Study of Factors Influencing Traffic Violations in Jakarta: Perspective of the Theory of Planned Behavior (TPB) in the Implementation of Electronic Traffic Law Enforcement (ETLE)

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STUDY OF FACTORS INFLUENCING TRAFFIC VIOLATIONS IN JAKARTA: PERSPECTIVE OF THE THEORY OF PLANNED BEHAVIOR (TPB) IN THE IMPLEMENTATION OF ELECTRONIC TRAFFIC LAW ENFORCEMENT (ETLE)

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ABSTRACT

Transportation safety in Indonesia, amidst its diverse cultural landscape and modernization endeavors, grapples with a persistent challenge: a high incidence of traffic accidents and violations, as evidenced by data from the Indonesian Road Safety Management System (IRSMS) and the Jakarta Metropolitan Police (Polda Metro Jaya). This concerning trend underscores the urgent need for robust law enforcement measures. In response, the adoption of Electronic Traffic Law Enforcement (ETLE), supported by legislative frameworks such as Law No. 22 of 2009 on Road Traffic and Transportation and Law No. 19 of 2016 on Electronic Information and Transactions, has emerged as a strategic initiative. However, the effectiveness of ETLE within Jakarta's intricate urban milieu necessitates thorough evaluation. Thus, this study delves into the psychological factors shaping ETLE utilization, utilizing the Theory of Planned Behavior. Through meticulous data analysis, significant correlations between psychological factors and traffic violations emerge, including urban road conditions, anxiety levels, confidence in navigating traffic, perceptions of other drivers' behaviors, and personal safety concerns. Notably, urban road conditions alone exert a substantial 0.3364% influence on violation tendencies. With a beta coefficient of 0.029 and a robust t-statistic of 15.776, the study underscores the imperative of adopting a comprehensive road safety approach, encompassing infrastructure improvements, stringent law enforcement, driver education initiatives, and targeted interventions addressing psychological factors. Such a holistic strategy aligns with the World Health Organization's (WHO) targets to halve road traffic fatalities by 2031, as outlined in the Decade of Action for Road Safety (2021-2031), aiming to create a safer transportation landscape that prioritizes citizen well-being and responsible road usage.

Keywords: Transportation Safety, Traffic Violations, Electronic Traffic Law Enforcement (ETLE), Psychological Factors.

INTRODUCTION

Transportation reflects a nation's culture and level of modernity, making safety a fundamental principle in transportation management. Indonesia has experienced a high rate of traffic accidents influenced by various factors, including human error, vehicle issues, environmental conditions, and road conditions. According to IRSMS data, there has been an increase in the number of accidents from 2020 to 2022. Effective law enforcement efforts can reduce the impact of traffic accidents (Siregar, 2018), particularly in Jakarta where traffic violations are common.

Based on the traffic violation data from the Jakarta Metropolitan Police from 2020 to 2022, there has been an increase in traffic violations involving various types of vehicles. The police have taken different measures to enforce traffic violations, one of which is the implementation and operation of the Electronic Traffic Law Enforcement (ETLE). This system relies on electronic recording evidence to monitor and enforce traffic violations. It is used as a tool by the Traffic Police to ensure compliance with road transport laws.

The implementation of traffic violation enforcement based on electronic recording evidence is supported by strong legal grounds based on Article 272 of Law No. 22 of 2009 concerning Traffic and Road Transportation (UU LLAJ No.22 Year 2009) and Law No. 19 of 2016 concerning Amendments to Law No. 11 of 2008 concerning Electronic Information and Transactions (UU ITE 19 Year 2016). The term "ETLE" to concretize the enforcement of the UU LLAJ and UU ITE is very promising. ETLE performance can influence and stimulate road user behavior because they feel monitored by an electronic system with undeniable violation recording evidence, thus having a broad impact on achieving traffic violation and road transport enforcement objectives.

The rapid growth of the number of vehicles and the high rate of traffic violations are serious issues that need to be addressed. However, there are not many studies specifically evaluating the effectiveness of ETLE use in enforcing traffic regulations for vehicles in Jakarta. To address traffic violation issues, especially for vehicles, in order to improve traffic safety, understanding why these violations often occur is needed. Regarding speeding behavior, several studies have been conducted to determine its psychological determinants (Dinh & Kubota, 2013).

Observing considerable room for improvement in prior studies concerning driver safety underscores the importance of thorough inclusion in the literature review of this aspect. It is crucial for the author to acknowledge and address this gap, as it could significantly enrich the study's foundation. A clear problem statement would not only define the study's purpose but also introduce its novelty in a precise manner. In this context, referencing influential studies such as "Theory of planned behaviour and road violations: The moderating influence of perceived behavioural control" by Carole Castanier, Thomas Deroche, and Tim Woodman could provide valuable insights and serve as a benchmark for comparison, ultimately contributing to the advancement of research in this area.

Based on the previous explanation, with the implementation of the ETLE system to enforce traffic violation laws, further studies on the effectiveness of this new system are needed. Through a psychological factor approach, factors influencing drivers can be identified in its implementation using the Theory of Planned Behavior. Thus, factors affecting the perfecting of traffic violation policies can be obtained for implementation in supporting law enforcement.

LITERATURE REVIEW

The Theory of Planned Behavior (TPB), proposed by Ajzen in 1991, has become a cornerstone in social science research, particularly in understanding human behavior. TPB delineates several psychological factors crucial in shaping behavior: Belief (B), Attitude (ATT), Subjective Norms (SN), and Perceived Behavioral Control (PBC) (Ajzen, 1991). These components offer a framework to explore the complexities of human decision-making processes, particularly in contexts like adherence to traffic laws. In the bustling metropolis of Jakarta, where traffic congestion and violations are ubiquitous, understanding the intricacies of behavior regarding traffic law enforcement (ETLE) is paramount. This research endeavor seeks to delve into the nexus between psychological factors and the use of Electronic Traffic Law Enforcement (ETLE) systems across various types of violations. By scrutinizing the interplay of beliefs, attitudes, subjective norms, and perceived behavioral control, the study endeavors to provide insights that could potentially inform policy formulations aimed at bolstering law enforcement efforts in tackling traffic violations. By employing TPB as a guiding framework, this research aims to shed light on the nuanced motivations and deterrents behind compliance or non-compliance with traffic regulations in Jakarta. Through empirical investigation and analysis, the study aspires to furnish actionable recommendations to enhance the efficacy of traffic violation policies. Such insights hold the promise of fostering a safer and more orderly traffic environment in Jakarta, thereby contributing to the overarching goals of law enforcement and public safety.

METHODOLOGY

A literature review was conducted to understand the fundamental issues faced and determine the right research direction. The review synthesized findings from various journals and publications on traffic violations, focusing on different methods and aspects analyzed. Key themes emerged from the literature, including the effectiveness of electronic traffic law enforcement (ETLE) systems, the behavioral responses of drivers to such systems, and the impact on traffic safety and discipline. This synthesis provided a clear framework for the research, highlighting gaps in existing studies and informing the methodological approach.

Data collection was then carried out, divided into two types: primary data (through direct interviews with individuals passing through ETLE points and those affected by the system's implementation) and secondary data (consisting of various types of vehicles and violation data collected from ETLE users). Effective primary data collection was carried out through direct interviews with drivers currently dealing with traffic violation cases on the highway. A total of 125 respondents were gathered for further analysis. The characteristics of the respondents were detailed, including gender, age, educational background, occupation, and driving experience. Among the respondents, males dominated, with 109 out of the total sample. In terms of age distribution, the most common age groups were 17-25 years and 26-30 years, which fall within the productive age range, with 26 respondents each. Regarding educational level, most violators were high school graduates, followed by university graduates.

Once all data were collected, a multiple regression model was built using SPSS to assess significant Theory of Planned Behavior (TPB) factors in traffic enforcement with the ETLE system. Multiple regression analysis was chosen to understand the relationship between several independent variables (such as attitudes towards traffic laws, subjective norms, and perceived

behavioral control) and the dependent variable (likelihood of committing a traffic violation). The model can be represented by the formula:

$$Y = \beta 0 + \beta_1 Belief + \beta_1 Attitude + \beta_2 Subjective\ Norms + \beta_3 Perceived\ Behavioral\ Control + \epsilon$$

The model was formed by combining the obtained variables and underwent repeated iterations to identify significant predictors, followed by validation to ensure robustness of the final results.

An analysis of the model's form was conducted to interpret the findings and draw actionable conclusions. This involved examining the coefficients (\(\beta\) values) to understand their impact on the dependent variable, evaluating p-values to determine the statistical significance of the predictors, assessing goodness-of-fit measures like R-squared to evaluate model fit, and analyzing residuals for patterns indicating model misfit. The model was validated using cross-validation or data splitting to ensure predictive power and generalizability. Results were interpreted in the context of the Theory of Planned Behavior and existing literature to understand how significant factors align with previous findings. Finally, recommendations were formulated for improving traffic enforcement policies, such as strengthening community norms around safe driving if subjective norms significantly reduce violations.

RESULTS AND DISCUSSION

In terms of occupation, the majority of violators worked in the private sector as employees, totalling 79 respondents. Lastly, concerning driving experience, the majority of respondents had more than ten years of driving experience, totalling 48 individuals. This detailed demographic provides a comprehensive understanding of the sample population, facilitating further analysis and interpretation of the collected data.
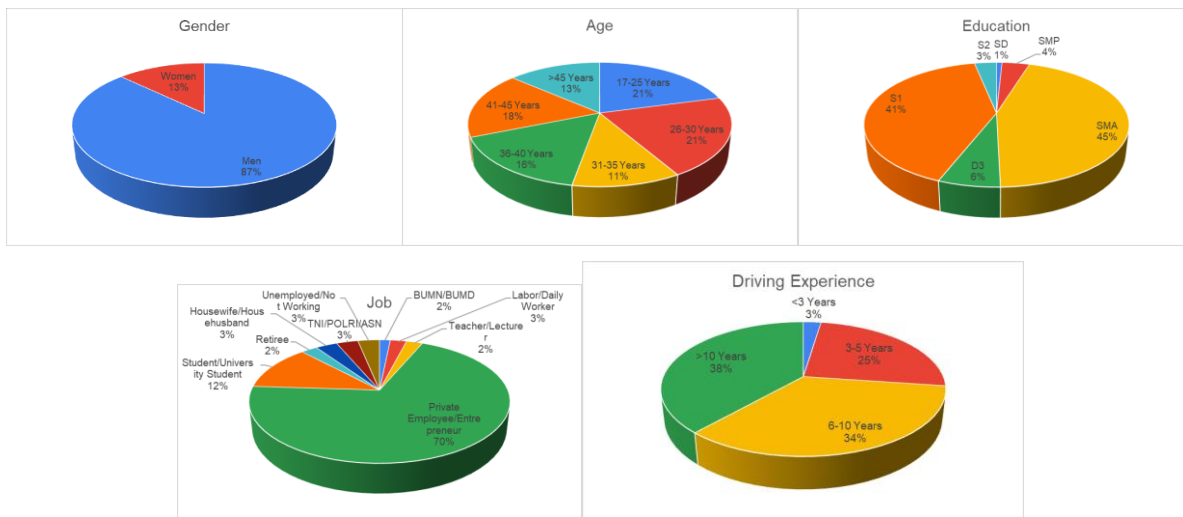

Figure 1 Respondent Profile Characteristics

Multiple regression analysis can be used to test the relationship between traffic violations and respondent characteristics. In this analysis, various demographic factors such as age, gender,

occupation, education level, and driving experience can be used as independent variables, while the number or frequency of traffic violations serves as the dependent variable. Through multiple regression, researchers identify demographic factors significantly impacting traffic violations, controlling for other variables. The analysis reveals that younger, less experienced drivers with certain occupations or educational levels are more prone to traffic violations compared to older, more experienced drivers. These findings can inform policymakers and law enforcement agencies in designing targeted interventions and educational campaigns aimed at promoting safer driving behavior among specific demographic groups.

Table 1 Significance of Profile Results

Variable	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Beta		
(Constant)	0.405		0.795	0.428
Gender	-0.141	-0.047	-0.476	0.635
Age	0.043	0.070	0.625	0.533
Education	-0.097	-0.107	-1.166	0.246
Job	0.447	0.184	1.855	0.066
Experience	-0.138	-0.117	-1.037	0.302

An analysis with a significance level below 0.1 suggests that individuals without employment exhibit a greater propensity to violate traffic regulations. This could be due to factors such as having more free time or lack of awareness about the legal and safety consequences associated with traffic violations (Jones & Brown, 2019). Solutions to this issue involve various approaches. One approach is to increase awareness through educational campaigns and disseminating information about traffic rules and their consequences. Additionally, tailored driving skills training programs for the unemployed demographic can be beneficial. Creating job opportunities or support programs to assist the unemployed can redirect their focus to more productive activities and reduce leisure time leading to risky behavior on the road. With these approaches, it is hoped that the rate of traffic violations will decrease, and overall road safety will improve.

Drivers exhibit a typical approach when driving, involving a combination of careful anticipation and quick response, adjusting speed and direction according to road conditions (Smith et al., 2020). This calm and controlled attitude fosters confidence among passengers. Detailed analysis of driving behavior includes factors such as vehicle type, year, engine size, speed, and number of passengers (Evans, 2004). Cars are the dominant vehicle type among respondents, comprising 88% of the sample. The most common vehicle age group is 6-10 years, exceeding the typical effective age limit. Engine sizes between 1,100 to 1,500 cc are commonly found among violators. Those maintaining speeds below 50 km/h are mainly seen in ETLE areas. Moreover, most respondents travel with only one passenger beside the driver.
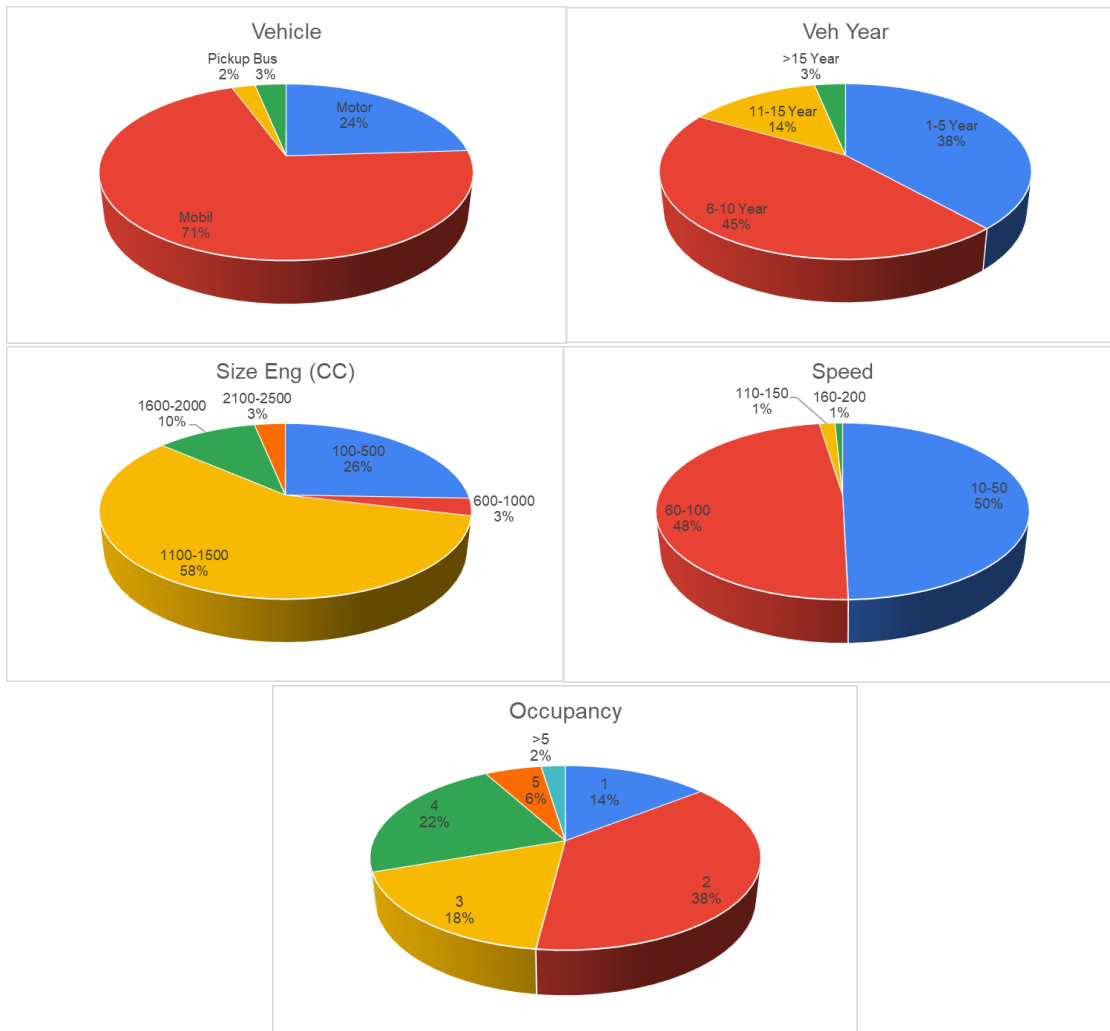
Figure 2 Respondent Driving Characteristics

Multiple regression analysis provides valuable insights into the relationship between traffic violations and driving characteristics. By examining various driving-related factors such as driving experience, type of vehicle driven, adherence to speed limits, and use of safety equipment like seat belts, researchers can determine the extent to which these factors influence traffic violations. Multiple regression identifies significant predictors of traffic violations while controlling for other variables. The analysis reveals that less experienced drivers or those frequently exceeding speed limits are more susceptible to traffic violations. These findings can inform targeted interventions to encourage safer driving behavior, such as targeted educational campaigns or law enforcement efforts focused on specific driving behaviors. Additionally, policymakers can use these insights to develop policies and regulations addressing key factors contributing to traffic violations, ultimately improving road safety for all drivers.

Table 2 Significance of Characteristic Results

Variable	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Beta		
(Constant)	0.073		0.173	0.863
Type	-0.228	-0.139	-1.173	0.243
Year	0.008	0.036	0.394	0.694
Size	0.000	0.071	0.597	0.552
Speed	-0.004	-0.088	-0.959	0.340
Occupancy	0.130	0.179	1.846	0.067

The significance level of less than 0.1 for variables indicating a higher tendency for traffic violations in vehicles with many passengers underscores the importance of road safety considerations. This phenomenon can be caused by various factors, such as distractions caused by conversations between passengers or drivers feeling more confident or less attentive due to the presence of others in the vehicle. Additionally, vehicle density can also cause discomfort or reduced visibility, potentially affecting a driver's ability to adhere to traffic rules (Michon, 1985). Addressing this issue requires a multifaceted approach. Firstly, increasing awareness among drivers and passengers about the risks associated with distractions and excessive density can encourage more responsible behavior on the road. Additionally, implementing stricter law enforcement regarding vehicle passenger capacity and seat belt usage can help reduce risks associated with vehicle density. Furthermore, promoting alternative transportation options or carpooling services prioritizing safety and adherence to regulations can provide appropriate solutions to reduce the prevalence of traffic violations among vehicles with many passengers (Smith et al., 2020). By addressing these factors, policymakers and authorities can strive to improve road safety and reduce traffic violations associated with vehicles carrying many passengers.

The Kolmogorov-Smirnov Normality Test, a component of classical assumption tests, assesses whether residual values adhere to a normal distribution. A crucial aspect of a sound regression model is the normal distribution of residuals. The decision criterion stipulates that if the significance value is greater than 0.05, the residuals are deemed normally distributed; conversely, if the significance value is less than 0.05, the residuals deviate from normality (Smith, 2018).

Table 3 Kolmogorov-Smirnov Normality Test Results

		Standardized Residuals
N		125
Normal Parameter [a,b]	Mean	0,0000000
	Std. Deviation	0,50554331
Standard Deviation		0,059
Asymp. Sig. (2-tailed)		.200c [,d]

Based on the normality test results, it is known that the significance value is 0.200 > 0.05. Therefore, it can be concluded that the residuals are normally distributed, as shown in Table 3.

Testing the relationship between traffic violators and psychological factors based on the Theory of Planned behavior is an important step in understanding driving behavior. This theory suggests that individual behavior can be predicted through attitudes, subjective norms, and perceived behavioral control regarding that action (Ajzen, 1985). In the context of traffic violations, research can explore how individuals' attitudes toward traffic rules, their perceptions of social norms related to driving behavior, and the extent to which they feel in control of their actions on the road influence their behavior. By examining the relationship between psychological factors and traffic violation behavior, research can provide valuable insights for policymakers and law enforcement agencies to design more effective interventions. If research shows that negative attitudes toward traffic rules or social norms supporting driving violations are associated with increased violations, then educational campaigns emphasizing the importance of traffic rule compliance and fostering positive social norms can be recommended as effective solutions. Thus, testing the relationship between traffic violators and psychological factors based on the Theory of Planned Behavior can significantly contribute to efforts to improve road safety.

In the data processing stage using multiple linear regression, with variable Y representing the group of respondents who violate traffic rules and those who do not, and variable X divided into 25 variables describing the psychological factors driving drivers to commit violations, comprehensive analysis was conducted. The selection of 25 specific psychological factors for the multiple linear regression analysis predicting traffic violations is guided by their established relevance, comprehensiveness, and predictive power, as supported by existing research and theoretical frameworks. Factors like stress, impulsivity, attitudes towards traffic rules, and personality traits have been consistently linked to driving behavior in studies by Machin and Sankey (2008) and Dahlen et al. (2005). The inclusion of a broad range of variables ensures a holistic understanding, as noted by Elliott et al. (2007), while maintaining statistical robustness as recommended by Babyak (2004). This selection aligns with theories such as the Theory of Planned Behavior (Ajzen, 1991) and leverages reliable data for meaningful analysis, facilitating targeted interventions to enhance road safety, as evidenced by Iversen and Rundmo (2002) and Bener et al. (2008). Each of these 25 psychological factors serves as an independent variable, and comprehensive testing was conducted on the impact of each factor on the occurrence of traffic violations. Through this regression analysis, factors that significantly influence driving behavior can be identified while controlling for other variables. Understanding the importance of these psychological factors in predicting traffic violations, policymakers and authorities can adjust interventions and campaigns more effectively to address the determinants of behavior and encourage safer driving habits among drivers. Here is the definition of the 25 specific psychological factors:

A = I feel happy when violating traffic rules.

B = I violate traffic rules because of encouragement from passengers in my vehicle.

C = I am confident in violating traffic rules because I believe in my driving skills.

D = Urban roads allow people to violate traffic rules.

E = Violating traffic rules on the road can demonstrate my courage threshold.

F = Due to weak law enforcement and traffic sanctions, I always violate traffic rules.

G = Violating traffic rules on the road can increase anxiety.

H = Even though the road infrastructure is poor, I still obey traffic rules.

I = Violating traffic rules can be a way to channel my anger emotions.

J = There are no police officers on the road to monitor violations.

K = Violating traffic rules can be prideful.

L = I feel guilty when violating traffic rules.

M = I violate traffic rules due to a lack of intensive education and order campaign.

N = I feel free when violating traffic rules.

O = I feel confident controlling the vehicle when violating traffic rules.

P = I believe that vehicles violating traffic rules should not exist.

Q = When violating traffic rules, I feel doubtful/fearful.

R = I am tempted to violate when other drivers also violate.

S = More confident in violating because the vehicle I drive has very reliable safety features.

T = The Government builds roads for people to reach their destinations as quickly as possible.

U = When violating traffic rules, I feel anxious/worried.

V = Not violating traffic rules on the road can be categorized as cowardly.

W = My parents/household members always tell me to drive safely.

X = Violating traffic rules can be satisfying to reach destinations on time/more quickly

Y = I remain disciplined in traffic, even though many vehicles violate.

Table 4 Multiple Linear Regression Calculation 36 Variables (Outflow)

Variabel	Koefisien Tidak Standar	Koefisien Standar	T	Signifikansi
	B	Beta		
(Konstan)	-7.177		-11.809	0,000
A	0,038	0,033	0,433	0,666
B	0,042	0,046	0,637	0,526
C	0,131	0,140	1.849	0,068
D	0,104	0,169	2.615	0,010
E	0,004	0,005	0,074	0,941
F	0,039	0,055	0,811	0,420
G	0,142	0,237	3.585	0,001
H	-0,017	-0,026	-0,332	0,741
I	-0,026	-0,036	-0,529	0,598
J	0,073	0,107	1.452	0,150

Variabel	Koefisien Tidak Standar	Koefisien Standar	T	Signifikansi
	B	Beta		
K	0,046	0,048	0,764	0,447
L	0,058	0,087	1.372	0,173
M	0,066	0,108	1.356	0,178
N	0,011	0,015	0,228	0,820
O	0,092	0,133	1.924	0,057
P	0,008	0,014	0,232	0,817
Q	0,010	0,015	0,214	0,831
R	0,108	0,180	2.030	0,045
S	0,130	0,177	2.308	0,023
T	0,055	0,082	1.253	0,213
U	0,105	0,154	1.784	0,077
V	0,055	0,067	0,903	0,369
W	0,087	0,099	1.502	0,136
X	0,000	0,000	-0,003	0,997
Y	0,165	0,247	3.845	0,000

Referring to the multiple linear regression results, it can be observed that the variables X (D, G, O, R, U, and Y) significantly affect the dependent variable Y at a significance level of less than 0.1.

Table 5 Multiple Linear Regression Variable Calculation 3 (Outflow)

Variable	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Beta		
(Constant)	-4.461		-12.945	0.000
D	0.116	0.188	3.218	0.002
G	0.106	0.177	2.832	0.005
O	0.151	0.219	3.533	0.001
R	0.250	0.417	6.743	0.000
U	0.180	0.264	4.148	0.000
Y	0.186	0.279	4.685	0.000

Based on this table, it can be analyzed that of the three previously filtered independent variables, all six variables significantly affect the tendency to commit traffic violations. The following is the model equation for the tendency to commit violations:

$$Y = -4.461 + 0.116X_1 + 0.106X_2 + 0.151X_3 + 0.250X_4 + 0.180X_5 + 0.186X_6 \qquad 1$$

Where variable Y is the tendency to violate traffic rules, and variable X includes X1 (Urban Roads), X2 (Anxiety), X3 (Confidence), X4 (Other Drivers), X5 (Worried), and X6 (Still

Disciplined). Based on the multiple linear regression calculation results, the following results are obtained to observe their tendencies.

To address urban road issues that enable traffic rule violations, a comprehensive urban planning strategy centered on enhancing road safety is imperative. These strategies encompass redesigning road infrastructure, incorporating features such as speed bumps and narrower lanes to promote adherence to speed limits. Additionally, augmenting the deployment of traffic law enforcement measures, such as speed measurement cameras and police patrols, can dissuade reckless driving behaviors. Public awareness campaigns that underscore safe driving practices are also instrumental in cultivating responsible driving habits. Through the implementation of these multifaceted solutions, cities can forge safer urban environments and mitigate the incidence of traffic violations.

To address anxiety related to traffic rule violations, enhancing driver education programs is essential. Comprehensive education on traffic rules and safe driving practices can enhance understanding and reduce uncertainty. Additionally, interventions like cognitive behavioral therapy can help drivers manage anxiety. Improving road infrastructure and signage for better visibility can further boost confidence. Addressing overconfidence when violating traffic rules requires a focus on increasing driver awareness and accountability. Educational campaigns highlighting risks and consequences can prevent reckless behavior. Increased law enforcement presence and defensive driving courses can further enhance safe driving habits. To resist the temptation to violate rules when others do, fostering positive peer influence is key. Community-based initiatives and awareness campaigns can promote collective responsibility and mutual respect among drivers. Improved communication and traffic law enforcement can prevent reckless behavior. To reduce anxiety when violating traffic rules, enhancing driver education and awareness is crucial. Comprehensive campaigns and access to resources like defensive driving courses can equip drivers with coping strategies. Improving road infrastructure for better visibility can enhance safety. To maintain discipline in traffic despite violations occurring, reinforcing positive behavior through education and law enforcement is essential. Awareness campaigns and increased law enforcement presence can encourage responsible driving habits. Community engagement initiatives can empower drivers to support each other in upholding discipline on the road.

This study focuses on the relationship between violations detected by ETLE and traffic accidents in Jakarta. Data was collected from 2020 to 2022, the period when ETLE was actively implemented. Accident data was obtained from the Central Bureau of Statistics (BPS). The primary objective is to evaluate the contribution of ETLE violations to the frequency and severity of traffic accidents. Using statistical analysis, this research seeks correlations between ETLE violations and accidents, as well as the effectiveness of ETLE in changing driver behavior and reducing violations. The analysis involves simple linear regression tests to assess the relationship between ETLE violations and accidents. With these analysis results, policymakers are expected to gain valuable insights to design more effective accident prevention strategies based on strong empirical data, considering the impact of ETLE implementation.

Table 6 Regression Test Results

Model Summary			
R	R2	Adjusted	Std. Error
.998a	0.996	0.992	108.08048

Table 7 Regression Coefficient Test Results

Coefficients				
	Unstand.Coef.		t	Sig.
	B	Std. Error		
(Constant)	3689.219	159.27	23.163	0.027
ETLE	0.029	0.002	15.776	0.04

From the simple linear regression test, an R2 value of 0.992 was found, indicating that about 99.2% of the variation in traffic accidents in Jakarta from 2020-2022 can be explained by violations detected by ETLE. This shows a strong relationship between ETLE violations and accidents. While the R2 value is high, its interpretation should be cautious as it does not always indicate a direct cause-and-effect relationship. The regression test results also show an ETLE beta coefficient of 0.029 for accidents in Jakarta, with a t-statistic of 15.776 and significance of 0.04. This number confirms a significant relationship between ETLE violations and accidents, with each unit increase in ETLE violations associated with a 0.029 unit increase in accidents, after controlling for other factors. This underscores the importance of ETLE enforcement in enhancing traffic safety in Jakarta.

Based on the regression test results, a linear regression equation has been formed to describe the relationship between ETLE violations and accidents in Jakarta. This equation was then integrated with an equation describing public perceptions of traffic and safety, aiming to obtain beta values reflecting the psychological influence of public perceptions on accident rates. Combining these equations is done to understand psychological factors, such as attitudes, social norms, and belief in traffic rules, affecting accident rates in Jakarta. By obtaining beta values from this combined equation, we can assess the significance of public perception in shaping driving behavior and, ultimately, its impact on traffic accidents in Jakarta.

$$Y = 3689.2 + 0.029X \qquad\qquad 2$$

$$Y = 3689.2 + 0.029(-4.461 + 0.116X_1 + 0.106X_2 + 0.151X_3 + 0.250X_4 + 0.180X_5 + 0.186X_6) \qquad 3$$

$$Y = 3689.1 + 0.003364X_1 + 0.003074X_2 + 0.004739X_3 + 0.00725X_4 + 0.00522X_5 + 0.005394X_6 \qquad 4$$

Based on the analysis focusing on public perceptions of traffic and safety in relation to accident rates, each psychological factor shows different contributions to accident incidents. Factor X1, related to urban road conditions, has an influence of 0.3364%. Factor X2, reflecting driver anxiety levels, is at 0.3074%. Factor X3, measuring driver confidence levels, is at 0.4739%. Factor X4, assessing the influence of other drivers' behavior's, is at 0.725%. Factor X5, measuring driver concerns, is at 0.522%. And lastly, Factor X6, evaluating driver discipline, is at 0.5394%. Overall, the contributions of all these psychological factors reach 2.9041% towards accidents. Considering

the ambitious targets of the World Health Organization (WHO) for the Decade of Action for Road Safety 2021-2031, which aims to reduce accident rates by 50%, the safety strategies taken must be more comprehensive and not only focus on the variables studied. Therefore, a holistic and integrated approach considering various factors, ranging from road infrastructure, law enforcement, driver education, to driver psychological aspects, becomes crucial to achieve the set accident reduction targets.

CONCLUSION

Based on the analysis and discussion, social, psychological, and situational factors influence the tendency for traffic violations in Jakarta. Individuals who are unemployed or drive vehicles with many passengers are at higher risk of violations. Multiple linear regression analysis shows that six psychological variables, namely Urban Roads, Anxiety, Confidence, Other Drivers, Worried, and Still Disciplined, contribute significantly to violations. The regression test results confirm the relationship between ETLE violations and accidents with a beta coefficient of 0.029 and significance of 0.04. Integration with public perceptions indicates that psychological factors influence accidents, supporting the importance of a holistic safety approach to achieve the WHO's target of reducing accidents by 50% from 2021-2031. To improve road safety in Jakarta, a multi-faceted strategy is needed, including education, law enforcement, and infrastructure that supports compliance with rules as well as better road visibility.

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