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# Relationship Between Sensation Seeking and Attitude on Reckless Riding Behavior in Jabodetabek, Indonesia

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## Abstract

Transportation needs are increasing along with traffic problems, such as traffic accidents, congestion, and density of motorized vehicles. In Indonesia, especially in its large, crowded cities, accidents involving two-wheeled motorized vehicles are frequent. Human factors such as personality and behavior are a cause of accidents involving careless driving. Additionally, sensation seeking and the attitude toward reckless behavior influence the reckless behavior of motorcyclists in Indonesia, especially in the Jabodetabek area. Methods: data were obtained through a self-report questionnaire. The 69 participants (F:40, M:29) were motorbike riders aged 18–35 years who had an Indonesian driving license type C and had ridden a motorcycle daily for a minimum of 2 years. The questionnaire comprised 17 items that measured sensation seeking and attitudes toward reckless riding. Prerequisite for mediating the relationship among the variables, sensation seeking must correlate with attitudes and reckless riding such that the attitude variable that is a mediator must also correlate with reckless riding. Therefore, in this study, the mediating effect of attitudes in the relation between sensation seeking and reckless riding was tested. Our result demonstrates that's influence of reckless riding attitude as a partial mediator between sensation seeking and reckless riding.

## Keywords

Reckless Riding, Sensation Seeking, Attitude on Reckless Riding

A problem that affects the public, especially in big cities, is traffic accidents. In Southeast Asia, especially in developing countries, the greatest accident rate (28%) is for two-wheeled vehicles (World Health Organization 2018). Two-wheeled motorized vehicles or motorcycles are widely used in Southeast Asia, especially in Indonesia. Motorcycles are more affordable than cars and easier to use in traffic jams (Chen, 2009). In Indonesia, motorcycle accidents are

approximately 75% of all traffic-related accidents (Tribunotomotive, 2018); thus, reducing them would benefit society. A traffic accident is an unexpected event that occurs on main streets, involving motor vehicles and other road users, resulting in damage and human casualties (e.g., minor traffic accidents like grazed into another vehicles and serious effect, namely individual death; Saputra, 2017).

Traffic accidents involving motorcyclists often involve young individuals (teenagers and young adults; Cordelliari et al, 2016; Falco et al., 2013; Hatfield, Fernandez & Job, 2014; Parker, 2012; Wong, Chung, & Huang, 2010). Sensation seeking as a personality trait is correlated with age; individuals with a higher sensation-seeking level tend to perform risky activities, a phenom-

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enon observed mainly in younger driver (age 18 – 25) (Hassan & Vindo, 2017). The results of Zuckerman (in Tunnicliff et al, 2012) support this assertion and that motorcycle riders have higher sensation-seeking levels than nonmotorcycle riders.

Ajzen (in Nayum, 2008) expressed that an attitude toward a behavior is key for individual intention to be involved in behavior. A motorcyclist whose attitude toward careless driving is negative because it causes traffic accidents will drive cautiously. Conversely, a motorcyclist with a positive attitude toward driving faster than the speed limit and who believes that driving fast allows individuals to arrive on time tends to be reckless, increasing the likelihood of road accidents. Hatfield, Fernandez, & Job (2007) also revealed a relationship between a positive attitude toward reckless driving and traffic accidents.

The purpose of this study was twofold: to assess 1) whether the relationship among an individual's personality traits, interest in sensation seeking, and attitude toward reckless riding influence the reckless behavior of motorcyclists in Indonesia, especially in the Jabodetabek area, on the basis of attitudes toward reckless riding; and 2) whether there is a mediating effect of attitudes toward reckless riding on sensation seeking and reckless riding in an Indonesian sample of regular motorcycle users by asking the following question.

### Reckless Riding

Watson, Tunnicliff, White, Schonfeld, & Wishart (2007) and Parker (2012) have described reckless riding as an intention and behavior that can

cause fatal accidents for motorbike riders, passengers, and other road users. Reckless riding is an approach to driving that does not prioritize safety precautions (e.g., wearing seat belts and helmets and not driving while drowsy or using a cell phone) and considers negative behaviors (e.g., aggressive driving) acceptable (Huang, 2014).

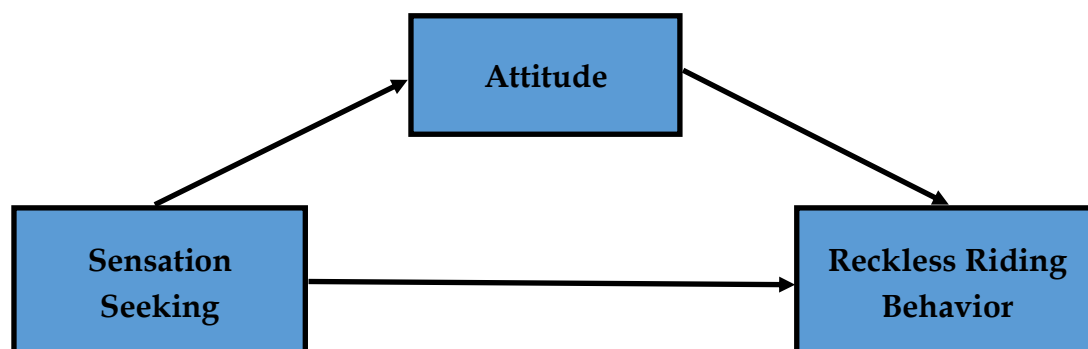
### Sensation Seeking

Zuckerman (in Mischel, Shoda, & Smith, 2004; Hatfield, Fernandez, & Job, 2014; Suranyi et al., 2013) demonstrated that sensation seeking as an individual trait represents the level of an individual's desire to try new experiences and willingness to take risks (e.g., extreme physical sports and motorsports) or participate in activities that have addictive potential (e.g., gambling or excessive alcohol consumption). Sensation seeking is a predisposition and trait expressed in various manners and related to any type of behavior, not only risky behaviors (Arnett, 1994). Sensation seeking can also be interpreted as a personality trait that reflects an individual's tendency to enjoy new experiences (Mann et al., 2017). The previous study showed the correlation between sensation seeking, driver anger, and neuroticism to be significantly positive. Individuals with high levels of sensation seeking are more likely to show risky driving behavior, namely driver anger (Akbari et al., 2019).

### Attitudes

Attitudes are generally extensions of individuals' beliefs about an object and key to understanding their behavior (Ajzen, 1991; Ajzen,

**Figure 1**  
*Framework of this study*



2005). According to King (2011) and Santrock (2003), attitudes are individuals' feelings, opinions, and beliefs about another person, object, or idea. Ajzen (2005) stated that an attitude toward a behavior is a disposition in responding favorably or unfavorably to a certain object, in this case, behavior. Attitudes are often considered similar to personality traits because their nature tends to be stable, but attitudes toward something can change depending on the information obtained, in contrast with traits that tend to be permanent and difficult to change (Ajzen, 2005). Mikler & Almakadma (2016) found a positive relationship between attitudes and behaviors toward risky driving in Saudi Arabia: risky driving behavior and attitudes that support unsafe driving, namely speeding, traffic law disobedience, and driving without a driving license. Chen (2009) identified a significant relationship between negative attitudes toward traffic safety and risky driving behavior. Our study investigated attitudes toward reckless or unsafe riding behavior. Thus, we aimed to understand the relationship between individual attitudes as a mediator variable between the behaviors of sensation seeking and reckless riding.

### Methods

This study applied a nonexperimental quantitative method to assess the relationship between two variables or more, without describing the relationship among them. This was a nonexperimental quantitative study because no treatment was applied to the participants (Gravetter & Forzano, 2012). We used a survey and cross-sectional design in the data collection procedure. Participants were recruited by the accidental sampling method. The data were collected at one time, through an online self-administered questionnaire provided to each participant, distributed through a link to a G-form or Google form on social media such as Instagram and Twitter.

### Participants

The total number of responses was 70; a questionnaire with incompleting responses was excluded. So the total data about the participants: 69 (F: 40, M: 29) motorcyclists had a driving license (SIM) type C in the area of Jakarta,

Bogor, Depok, South Tangerang, and Bekasi; their age range was between 18 and 35 years ( $M = 2.23$ ,  $SD = 0.78$ ); and they had been riding a motorcycle daily for at least 2 years. The first part of the questionnaire explained that the data collected would only be used for this study and displayed a means for the participants to provide informed consent.

### Measures

#### *Reckless riding*

For this variable, we used an adaptation of the scale developed by De Ona *et al.* (2014) in Indonesia language, comprising eight items on a 4-point Likert-type scale from *never* to *always*. This instrument had good reliability (Cronbach's alpha, 0.79). An example of an item is "I use a cellphone while driving." After constructing the validity test on this scale, there was one invalid item, item 4, "I keep safe distance from another vehicle when riding." Thus, further analysis comprised seven valid items. The model fit this scale (chi-square = 15.18,  $df = 15$ ,  $p = 0.43$ , and  $RSMEA = 0.013$ ). The p-value score demonstrated that  $p > 0.05$ ; it means this scale was unidimensional, that is reckless riding behavior was the measured factor.

#### *Sensation seeking*

Sensation seeking or thrill seeking was measured by using a scale adapted from Straddling (2004) using Indonesia language. This instrument had good reliability (Cronbach's alpha, 0.91). The measure comprised seven items on a 4-point Likert-type scale from *not suitable* to *appropriate*. An example of an item is "I enjoy the sensations when driving fast." After constructing the validity test on this scale, there was one invalid item, item 7, "I wait and give the signal when I want to overtake another vehicle lane." Henceforth, further analysis comprised six valid items. The model fit this scale (chi-square = 2.68,  $df = 4$ ,  $p = 0.61$ , and  $RMSEA = 0.000$ ). The p-value procedures demonstrated that  $p > 0.05$ ; thus, this scale model was unidimensional, that is, sensation seeking was the measured factor.

#### *Attitudes*

The attitudes toward unsafe riding were measured by using a questionnaire prepared by the researchers. This instrument had good reliability (Cronbach's alpha, 0.85). This 5-item Likert-type scale ranged from *disagree* to *agree*. An example of one of the items is "I'm satisfied when I arrive at my destination by speeding." After constructing the validity test on this scale, there was one invalid item, item 5, "I'm afraid when I ride the vehicle too fast." Henceforth, further analysis comprised four valid items. The model fit this scale (chi-square = 11.31, df = 12, p value = 0.50, and RMSEA = 0.000). The p-value procedures demonstrated that  $p > 0.05$ ; thus, this scale model was unidimensional, that is, attitude on reckless riding was the measured factor.

### Data Analysis

In this study, the test for constructing the validity of the scales was performed by using LISREL software, and the statistical tests of the relationship among the variables were conducted by using SPSS 22.0. The first analysis technique used was descriptive statistical analysis to obtain an overview of the research variables. Second, Pearson correlation was applied to determine the relationship between the research variables. Finally, PROCESS from Hayes was applied to test the research hypothesis. Mediation analysis was used to ascertain how the independent variable *X* affected the dependent variable *Y*. The mediation, *M*, is the variable that inserted acts as a mediator by which *X* influences *Y*. The letters *a*, *b*, *c*, and *c'* represent the effect corresponding to each relation.

### Results

In table 1, the correlation test demonstrates that

reckless riding has a slightly more significant relationship with attitude ( $r = 0.478$ ) than sensation seeking. Based on this result, our conclusion is that attitude can mediate the relationship between sensation seeking and reckless riding. We used the T-score method as the variant of the standard score. In the T-score method, the mean is set at 50, unlike in the standard score, where the value of the mean is zero. The assumption when using this technique is that nearly all the scores will be within a range of five standard deviations from the mean. (Chadha, 2009).

In table 2, regression analysis was used to investigate the hypothesis that attitude mediated the effect of sensation seeking on reckless riding. Sensation seeking (*X*) was a significant predictor of attitudes toward riding behavior (*M*) ( $B = 0.452$ ,  $SE = 0.116$ ,  $p < 0.05$ ), and that attitude toward riding behavior (*M*) was a significant predictor of reckless riding (*Y*) ( $B = 0.296$ ,  $SE = 0.108$ ,  $p < 0.05$ ).

There mediation correlation among sensation seeking, attitudes toward reckless riding, and reckless riding was tested for a direct or indirect relationship between those variables. According to Baron and Kenny (in Hassan *et al.*, 2017), some requisites must be fulfilled to determine that the relationship among those variables can be deemed a mediation process. There must be a significant relationship between the variable of sensation seeking as the independent variable (*X*), reckless riding as the dependent variable (*Y*), and attitudes toward reckless riding as a variable that could potentially be a mediator (*M*).

Table 3 presents the direct effect of sensation seeking on reckless riding (*c'* effect;  $B = 0.296$ ,  $p$

**Table 1**  
Correlation among Reckless Riding, Sensation Seeking, and Attitude

	M	SD	1	2	3
<b>Reckless Riding</b>	50	8.66	-	0.458**	0.478**
<b>Sensation seeking</b>	50	9.06		-	0.429**
<b>Attitude</b>	50	9.55			-

\*\* Correlation is significant at  $p < 0.01$  (two-tailed)

**Table 2.***Role of Attitude in Mediating the Relationship between Sensation Seeking and Reckless Riding*

	Attitude (M)			Reckless Riding (Y)				
	Coef	SE	p	Coef	SE	p		
<b>Sensation seeking (X)</b>	$a_1$	0.452	0.116	0.002*	$c'_1$	0.296	0.108	0.008*
<b>Attitude (M)</b>	-	-	-	$b_1$	0.312	0.102	0.003*	
<b>Constant</b>	$i_1$	27.35	5.91	0.000	$i_2$	19.54	5.72	0.001
	R <sup>2</sup> = 42.95			R <sup>2</sup> = 55.38				
	F (1.67) = 15.152, p = 0.002			F (2.66) = 14.599, p = 0.000				

Note: Coef: coefficient; SE: standard error, p: p-value score

**Table 3.***Total effect, direct and indirect effect sensation seeking on reckless riding*

	Effect	Boot SE	Boot LLCI	Boot ULCI
Total effect	0.438	0.103	0.230	0.645
Direct effect	0.296	0.108	0.079	0.513
Indirect effect	0.141	0.061	0.038	0.278

< 0.05), which is lower than the total effect of sensation seeking on reckless riding ( $B = 0.438$ ,  $p < 0.05$ ). The mediation effect of attitude and reckless riding was obtained by multiplying the effect of sensation seeking on attitude ( $a_1$  effect) ( $B = 0.452$ ,  $p < 0.05$ ) and attitude on reckless riding ( $b_1$  effect) ( $B = 0.312$ ,  $p < 0.01$ ). The coefficient of the indirect effect was 0.141 (95% confidence interval [CI] 0.038, 0.278). The level of the CI at 95% with 5,000 bootstrap samples of lower level for confident interval (LLCI) was between 0.038 (LLCI) and 0.278 of upper level for confident interval (ULCI). On the basis of the value, the range between LLCI and ULCI is not too far and does not pass zero; thus, this thing is considered as pure indirect effect. Therefore, the level of confidence is 95%, and attitude has a significant mediation effect. However, because we observed no significant increase after controlling for the mediator and direct effect value (effect  $c'$ ), it remains significant; hence, attitude exerts a partial mediation effect.

### Discussion and Conclusions

The result of the analysis shows that sensation seeking and attitudes toward reckless riding

affected rider performance. Sensation seeking as a personality trait directly affected reckless riding. When a participant had a higher level of sensation seeking, he had a higher chance to perform reckless riding behavior. Similar to Hassan *et al.* (2017), in our study, risky driving was influenced by sensation seeking. Furthermore, this study showed that attitude towards reckless riding was contributed as a partial mediator between sensation seeking and reckless riding behavior. That is, riders' attitudes toward reckless riding could manifest in riding behavior. This study demonstrates that the relationship between sensation seeking and reckless riding could depend on individuals' attitudes regarding safety riding behavior. When an individual disagrees with engaging in unsafe behavior while riding, although he has high level of sensation seeking compared others, he might not ride recklessly. Research has suggested that strategies aiming to promote safe driving are effective by altering driver attitudes toward unsafe driving (Chen, 2009). Attitudes in this study could be the crucial factor for the realization of changes in individual behavior. A rider has many personal traits; thus, personal traits other than sensation seeking can be explored in

further research.. In conclusion, reckless riding was influenced by sensation seeking and attitude (rider attitude). Attitudes acted as a partial mediator. The main limitations of this study were the small sample size and has a large majority of females participant. It would be better if the sample used had a larger scale with an appropriate gender proportion. Thus, further research on unsafe motorcycle behavior should use a larger and more varied sample.

### Declaration of Conflicting Interest

The author declares no conflict of interest to the authorship and/or the publication of this manuscript.

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