

**FACTORS OF AGGRESSIVE BEHAVIOR AMONG
MOTORCYCLE DRIVERS AND ITS RELATIONSHIP
WITH DANGEROUS DRIVING INDEX
IN THE STATE OF PENANG**

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Abstract

This study aims to identify the factors of aggressive behavior among motorcyclists in the state of Penang. Also identify the relationship between aggressive behavior factors and the dangerous driving index. This study is quantitative in nature by distributing questionnaires to 140 individuals who have been convicted under Section 42 (1) of the Road Transport Act 1987. Descriptive and inferential analysis methods are used to answer the research questions. Independent sample t-tests and one-way Anova were conducted to identify differences in the level of aggressive behavior among respondents based on demographic factors and conducted Pearson correlation analysis to identify the relationship between the two study variables. The findings of this study provide real figures related to the level of aggressive behavior from the perception of individuals who have ever made such mistakes. Independent sample t tests showed that there were behavioral differences based on gender factors. Meanwhile, one-way Anova test shows that there are differences based on employment factors and not education level. Correlation analysis showed that there was a relationship between aggressive behavior with a dangerous driving index with a value of $r = 0.349$. Thus, this study helps in identifying the relationship between aggressive behavior and against the increase in the dangerous driving index among motorcyclists. All parties should mobilize their energy to reduce the dangerous driving index and pose a danger due to aggressive behavior factors on the road.

Keyword : *Aggressive behaviour, motorcyclists, dangerous driving index*

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Introduction

Road safety is one of the most important issues discussed in Malaysia today, with an increasing number of people injured and an increasing number of deaths caused by accidents involving motor vehicles on the road. MIROS general statistics 1997-2016 analyzed that in 1997 there were 215,632 road accidents and from those incidents, 6,302 people lost their lives. In 2016, statistics state that accident cases increased to 521,466 road accidents and of that number 7,152 people were killed. Statistics show that there is an increase in annual road accidents in Malaysia and an increase in unwanted deaths every year as a result of these severe accidents. Aggressive driving continues to be a hot topic in traffic safety studies because it is considered a major risk factor associated with collisions and accidents (Xiaohui et al., 2017). However, crime on the road scares the changing dimensions and scope of crime faced by road users (Nor Alya Atifah Mohd.Yunus & Rozmi Ismail, 2017).

The National Highway Traffic Safety Administration (NHTSA) study states that the exact number of accidents on motor vehicles caused by aggressive drivers is unknown, but NHTSA has previously estimated that about 66 percent of all traffic deaths each year are due to driving behavior. aggressive ones, for example crossing on the right, turning on red lights and tailgating. According to the Rocky Mountain Insurance Information Association (RMIIA), vehicle-related injuries occur every 14 seconds in the U.S. The Insurance Information Institute reports that aggressive driving behavior accounted for 51.9% of fatal accidents in 2012 (Emergency Care for You, 2018). The study and report clearly state that

more than 50 percent of annual traffic deaths are due to this aggressive driving behavior.

According to Sergio et al., (2019), there are four factors related to how drivers express their anger while driving using the Driving Aggressive Expression Inventory (DAX). Several other concepts, similar or overlapping have been introduced such as road rage (Stephens & Sullman, 2014) and induce anger as a personality trait. Driving aggressively is troublesome from the point of view that it can evoke negative emotions in the victim of the attack (Suliman & Brian, 2003). A number of researchers consider this behavior to be a minor offense (Yang et al., 2013).

So, this study is to identify aggressive behaviors as well as factors that need to be analyzed. This study also involves individuals who have committed offenses under Section 42 (1) of the Road Transport Act 1987.

Problem Statement

In Malaysia, road accident statistics show that the number of accidents is increasing from year to year involving registered vehicles and all road users including pedestrians, motorcyclists, car drivers, vans, lorries and so on. According to Eida Nadirah Roslin, Nor Syazwani Ahmad Azmy, Azniah Mohamed Ghulam, Rifqi Irzuan Abdul Jalal and Mohd Hafzi Md Isa (2019), despite the efforts made by law enforcement, transportation agencies, and other organizations related to road safety, road accidents and deaths continue to rise. Most studies identify driving behaviour and driver attitudes, including excessive speed, to be a major contributing factor to road accidents. According to Tesfaye Hambisa Mekonnen, Yitayew Ashagrie Tesfaye, Haimanot Ge-

brehiwot Moges and Resom Berhe Gebremedin (2019) aggressive drivers and riders are an issue discussed among the people.

Aggressive driving has become a major social, health and psychological concern with a worrying increase in reports of incidents involving injuries and accidents related to this behaviour (Rozmi Ismail & Noraqilah Zaini, 2017). More than half of all road deaths in the world are accounted for by the Southeast Asia and Western Pacific regions of the World Health Organization and in this region, Malaysia accounts for the maximum number of deaths (Mark JM Sullman, Amanda N. Stephens & Michelle Yong, 2014).

A study conducted by Susanne Kaiser, Gerald Furiana and Christopher Schlembach (2016) found that this aggressive behaviour occurs among adolescents aged 21 to 32. So, individuals in this age range engage in violence on the road leading to loss of consumer life on other roads. Thus, it can be concluded that there is important to conduct this study to identify the factors of aggressive behaviour that contribute to the issue of road thugs in Malaysia and especially in Penang.

Objectives of Study

The main purpose of this study is to identify the dimensions or factors that are the backbone of aggressive behaviour where there are four factors namely verbal aggression, physical, vehicle use and constructive aggression. So, the objectives of this study are:

1. Identify the level of aggressive behaviour among street gang pillion riders in the State of Penang.

2. Identify the level of Dangerous Driving Index among street gang pillion riders in the State of Penang.
3. Identify differences in the level of aggressive behaviour based on demographic factors (gender, education level & position) among street gangsters in the State of Penang.
4. Identify the relationship between the dimensions of aggressive behaviour and the Dangerous Driving Index among street gang pillion riders in the State of Penang

Importance of Study

This study aims to identify the factors of aggressive behaviour among motorists who have been convicted of offences on the road, especially street gangster offences. So, the findings of this study are of interest to the Ministry and the Road Transport Department, Road Pillion riders and Policy Makers.

Literature Review

A study by Deffenbacher, Lynch and Richards (2003) compared low anger drivers with high anger drivers using the Driving Anger Scale (DAS), Driving Anger Expression Inventory (DAX), State Anger Scale (SAS), and Trait Anger Scale (TAS) given to 121 respondents. The results of this study indicate that high anger drivers tend to use hostile attacks, drive more frequently at higher speeds and have shorter times and distances to collide. High anger drivers reported a higher propensity for verbal and physical aggression following high impedance simulations in related studies.

A further review of the accident literature revealed several studies showing significant differences between men and women in terms of aggressiveness when driving where male drivers tend to

engage in unsafe driving behaviours such as speeding and short-distance driving. Also found that drivers aged 45 to 52 are less involved in road gang problems compared to young drivers in the age range of 20 to 35 (Rajesh Sagar, Manju Mehta & Geetanjali Chugh, 2013).

Whereas the study of Susanne Kaiser, Gerald Furiana and Christopher Schlembach (2016) found that 1500 people in the study admitted that their involvement in traffic offences was due to spontaneous feelings without thinking about the consequences later. The results showed a clear relationship between high aggressive behaviour scores and accidents in the last three years. All of the deviant driving behaviours studied occurred more frequently with others than those performed by respondents. Furthermore, the aggressive behaviour of others is seen to be associated with high emotional restraint and often serves as a justification for a person's intrusion in traffic.

A study by Eida Nadirah Roslin, Nor Syazwani Ahmad Azmy, Azniah Mohamed Ghulam, Rifqi Irzuan Abdul Jalal & Mohd Hafzi Md Isa (2019) involving 254 motorists in the age range of 17 to 56 years and above showed that constructive behaviour is the highest factor and most often used among drivers to adapt to these aggressive situations on the road. Followed by factors of verbally aggressive behaviour and instrumental behaviour. Then, the most frequently used factor in Malaysia is physical aggressive behaviour.

In conclusion, the findings of domestic and foreign studies examine that this aggressive behaviour is one of the main factors, especially the physical and instrumental aggressive factors in committing gangster offences on the road. Demographic factors, especially age and

occupation are also among the side factors that lead to the existence of this problem on the road.

Methodology

The design of this study focused on the type of survey research. The study population includes all individuals who have been convicted of offences under Section 42 (1) of the Road Transport Act 1987 and more specifically offences of road thugs. Based on the report from the North East and Southwest District Headquarters, a total of 220 individuals were convicted for the period from January to August 2020. Thus, based on the Krejcie and Morgan (1970) Table, the researcher determined a total of 140 samples from various areas in these districts.

Researchers found from the North East and Southwest District Headquarters, Penang. This survey method uses a questionnaire as a research instrument. Researchers used the Driving Anger Expression Inventory (DAX) developed based on the Well-Being Psychology Model. There are 39 items in the questionnaire. The questionnaire based on the likert scale.

Data Analysis

Descriptive analysis was conducted taking into account the mean value and standard deviation to identify the level of aggressive behaviour. Findings show that the level of aggressive factors among individuals who commit street gangster offences is at a high level. Overall, the level of aggressive behaviour was at a mean value level of 4.18 and a standard deviation of 0.369. In detail, the instrumental aggressive factor was at a high level with a mean value of 4.52 and a standard deviation of 0.375, followed by verbal aggressiveness of 4.36 and standard deviation of 0.376, constructive

aggressiveness of 4.17 and standard deviation of 0.361. On the other hand, physical aggressiveness is at a low mean value compared to other aggressive factors of 3.67 and a standard deviation of 0.364. However, it can be concluded that the level of aggressive behaviour among street gangsters in the State of Penang is at a high level as shown in Table 4.1.

Table 4.1: Levels of Aggressive Behavior

N	Aggressive Factors	Mean	Standard Deviation	Level
1.	Verbal Aggression	4.36	0.376	High
2.	Physical Aggressive	3.67	0.364	High
3.	Aggressive Instrumental	4.52	0.375	High
4.	Aggressive Constructive	4.17	0.361	High
	<u>Overall Average</u>	4.18	0.369	<u>High</u>

Descriptive analysis was also conducted to identify the level of the dangerous driving index in the state of Penang. The findings show that the level of the dangerous driving index is at a moderate level of 3.53 and a standard deviation of 0.884.

This inferential analysis involved an independent sample t-test, one-way ANOVA and Pearson correlation analysis in this study. The findings showed that the mean value for males was 4.20 with a standard deviation of 0.274 followed by females 3.98 with a standard deviation of

0.187. The value of F is 1.738 with the difference of t value is 0.221 with a p-value of 0.04 where <0.05 . Thus, the null hypothesis was successfully rejected on the assumption that there is a significant difference in the level of aggressive behaviour based on gender factors among street gang pillion riders in the State of Penang.

Through one-way ANOVA analysis, the mean value of Certificate/SPM/SPMV education level is 4.18 with a standard deviation of 0.273, followed by STPM/Diploma 4.20 with a standard deviation of 0.252 and finally Bachelor's Degree with a mean value of 4.12 with a standard deviation of 0.324. The value of F is 0.685 with a p-value of 0.506 where > 0.05 . Thus, the null hypothesis failed to be rejected on the assumption that there was no significant difference in the level of aggressive behaviour based on the factor of education level among street gang pillion riders in the State of Penang.

Findings of the second one-way Anova test showed that the mean value for individuals working as government employees was 4.14, 0.019, private teachers/lecturers 3.90 with a standard deviation of 0.261, security officers 4.44 standard deviation 0.079, private companies 4.12 standard deviation 0.055, government teachers/lecturers 4.32 deviation the standard of 0.207 and others is 4.18 with a standard deviation of 0.286. The value of F is 7.095 with a p-value of 0.000 where <0.05 . Thus, the null hypothesis was successfully rejected on the assumption that there is a significant difference in the level of aggressive behaviour based on employment factors among street gang pillion riders in the State of Penang.

Pearson correlation analysis showed that the correlation value (r) be-

tween these two variables was 0.349 with p-value = 0.000; <0.05. Thus, the null hypothesis was successfully rejected on the assumption that there is a significant relationship between the dimensions of aggressive behaviour with the level of Dangerous Driving Index among street gang pillion riders in the State of Penang.

Table 4.2 Conclusion of The Data

Nul Hypothesis	Result
1. H ₀₁ There is no significant difference in the level of aggressive behavior based on gender factors among street gang pillion riders in the Penang.	Reject
2. H ₀₂ There is no significant difference in the level of aggressive behavior based on the factor of education level among street gangsters in the Penang.	Accept
3. H ₀₃ There is no significant difference in the level of aggressive behavior based on employment factors among street gang pillion riders in the Penang.	Reject
4. H ₀₄ There is no significant relationship between the dimensions of aggressive behavior with the level of Dangerous Driving Index among street gang pillion riders in the State of Pe-	Reject

nang.

Discussion

Descriptive analysis showed that the level of aggressive behaviour was at a high level with a mean value of 4.18 and a standard deviation of 0.690. Based on the findings of a study by Susanne Kaiser, Gerald Furiana and Christopher Schlembach (2016) is that drivers with higher scores on the aggressive scale have been involved in car accidents. Aggressive driving is observed more often with others than self -confessed, this phenomenon may represent a vicious circle for some traffic participants.

Meanwhile, the study of Nor Azimah Chew Abdulla and Nazlina Zakari. (2019) found that the level of aggression among drivers was at a high level. Ecological and conditional factors will influence behaviour in aggressive engagement. The aggressive behaviour of drivers can be caused by a combination of traffic congestion and urgent time pressure. Almost all enforcers confirmed that the driver's behaviour at the scene did not affect the offence charged, yet the driver's behaviour at the scene played an important aspect in the court's decision by the prosecutor.

Finally, the study of Alan S. Hock. (2018) stated that the level of aggression is at a high level. This study further found a negative relationship between support for retaliation and aggressive driving behaviour and these findings are consistent with previous studies. Society should force enforcement to have effective countermeasures. Even so, it is confirmed that there are certain types of drivers who will still misbehave despite enforcement programs, more warnings and threats of harsher punishment. So,

the findings of this study and previous studies show a high level of aggression and many factors that contribute to it.

This study shows that the level of the dangerous driving index is at a moderate level in the state of Penang. Rajesh Sagar, Manju Mehta and Geetanjali Chugh (2013) found that the dangerous driving index was at a high. This is due to the many cases related to street gang pillion riders at the study site. Based on the results of the study the researchers showed that drivers with a stable and optimistic attitude rated drowsiness as low, but they did not differ from driving offences. Thus, although some people rated that they would not be sleepy, they did not differ in actual driving performance.

Meanwhile, the study of Rozmi Ismail and Noraqilah Zaini (2017) stated that the expression of anger causes aggressive driving in Malaysia and then increases the index of dangerous driving. Drivers in Malaysia release a lot of emotions on the road due to many factors such as problems at work, family and so on. Then, this has an impact on other road users.

So it can be concluded that although this study shows that the level of the dangerous driving index is at a moderate level but the findings of other studies show that the dangerous driving index is at a high level. The behaviour and conduct of road users determine the index of dangerous driving. Drivers who fail to control their emotions on the road cause an increase in the number of such cases.

The level of driver education does not determine aggressive behaviour among drivers. The study of Rajesh Sagar, Manju Mehta and Geetanjali Chugh (2013) showed significant differences between men and women in terms of aggressiveness while driving where male

drivers tend to engage in unsafe driving behaviours such as speeding and short distance driving. It was also found that drivers aged 45 to 52 were less involved in road thugs compared to young drivers in the age range of 20 to 35.

Meanwhile, a study by Elizabeth Schafer (2015) who conducted a study among 526 drivers who had been convicted of traffic offences specifically involving road thug offences in Austria showed that aggressive behaviour was the main cause of respondents getting caught up in their offences. The act of deliberately looking for problems or to be a sensation (viral) is also one of the main causes of fighting on the road. The findings show male drivers are more involved in street gangster cases than female drivers.

Whereas the study of Susanne Kaiser, Gerald Furiana and Christopher Schlembach (2016) found that 1500 people in the study admitted that their involvement in traffic offences was due to spontaneous feelings without thinking about the consequences later. The results showed a clear relationship between high aggressive behaviour scores and accidents in the last three years. All of the deviant driving behaviours studied occurred more frequently with others than those performed by respondents. Furthermore, this aggressive behaviour is less seen among professionals than ordinary employees. So, employment also contributes to aggressive behaviour among drivers. This is due to the stress and workload bore in the workplace. So the driver releases his pressure on the road.

A study by Eida Nadirah Roslin, Nor Syazwani Ahmad Azmy, Azniah Mohamed Ghulam, Rifqi Irzuan Abdul Jalal and Mohd Hafzi Md Isa (2019) involving 254 motorists in the age range of 17 to

56 years and above showed that constructive behaviour was the highest factor and most often used among drivers to adapt to these aggressive situations on the road. While the workers as security officers are more involved in such cases compared to drivers who have other jobs.

It can therefore be concluded that the gender and occupation of drivers determine the level of aggressive behaviour among drivers. The stress and responsibilities borne by the driver are the triggers to this problem. Stress, feelings of haste, and lower life satisfaction scores are all factors associated with increased accident rates past getting involved in road thug problems.

The findings show that all four factors listed have a strong relationship between the index of dangerous driving. However, the level of strength is at a modest level. However, the study of Rozmi Ismail and Noraqilah Zaini (2017) found that aggressive behaviour has a close relationship with the index of dangerous driving. This is when the driver experiences aggressive stress then the chances of getting involved in an accident are very high. Findings of past studies have also proven that 80% of aggressive behaviour has triggered an accident. Thus, it proves that these two variables have a close relationship.

Tekke (2015) found that the relationship between these two variables is very low. This is in line with other factors that contribute to the increase in the dangerous driving index. The influence of alcohol, stress and so on become the dominant factors that contribute to dangerous driving problems. This aggressive behaviour is a reaction shown by the driver after going through the conditions and situations on the road. But, key factors such as the influence of alcohol and

stress make the driver drive dangerously regardless of the peace on the road.

Neelima Chakrabarty and Reetesh Riku (2013) found that behavioural factors play a role in determining the increase in the index of dangerous driving. However, other factors also contributed to the increase in the dangerous driving index. Thus, it can be concluded that although aggressive behaviour is the cause of the increase in the **dangerous** driving index there are still other factors that are the dominant factors to this problem.

Conclusion

This study has explored the level of aggressive behaviour by dividing it into four factors namely verbal aggressiveness, physical aggression, instrumental aggression and constructive aggression. Next, the findings of the study also identified the index of dangerous driving. The findings of the study also found that there is a relationship between these two variables. So, this study has an impact on several parties including the aggressive drivers themselves, the enforcement authorities and the government.

The findings of the study found that constructive aggressive and physical aggressive factors are among the factors that contribute to the occurrence of aggressive behaviour among drivers. So with the findings of this study, drivers can get to know themselves more closely and can bring about changes in themselves to become responsible drivers in the future.

In addition, the findings of this study also serve as a guide to the enforcement authorities. Enforcement authorities such as police officers and officers of the Road Transport Department (JPJ) can focus on the factors listed in reducing cases related to road thugs. The enforcement authorities can also organ-

ize workshops and counselling sessions for the perpetrators of these road thugs. By providing disclosure related to responsible driving manners can reduce cases related to road thugs.

Finally, the findings of this study have an impact on the government in organizing measures to eradicate this street gangster culture. The government can organize measures by providing workshops and recidivism for the perpetrators of these offences.

The researcher's suggestion in the future is to make a study that involves all the states in the north to get comprehensive findings. By involving four states in the north, it can involve more respondents. and can also get more detailed data. In addition, researchers are advised to collect data by qualitative methods. Furthermore, this study only involves individuals who have been convicted but it is recommended to involve enforcement officers in the future to be able to examine from the perspective of enforcement officers. Thus, it can bring about a change in the way this case is handled.

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