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Risky Behavior and Traffic Safety of Motorcycle Riders in Sungai Penuh City, Jambi Province

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Abstract

Motorcycles are among the most popular means of transportation in Indonesia. However, traffic accidents remain a significant issue, particularly in the city of Sungai Penuh. A contributing factor to the high accident rate is the risky behavior exhibited by motorcycle riders. This study aims to investigate the impact of motorcycle riders' risky behavior on traffic safety in Sungai Penuh City and to assess the level of traffic awareness among these riders. The research employed a quantitative method, utilizing data collected through questionnaires. The sample comprised 100 respondents from the Sungai Penuh community, selected through the random sampling technique. The questionnaire featured 24 statements categorized into two variables: risky behavior and traffic safety of motorcycle riders. Responses were measured using a Likert scale. For data analysis, a simple linear regression test was conducted to determine the relationship between the variables. The findings indicate that the risky behavior of motorcycle riders does not have a significant positive impact on traffic safety. Such behaviors account for 17.4% of traffic safety outcomes, while the remaining 82.6% is influenced by other factors, including environmental conditions, road quality, time of day, and driving conditions. Furthermore, the level of awareness among motorcycle riders regarding risky behavior and traffic safety is moderate. Common risky behaviors among motorcycle riders include not wearing helmets on short trips and riding at high speeds. Traffic safety practices that need improvement include regularly checking vehicle conditions and using protective gear such as gloves and shoes.

Keywords* : *risky behavior, traffic safety, motorcycle riders

INTRODUCTION

Motorcycles are among the most popular modes of transportation in Indonesia, including in Sungai Penuh City, Jambi Province. This popularity is attributed to factors such as easy accessibility, time and cost efficiency, and the ability to navigate through urban traffic congestion effectively.

However, the increased use of motorcycles has significant implications for traffic safety. Despite providing quick and efficient mobility, motorcycles also pose substantial risks and dangers on the road. Data from the Indonesian National Police (Indonesian: *Kepolisian Negara Republik Indonesia* [POLRI]) indicates that motorcycles are the leading cause of the high accident rate in Indonesia.

According to data from the Police Department of Kerinci in Sungai Penuh City, there were 26 traffic accidents involving motorcycles in 2022, resulting in 7 fatalities, no serious injuries, and 50 minor injuries. From January to September 2023, there were 29 traffic accidents involving motorcycles, leading to 10 fatalities, 1 serious injury, and 49 minor injuries (Police Department of Kerinci, Sungai Penuh, 2023).

The rise in traffic accidents involving motorcycles in Sungai Penuh City highlights the need to address the risky behaviors of motorcycle riders. Frequent risky behaviors include not wearing helmets, running red lights, driving under the influence of alcohol or other substances, disregarding road markings, improper child restraint or safety placement, and failing to adhere to traffic regulations (Police Department of Kerinci, Sungai Penuh, 2023).

Objectives

The objectives of this study are as follows.

1. To investigate the impact of risky driving behavior of motorcycle riders on their traffic safety in Sungai Penuh City.
2. To evaluate the awareness level of risky behavior among motorcycle riders in Sungai Penuh City.

Implications

The ensuing section outlines the implications derived from this study.

1. This research offers valuable insights into the behavior and awareness of motorcycle riders concerning traffic safety.
2. The findings of this study can inform law enforcement agencies, including the police, about taking decisive actions against motorcycle users who violate traffic laws.

Literature Review

Risky rider behavior encompasses actions or behaviors exhibited by motorcycle riders that heighten the risk of accidents or injuries in traffic scenarios. It can also be defined as driving conduct that poses hazards to both the rider and other road users, albeit unintentionally. Driver behavior with the potential to cause accidents or severe harm to passengers or fellow road users is labeled as risky driving behavior (Watson *et al*., 2009). Willemsen *et al*. (2008) characterize risky driving behavior as conduct while driving that can be perilous but is not deliberately targeted at oneself or other drivers, encompassing actions such as speeding, driving under the influence, and driving while fatigued.

Research conducted by Putranto (2020) has identified a variety of risky rider behaviors prevalent among motorcycle riders. These behaviors encompass neglecting to wear a helmet, particularly during short journeys, engaging in wrong-way driving on highways, exceeding speed limits, disregarding traffic signals such as red lights, engaging in reckless overtaking maneuvers, driving without signaling to other riders, utilizing a cell phone while operating a motorcycle,

smoking while riding, consuming alcohol, and even resorting to riding motorcycles on sidewalks (Faris, 2022).

Traffic and road transportation safety pertains to ensuring the protection of individuals from accidents arising from human factors, vehicles, road conditions, and the environment. It entails a blend of vigilance, awareness, and adherence to regulations aimed at safeguarding all road users. As noted by Putranto (2020) in traffic safety campaign literature, key aspects of traffic safety encompass wearing helmets that adhere to Indonesian National Standards (SNI), conducting vehicle condition checks before driving, utilizing both left and right mirrors on vehicles, activating headlights when riding a motorcycle during daylight hours, donning gloves and shoes as protective attire, being attentive to road conditions or avoiding damaged roads, adhering to all traffic regulations, surveying the surrounding environment to heighten awareness of potential hazards, maintaining vigilance or the capacity to recognize potential risks in the vicinity, demonstrating appropriate behavior or responses to risky behavior or hazardous situations, and possessing the ability to anticipate the actions of other riders or hazardous situations.

METHODS

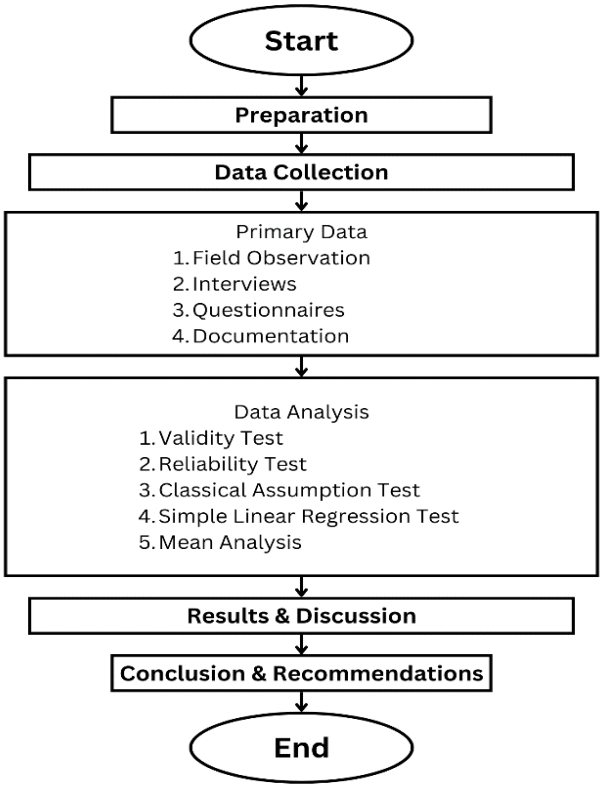
This research adopted a survey method with a quantitative approach. Data were gathered via questionnaires distributed among motorcycle riders in Sungai Penuh City. The questionnaire utilized a 5-point Likert scale, ranging from "*Very Frequently*" to "*Frequently*," "*Occasionally*," "*Rarely*," and "*Never*," necessitating validity and reliability assessments. The validity test was conducted to ensure the questionnaire's appropriateness for obtaining data from respondents. Meanwhile, the reliability test gauged the questionnaire's consistency in measuring research variables, ensuring its trustworthiness. These tests were performed using SPSS version 26 statistical analysis software, employing the simple linear regression test. Furthermore, a random sampling technique was employed, wherein samples were selected randomly from the population without limitations or interventions from the researchers. The sample size was determined using the Slovin formula with a critical value of 10%.

Formula:

$$n = \frac{N}{1 + N.e^2} = \frac{12646}{1 + (12646)(0.1^2)} = 99.215 \approx 100$$

According to the aforementioned calculation, the sample size utilized in this study consisted of 100 respondents.

Research Stages



The observation sites encompassed motorcycle commuters traversing Sungai Penuh City, targeting students, college attendees, civil servants, and the general populace, based on the sample size acquired.

Figure 1. Traffic Conditions in Sungai Penuh City

Figure 2. Students of STIE Sakti Alam Kerinci

Figure 3. General Public

The data collected at this research site comprised responses from 100 distributed questionnaires. Data obtained through field observations or field measurements included questionnaire responses from students, college attendees, civil servants, and the general public commuting through Sungai Penuh City. Sample measurements encompassed the risky behaviors of motorcycle riders concerning traffic safety in Sungai Penuh City.

According to Ghozali (2009), the simple linear regression test can be utilized to gauge the extent of influence the independent variable exerts on the dependent variable through the regression coefficient. The equation for simple linear regression is as follows.

$$Y = a + bX$$

Where:
Y = dependent variable;
a = constant, or when x value is 0 (constant value);
b = direction of the number (regression coefficient), indicating an increase or decrease in the dependent variable based on changes in the independent variable.

RESULTS AND DISCUSSION

Based on the sample calculation, 100 respondents were selected for inclusion in this study. To determine the questionnaire's suitability for use, a validity test was conducted. An instrument is considered valid if its statements effectively reveal what the questionnaire intends to measure. In the validity test, a sample of 100 respondents, consisting of individuals crossing the research location, was utilized. The testing parameter was the value of *r*. Research findings indicate that the variables of risky motorcycle rider behavior and traffic safety variables achieved significance at 0.05 or 5%, and the value of r_{table} (0.1966) confirmed validity as all validity results displayed that the values of r_{count} were higher than the value of r_{table}. Hence, the research instrument is considered valid for use as a data collection tool. Additionally, a reliability test was conducted on the statement items identified as valid. A variable is deemed reliable if responses to questions consistently align. Instrument reliability aims to gauge the consistency of responses to the provided statement items. Calculations were carried out using SPSS version 26. The results of the reliability test are presented in Table 1. As per the table, the Cronbach's alpha value exceeds 0.6, indicating reliability; a construct is considered reliable if its Cronbach's alpha value exceeds 0.6. Hence, both variables are considered reliable. For the risky rider behavior variable, Cronbach's alpha is 0.766, and for the traffic safety variable, it is 0.735, signifying their reliability.

1. Simple Linear Regression Test

Table 1. Results of Simple Linear Regression Test

Coefficients [a]

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	60.370	1.531		39.440	.000
	Risky Rider Behavior	-.291	.064	-.417	-4.544	.000
a. Dependent Variable: Traffic Safety						

Source: Data Analysis, 2023

The results are included in the regression equation as follows.

$$Y = a + bX = 60.370 + (-0.291)X$$

This indicates that the constant value (a) is 60.370, suggesting that when the risky behavior of motorcycle riders (X) is 0, the traffic safety (Y) remains at 60.370. The regression coefficient value (b) is -0.291 (negative), indicating an inverse relationship. This means that if the risky behavior of motorcycle riders increases by one unit, traffic safety will decrease by 0.291. Hence, it can be inferred that the risky behavior of motorcycle riders negatively impacts

traffic safety. The obtained significance value is 0.000 < 0.05, leading to the conclusion that the risky behavior of motorcycle riders significantly influences traffic safety.

2. Partial T-Test

Table 2. Results of Partial T-Test

Coefficients [a]

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	60.370	1.531		39.440	.000
	Risky Rider Behavior	-.291	.064	-.417	-4.544	.000
a. Dependent Variable: Traffic Safety						

Source: Data Analysis, 2023

As shown in Table 2, the obtained t_{count} of -4.544 is less than the value of t_{table} of 1.98447. This suggests that the risky behavior of motorcycle riders has a negative and significant impact on traffic safety.

3. Coefficient of Determination (R^2)

Table 3. Results of Coefficient of Determination (R^2) Test

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.417[a]	.174	.166	3.600
a. Predictors: (Constant), Risky Rider Behavior				

Source: Data Analysis, 2023

According to Table 3, the obtained coefficient of determination (R^2) is 0.174, indicating that the risky behavior of motorcycle riders contributes 17.4% to traffic safety. Furthermore, the remaining 82.6% is attributed to other factors such as environmental conditions, road infrastructure, and adverse weather.

Level of Motorcycle Rider Awareness

1. Awareness Level of Riders Regarding Risky Behavior

According to Azwar (2012), categorization is established based on three criteria: low, moderate, and high.

High	$X \geq M + 1SD$
Moderate	$M - 1SD \leq X < M + 1SD$
Low	$X < M - 1SD$

Table 4. Criteria of Mean Values and Awareness Levels Regarding Motorcycle Rider Risky Behavior

High	$X \geq M + 1SD$ ≥ 2.27
Moderate	$M - 1SD \leq X < M + 1SD$ 1.59 – 2.27
Low	$X < M - 1SD$ < 1.59

Source: Data Analysis, 2023

A low mean value suggests that riders predominantly responded with "*Never*" and "*Rarely*." This indicates that riders maintain good or high awareness to engage in positive behaviors while riding or avoid risky behaviors (Halim & Caroline, 2023). The level of awareness of risky behaviors among motorcycle riders regarding traffic safety can be assessed based on the mean values calculated in the following table.

Table 5. Mean Values and Awareness Levels of Motorcycle Riders Regarding Risky Behavior

No.	Variables	Statement	Mean	Mean Value	Awareness Level
1.	Short-distance helmet use	Not wearing a helmet on short trips	2.77	High	Low
2.	Riding speed	Riding a motorcycle at high speeds	2.35	High	Low
3	Lane changing	Frequent lane changing to exploit narrow gaps	2.15	Moderate	Moderate
4	Overtaking	Overtaking vehicles that have signaled to turn	1.97	Moderate	Moderate
5	Carrying passengers	Carrying more than one passenger	1.96	Moderate	Moderate
6	Wrong-way driving	Driving against traffic flow on highways	1.95	Moderate	Moderate
7	Turn signals	Not turning off turn signals while riding	1.81	Moderate	Moderate
8	Communicating while riding	Communicating while driving using hands-free devices	1.74	Moderate	Moderate

9	Riding behavior	Riding a motorcycle carelessly	1.71	Moderate	Moderate
10	Carrying goods	Carrying as many goods as possible	1.67	Moderate	Moderate
11	Riding on sidewalks	Riding a motorcycle on sidewalks	1.67	Moderate	Moderate
12	Smoking while riding	Smoking while riding	1.46	Low	High

Source: Data Analysis, 2023

In Table 5, the analysis of mean values reveals that the lowest mean score of 1.46—signifying abstaining from smoking while riding—indicates a commendable or high level of awareness concerning risky behaviors among motorcycle riders. Conversely, the elevated mean values of 2.77 for neglecting to wear a helmet on short trips and 2.35 for speeding suggest a relatively inadequate or low level of awareness, with some riders persisting in risky behaviors. Hence, the variable of risky behaviors among motorcycle riders is classified as "moderate" in terms of rider awareness level.

2. Awareness Level of Riders Regarding Traffic Safety

The mean results indicate the response categories of the respondents, showing that the traffic safety variable mostly received answers of "*Very Frequently*" and "*Frequently*." This suggests that riders generally have a high level of awareness and engage in positive behaviors while riding (Halim & Caroline, 2023). The level of awareness of risky behaviors among motorcycle riders regarding traffic safety is detailed in the following table.

Table 6. Mean Values and Awareness Levels of Motorcycle Riders Regarding Traffic Safety

No.	Variables	Statement	Mean	Mean Value	Awareness Level
1.	Attitude	Prioritizing personal safety and that of other road users	4.70	High	High
2.	Awareness	Paying attention to other vehicles and pedestrians while riding	4.66	Moderate	Moderate
3	Complete Mirrors	Using the complete left and right mirrors	4.62	Moderate	Moderate
4	SNI Helmet	Wearing an Indonesian National Standard (SNI) helmet	4.61	Moderate	Moderate
5	Anticipation	Predicting other riders' actions and being ready to	4.59	Moderate	Moderate

		avoid potentially dangerous situations			
6	License and Registration	Carrying a motorcycle license (SIM) and registration (STNK)	4.58	Moderate	Moderate
7	Alertness	Checking the surrounding situation while riding	4.56	Moderate	Moderate
8	Road Conditions	Avoiding damaged sections of the road infrastructure	4.51	Moderate	Moderate
9	Rule Compliance	Obeying traffic regulations	4.46	Moderate	Moderate
10	Headlights	Using headlights during the day	4.34	Moderate	Moderate
11	Vehicle Condition	Checking vehicle condition	4.10	Low	Low
12	Gloves and Shoes	Wearing gloves and shoes	3.88	Low	Low

Source: Data Analysis, 2023

In Table 6, the mean results indicate that the highest mean value of 4.7 reflects a high level of rider awareness in prioritizing their safety and that of other road users. Conversely, the lower mean values of 4.1 for checking the vehicle's condition and 3.88 for wearing gloves and shoes reflect a low level of awareness, as riders do not consistently engage in these positive behaviors while riding. Consequently, the overall traffic safety variable is classified as "moderate."

CONCLUSIONS

The findings of this study indicate that the risky behavior of motorcycle riders is negatively correlated with traffic safety. This implies that an increase in risky behaviors among motorcycle riders results in a decrease in traffic safety. Risky riding behaviors contribute only 17.4% to traffic safety, with the remaining 82.6% influenced by other factors not covered in this research.

RECOMMENDATIONS

Motorcycle riders should consistently wear helmets that meet Indonesian National Standards (SNI) for both short and long trips, reduce their speed while riding, regularly check the condition of their vehicles, and use gloves and shoes while riding. Ensuring safety is crucial not only for the riders themselves but also for other road users.

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