i.e. traffic errors, speed violations, stunts and control errors but safety equipment was not included as protective clothings were not common in Iran. Instead, in

Persian MRBQ 2 other subscales added, i.e. safety violations and traffic violations. In Australian MRBQ (Sakashita et al, 2014), there were 4 subscales, i.e. errors (no distinction between traffic and control errors), speed violations, stunts and protective gear (similar with safety equipment).

Instead of developing Chinese MRBQ, Cheng et al (2010) developed CMRDV (Chinese Motorcycle Rider Driving Violation) items. It only consists of two subscales, i.e. aggressive violations and ordinary violations.

## **METHODOLOGY**

The 48 items in Persian MRBQ (Motevalian et al, 2011) was discussed in a focus group discussion involving experts in motorcycle rider behaviour. After deleting some irrelevant Persian items and adding some Indonesian specific items only 42 items were in the instrument. These items were reflection of indicators from the following subscales, i.e. traffic errors, control errors, speed violations, traffic violations, safety violations, and stunts. The items of each subscale were summarized in Table 1. Likert scales were used in the questionnaire. Respondents were asked to rate whether they (1) never, (2) seldom, (3) sometimes, (4) often or (5) always carry out each statement in questionnaires items during their daily motorcycle ride.

In the pilot survey to test the validity and reliability of the questionnaires, there were 10 male respondents and 5 female respondents. Validity was measured by calculating product moment correlation between item score and total item score in a subscale. A significant level of 0.05 was used. Reliability analysis was conducted using Cronbach Alpha value. To be reliable, the value should be at least 0.6. All five items in safety violations subscale were not reliable. Some items in various subscales were not valid. After deleting non-valid and non reliable questions, the final questionnaires with remaining 33 items were then distributed to 100 male respondents and 50 female respondents of Tarumanagara University lecturers and employees who ride motorcycle daily. However it seems that this does not reflect true gender proportion of the rider. The final 119 return questionnaires consists of 110 males (97 employees and 13 lecturers) and 9 females (5 employees and 4 lecturers).

When the responses from 119 respondents were analyzed, all five items in control errors were not reliable and removed from the dataset in further analysis. Each subscale then represented by the mean value of items within the subscale. The mean of this composite subscale scores were compared between pairs of groups of respondents based on:

**Table 1** Items of Each Subscale of Indonesian Motorcycle Rider Behaviour

Subscales	Items
Traffic Errors	Fail to notice that pedestrians are crossing when turning into a side street Not notice someone stepping out from behind a parked vehicle Pull out on to a main road in front of a vehicle that you had not noticed Fail to notice or anticipate that another vehicle might pull out in front of you Queuing to turn left on a main road, you nearly hit the vehicle in front Realise that vehicle in front has slowed and have to brake hard to avoid collision Attempt to overtake someone that you had not noticed to be signalling a left turn Find it difficult to stop in time when a traffic light has turned against you Ride so close to vehicle in front that it would be difficult to stop in an emergency Run wide when going round a corner
Control Errors	Find that you have difficulty controlling the bike when riding at speed Skid on a wet road or manhole cover Driver deliberately annoys you or puts you at risk Carry a large carriage with motorcycle Delay in noticing to in front car when opening door suddenly
Speed Violations	Ride so fast into a corner that you feel like you might lose control Exceed the speed limit on a country/rural road Disregard the speed limit late at night or in the early hours of the morning Exceed the speed limit on a motorway Exceed the speed limit on a residential road Race away from traffic lights with intention of beating the driver/rider next to you Ride between two lanes of fast moving traffic Get involved in unofficial 'races' with other riders or drivers Ride so fast into a corner that you scare yourself
Traffic Violations	Cross junction when traffic light is red Riding in opposite direction of road way Riding in sidewalk Call with mobile phone while riding Smoking while riding
Safety Violations	Ride when taking drugs or medications which might have effects on your riding Using helmet without chin straps or not fastening it Carry more than one passenger with your motorcycle Riding with an impaired motorcycle Riding without helmet Carry a passenger who have not worn helmet
Stunts	Attempt to do, or actually do, a wheelie Intentionally do a wheel spin Crashed with a parked vehicle, make damage to it, but escape from crash scene

1. Monthly expenditure ( $\geq 3$  million IDR or  $< 3$  million IDR) as a proxy of wealth level
2. Gender
3. Marital status (married or not married)
4. Job (lecturer or employee)
5. Age (40-60 years old representing middle adulthood or 18-39 years old representing young adulthood in Erikson's stages of development)
6. Home town region as a proxy of ethnicity (Greater Jakarta or Other)
7. Residential location (Jakarta or Bodetabek)

8. Residential status (with parents or other)

Means of four composite subscales (speed violations, traffic errors, traffic violations and stunts) were compared between groups. A 0.05 significant level was used. IBM SPSS Statistics 22 was used to help analysis.

## RESULTS

Tables 2 through 9 summarized the results of mean difference analysis. In general the respondents were low risk rider. Most of mean composite scores were between 1 and 2, meaning that most of them either never or seldom carry out risky behaviour during their daily motorcycle ride (suggesting that most of the respondents were low risk rider).

Almost all mean difference analysis were not significant at 0.05 significant level. The only significant difference was in mean composite scores of speed violation between respondents within middle adulthood group (40-60 years old) and within young adulthood group (18-39 years old). Mean composite scores of speed violation within the middle adulthood group was 1.397 whilst mean composite scores of speed violation within the young adulthood group was 1.707 with mean difference of 0.310 and significant level of 0.016. This finding imply that respondents in older age group tend to carry out speed related violations less frequent compare to the younger age group. This finding confirm the study of Ozkan et al (2012).

**Table 2** Subscales Composite Scores from Different Monthly Expenditure Group Mean Difference

Monthly Expenditure	N	Mean Composite Scores			
		Traffic Errors	Speed Violations	Traffic Violations	Stunts
≥3 Million IDR	55	1.926	1.515	1.713	1.170
< 3 Million IDR	64	1.9956	1.441	1.550	1.047
Mean Difference		-0.070	0.074	0.163	0.063
Significant Level		0.549	0.424	0.104	0.057
Significant? (Yes/No)		No	No	No	No

**Table 3** Subscales Composite Scores from Different Gender Group Mean Difference

Monthly Expenditure	N	Mean Composite Scores			
		Traffic Errors	Speed Violations	Traffic Violations	Stunts
Female	9	1.733	1.422	1.533	1.000
Male	110	1.982	1.479	1.633	1,112
Mean Difference		0.248	-0.057	-0.994	-1.112
Significant Level		0.257	0.745	0.590	0.329
Significant? (Yes/No)		No	No	No	No

**Table 4** Subscales Composite Scores from Different Gender Group Mean Difference

Marital Status	N	Mean Composite Scores			
		Traffic Errors	Speed Violations	Traffic Violations	Stunts
Married	11	2.173	1.682	1.709	1.152
Single/Widow/Widower	108	1.942	1.454	1.617	1.099

Marital Status	N	Mean Composite Scores			
		Traffic Errors	Speed Violations	Traffic Violations	Stunts
Mean Difference		0.231	0.228	0.092	0.053
Significant Level		0.249	0.151	0.583	0.615
Significant? (Yes/No)		N	N	N	N

**Table 5** Subscales Composite Scores from Different Job Group Mean Difference

Job	N	Mean Composite Scores			
		Traffic Errors	Speed Violations	Traffic Violations	Stunts
Lecturer	17	2.041	1.465	1.506	1.078
Employee	102	1.950	1.477	1.645	1.101
Mean difference		0.092	-0.012	-0.139	-0.029
Significant Level		0.583	0.929	0.317	0.735
Significant? (Yes/No)		N	N	N	N

**Table 6** Subscales Composite Scores from Different Age Group Mean Difference

Age	N	Mean Composite Scores			
		Traffic Errors	Speed Violations	Traffic Violations	Stunts
40-60 years old	89	1.969	1.397	1.578	1.075
18-39 years old	30	1.947	1.707	1.767	1.189
Mean Difference		0.022	-0.310	-0.189	-1.114
Significant Level		0.870	0.016	0.090	0.173
Significant? (Yes/No)		N	Y	N	N

**Table 7** Subscales Composite Scores from Different Hometown Region Group Mean Difference

Hometown Region	N	Mean Composite Scores			
		Traffic Errors	Speed Violations	Traffic Violations	Stunts
Greater Jakarta	48	1.933	1.415	1.663	1.125
Others	71	1.983	1.516	1.600	1.089
Mean Difference		-0.050	-0.101	0.063	0.036
Significant Level		0.675	0.282	0.529	0.564
Significant? (Yes/No)		N	N	N	N

**Table 8** Subscales Composite Scores from Different Residential Location Group Mean Difference

Residential Location	N	Mean Composite Scores			
		Traffic Errors	Speed Violations	Traffic Violations	Stunts
Bodetabek	55	1.971	1.456	1.644	1.079
Jakarta	64	1.956	1.491	1.609	1.125
Mean Difference		0.015	-0.034	0.034	-0.046
Significant Level		0.900	0.711	0.726	0.448
Significant? (Yes/No)		No	No	No	No

**Table 9** Subscales Composite Scores from Different Residential Status Group Mean Difference

Residential Location	N	Mean Composite Scores			
		Traffic Errors	Speed Violations	Traffic Violations	Stunts
Own/Rent Home/Room	105	1.946	1.461	1.611	1.083
Parents Home	14	2.093	1.579	1.729	1.262
Mean Difference		-0.147	-1.118	-0.117	-0.179
Significant Level		0.414	0.411	0.439	0.300
Significant? (Yes/No)		N	N	N	

## CONCLUSIONS AND RECOMMENDATIONS

In general the respondents were low risk rider. However for further development of Indonesian MRBQ, it is recommended that the instrument consist of balance combination of favourable and unfavourable items to avoid social desirability bias, i.e.the tendency of respondents to answer questions in a manner that will be viewed favorably by others. Another finding was that older age group tend to carry out speed related violations less frequent compare to the younger age group.

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