



Influence of Agreeableness Personality Trait on Driving Behaviour among Motorists in Malaysia

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Abstract: The aim of this study is to examine the relationship between agreeableness of Big 5 personality and adverse driving behaviour among motorists in Malaysia. A quantitative survey method was employed and respondents were randomly selected using highway intercept technique. A total of 384 completed questionnaires were collected with a response rate of 18.1 percent. However, only 311 were found useable for the final analysis. Partial Least Squares (PLS) path modelling was used in the data analysis. The findings revealed a significant and negative relationship between agreeableness and adverse driving behaviour.

Keywords: Adverse Driving Behaviour, Agreeableness, Road Traffic Accidents, Big Five Personality.

INTRODUCTION:

Road traffic accidents are one of the leading causes of death globally, and an estimated 1.5 million people are killed each year and as many as 50 million more suffered serious injuries [1]. It is currently taking an eight position and is expected to be at the fifth place by 2030. In Malaysia, more than 500,000 road accidents took place in 2016 alone, taking toll of 7152 deaths. There is a serious economic consequence due to this disaster, and the total costs associated with these accidents were very high. Studies have found that road traffic accidents are influenced by a combination of factors, including vehicle features, roadway designs and operations, driver characteristics, and environmental conditions [2]. However, most studies have also concluded that human factors are the main contributors to the accidents. Sabey and Taylor who first studied based on 2041 traffic accidents in 1980 found that human factors contributed to 95 percent of those accidents [3]. Similarly Yilmaz and Celik [4], found that about 95 percent of the road traffic accidents were

attributed to human factors, while a study by The World Health Organization revealed of at least 71 percent[5]. Considering this evidence, research on road safety cannot be separated from the analysis of human behaviour, the driver being a contributing factor.

Past research had examined human attributes to find evidence on their role in driving behaviour and accident involvement, and some findings have revealed of up to 35 percent of the variance in risky driving contributed by personality factors[6]. Perry and Baldwin [7] examined the Type 'A' personality which characterizes a person as having personality characteristics as aggressiveness, competitiveness, and emotional reactions like anger and irritability with driving behaviour. They found that this personality was significantly related to more traffic accidents, high frequency in traffic violations, impatient and aggressive driving, and risky driving. Ulleberg and Rundmo [3] concurred that personality traits were the primary factors affecting the attitudes that influenced the risky driving behaviour among young drivers. Big Five



personality traits; extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience have also been used frequently to predict driving behaviour and the findings on these five facets studied together were often mixed [8]. In addition, the finding of predictive ability of agreeableness individually is still inconclusive [9]. Thus, this study aims to determine the effect of agreeableness as one of the facets of Big Five personality on the adverse driving among motorists in Malaysia. Specifically, the study seeks to answer the following research question: Is there a significant and negative influence of agreeableness on adverse driving behaviour?

LITERATURE REVIEW

Agreeableness has often been associated negatively with aggressive behaviour [10, 11]. Agreeableness refers to behaviours of persons such as trusty, straightforwardness, altruism, compliance, cooperative and modesty. Past studies have confirmed that low agreeableness is consistently associated with collision risk. Dahlen and White [12] found that agreeableness predicted driving behaviour. Aggressive driving behaviour such as anger, hostility and vengefulness was found to be negatively related to individuals who are high in agreeableness trait [13]. Sumer, Lajunen and Ozkan [14], and Clark and Robertson [15], both found the negative effect of agreeableness on unsafe driving behaviour and indirect effect on collision risk. Similar finding was reported by Harris et al [16] where aggressive was associated with lower scores on agreeableness. Rahman [17] also found agreeableness to be the lowest predictor of dangerous driving behaviour among the five dimensions of Big Five personality. This was confirmed by Stephens [18] who found that

drivers who reported lower driving violations scored higher on agreeableness. Ucho, Terwase and Ucho [19] found that agreeableness predicted road safety rules compliances. Their findings show that individuals high on agreeableness traits generally comply with road safety rules. Guo et al [20] also found that lower agreeableness among Chinese high speed railway drivers contributed to less frequent risky driving behaviour while Qu et al., [21] found a high level of association between agreeableness and driving behaviour. Similarly Fikri, Ismail and Halim [22] found positive and significant relationship between agreeableness and frequency of road accident involvement.

However, Shonesy's [23] study that higher agreeableness is associated with greater self-reported levels of distracted driving behaviours was only partially supported. Other researchers such Anitei et al., [24], Harris et al., [16], and Taubman-Ben-Ari and Yehiel [25] found only an average negative association between agreeableness and aggressive driving behaviour, while Iancu's [26] study revealed a weak relationship. Agreeableness was also found to be associated with decreased likelihood of driving among older adults [27]. Based on these disagreements among the past researchers the following hypothesis is forwarded:

H1: There is significant and negative relationship between agreeableness and adverse driving behaviour among motorists in Malaysia.

METHODOLOGY

This study employed a quantitative technique and structured self-report questionnaire was used as a tool to conduct the survey. Self-report questionnaire is often used mode of assessment in research because of the practicality and efficiency in getting data from a large number of respondents



[28]. It is also the logical way to measure intangible constructs such as asking people to respond to questions about what they are like or how they behave. The use of structured self-report questionnaire provides greater uniformity, written tests and scales besides being economically and time efficient [29]. It also allows for anonymity of subjects, which sometimes give respondents more time to read and understand the questions [30]. Structured self-report questionnaire is one of the most widely used methods of data collection in social science research, and is normally used in a study to measure constructs such as attitudes, values, intentions, and preferences [31]. Self-report measures are frequently applied in traffic safety research because they are easily administered and researchers can ask many and detailed questions, leading to comprehensive data sets [32]. The only drawback in using self-report questionnaire is that it might be subject to social desirability that is people might consciously or even unconsciously answer in a socially desirable way [33].

Driver Behaviour Questionnaire was used to measure aberrant driver behaviours in this study. This DBQ questionnaire includes 10 items of violations, 7 items of errors, and 8 items of lapses [34]. For measuring Agreeableness, a nine item questionnaire of Big 5 Personality was adapted from previous works of McCrae and Costa [35] and Goldberg [36]. Participants were asked to indicate their level of agreement/disagreement based on five point Likert-type scale, where 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5= strongly agree. The questionnaires were distributed to the motorists using the highways via the intercept survey method. This technique utilised a roadside hand-out method by stopping or selecting participants in strategic survey sites. The questionnaire together with a cover letter and a stamped return envelope was

given to participants for them to reply anonymously. A total of 348 completed questionnaires were returned with a response rate of 18.1 per cent. However, only 311 questionnaires were found useable after deleting 37 cases which were detected as outliers.

RESULTS

Partial Least Squares (PLS) path modelling was employed in the data analysis. This technique used a two-step process; i.e. assessment of measurement model and assessment of structural model to report the results. The validity of the measurement model was assessed by testing the convergent validity. The convergent validity exists when the indicators of one construct converge or share a higher proportion of variance. While the loading of 0.70 and above is an ideal indicator, loading value of 0.5 is still regarded as acceptable [37, 38]. Table 1 shows only item loadings of 0.5 and above were considered, while eleven items were deleted due to the lower loadings than the suggested threshold. Composite reliability values (CR) were above 0.70 and the Average Variance Extracted (AVE) values met the minimum criteria of 0.5. This confirms that the measurement model has an adequate level of convergent validity.

Table 1. Measurement Results on Loadings, CR and AVE

Construct	Item	Loading	CR	AVE
Driving Behaviour	DB2	0.669	0.945	0.504
	DB3	0.706		
	DB4	0.654		
	DB5	0.744		
	DB7	0.759		
	DB8	0.753		
	DB10	0.768		
	DB11	0.712		
	DB12	0.724		
	DB13	0.718		



	DB14	0.623		
	DB15	0.687		
	DB16	0.724		
	DB17	0.712		
	DB18	0.660		
	DB19	0.690		
	DB21	0.747		
	AGRE1	0.606		
	AGRE2	0.621		
	AGRE3	0.712		
Agreeableness	AGRE4	0.779	0.856	0.50
	AGRE6	0.785		
	AGRE9	0.719		

Path analysis is employed in the assessment of structural model. It is also used to test the hypothesis in this study. Path coefficient signifies the strength of the relationship among the independent and dependent variables. The highest beta (β) value symbolizes the strongest effect of predictor (exogenous) latent variable towards the dependent (endogenous) latent variable. Using a bootstrapping technique with re-sampling of 500, the path estimates and t-statistics were calculated for the hypothesized relationship. Table 2 presents the results of the hypothesis testing. Path coefficient and t-value results show that H1 is supported. This indicates that agreeableness has a significant and negative relationship with adverse driving behaviour.

Table 2. Result of Hypothesis Testing

		Beta (β)	T Value	P Value	Result
H1	AGRE → DB	- 0.4933	8.0055	0.000*	Sig.

*P < 0.01

DISCUSSION

As expected the findings from this study found evidence to support an association between

agreeableness and adverse driving behaviour. The path coefficient from agreeableness to adverse driving behaviour turned out to be statistically significant ($\beta = -0.4933$, $p < 0.01$). Hypothesis 1 was thus supported that there is negative significant relationship between agreeableness and adverse driving behaviour. These findings are in agreement with many past studies which revealed the negative relationship between agreeableness and aggressive driving behaviour. For example Sumer, Lajunen and Ozkan [14], and Clark and Robertson [15], both found the negative effect of agreeableness on unsafe driving behaviour, Harris et al [16] saw aggressive behavior was associated with lower scores on agreeableness, and Stephens [18] who found that drivers who reported lower driving violations scored higher on agreeableness. The findings also concurred with others such as Ucho, Terwase and Ucho [19] who found that agreeableness is a good predictor of road safety rules compliances and indirectly the driving behaviour, Guo et al [20] who found lower agreeableness among Chinese high speed railway drivers contributed to less frequent risky driving behavior, and Qu et al., [21] whose study revealed a high level of association between agreeableness and driving behaviour. These findings also echoed those of Fikri, Ismail and Halim [22] who found positive and significant relationship between agreeableness and frequency of road accident involvement. However Rahman [17] also found agreeableness to be the lowest predictor of dangerous driving behaviour among the five dimensions of Big Five personality. This finding further strengthened the notion that personality traits in the form of agreeableness can be a key variable in inhibiting the development and chronic accessibility of aggressive emotions and attitudes [39]. Since agreeableness is negatively associated with negative emotions and aggressive attitudes, the finding of this study also revealed that



agreeableness is also negatively related to adverse driving behaviour.

CONCLUSION

Traffic safety research had focused on the contribution of driver personality traits to safety in driving. However few studies have investigated the effect of Big 5 Personality individually in relation to driving behaviour. This study examined agreeableness, one of the facets of Big 5 Personality because the finding of its predictive utility was still inconclusive. The finding of this study confirmed its significant negative relationship to adverse driving behaviour. The ability to understand and predict features of dangerous driving in human behaviour is essential to the improvement of road traffic safety. Road accidents are predictable and preventable, and therefore relevant authorities must double effort to further raise public awareness on the importance of adopting safety driving behaviour.

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