International Journal of Arts and Social Science **www.ijassjournal.com**
ISSN: 2581-7922,
Volume 8 Issue 7, July 2025

Driver's Road Safety Practices and Behavior as Perceived by Road Users

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ABSTRACT: *This research study aimed to determine the relationship between driver road behavior and road safety practices as perceived by road users. The researchers surveyed 300 commuters in three (3) barangays, namely Barangay Ma-a, Barangay 76-A Bucana, and Barangay selected using a stratified random sampling. Data were gathered using modified instruments from a standardized instrument, the Road Safety Perception Questionnaire (RSPQ) and the Driver Behavior Questionnaire (D.B.Q.). Data were analyzed and interpreted using Mean and Pearson Product Moment Correlation. The study findings revealed that driver's road behavior and safety practices as perceived by road users obtained a moderate level.Furthermore, a significant correlation between driver's road behavior and road safety practices was observed and obtained at a high level. The study reveals moderately acceptable drivers' behaviors, echoing Akande's (2021) findings linking risky driving behaviors to increased accident risks. Recommendations include stricter law enforcement and awareness campaigns by the Land Transportation Office (L.T.O.) to curb violations like impatient overtaking and errors such as overtaking without signaling, aiming to promote safer driving practices. Addressing concerns about overcrowded vehicles, the study suggests enforcing passenger limits, public education campaigns, and collaboration with transport operators. Additionally, it emphasizes the need to improve road conditions through repairs, funding advocacy, and awareness-raising efforts in cooperation with authorities.*

KEYWORDS *- driver's road behavior, road users, driver's road safety practices S.D.G. #16: peace, justice, and strong institutions*

I. INTRODUCTION

Road traffic crashes have become a critical public health issue worldwide. The World Health Organization's latest report indicates that the annual number of road traffic deaths has decreased slightly to 1.19 million. However, despite this decline, road traffic crashes continue to pose a significant threat, especially to vulnerable road users such as pedestrians and cyclists. Since 2010, there has been a 5% reduction in road traffic deaths, yet the risk of fatalities remains acute and is on the rise for these groups (World Health Organization, 2023). Central to this concern are the practices exhibited by road users, including human factors influencing decision-making, vehicle-related factors impacting driving practices, and the role of road infrastructure in shaping overall road safety. These safety practices are important, extending beyond preventing accidents to broader societal impacts. Inadequate adherence to these norms heightens the risk of accidents and perpetuates a culture of road hazards. Furthermore, failing to comply with these practices has implications beyond physical harm, imposing financial burdens on society, straining healthcare systems, and causing emotional distress to accident victims and their families (Sheykhfard et al., Das, & Khanpour, 2023).

Studying road safety practices is crucial, impacting public safety and societal well-being. Understanding the influences, including human factors in decision-making, vehicle-related elements in driving behaviors, and the role of road infrastructure, is crucial for developing effective strategies against road accidents (Du, Dash, Li, Wei, & Wang, 2023). Driver education programs enhance safety awareness (Hagos, Brijs, Wets,

& Teklu, 2023), while law enforcement ensures compliance with regulations regarding vehicle standards (Pothisuwan, 2022). Emphasizes the importance of adherence to road safety control devices, including markers, signs, and signal devices, which promote safer driving habits (Masello, Sheehan, Castignani, Shannon, & Murphy, 2023).

Exploring how driver behavior influences safe practices is essential in road safety research. Aggressive driving, exemplified by actions like speeding, heightens the risk of accidents, whereas considerate driving and adherence to traffic rules contribute positively to road safety (Zhao, Qi, Yao, Guo, & Su, 2023). Conversely, distracted driving, particularly with smartphones, poses significant hazards (Peng, Song, Guo, Wu & Yu, 2023). These behaviors align with three critical aspects: human factors, vehicle factors, and infrastructure factors. Understanding these elements is pivotal for devising effective strategies to enhance road safety.

Aligned with empirical research findings, it is evident that behavioral factors, notably errors, significantly influence road crashes. These factors encompass various errors, including neglecting pedestrians and disregarding giveaway signs. Such findings highlight the tangible impact of driver errors on overall safety, posing potential risks to the community. This underscores the importance of addressing and mitigating these errors to enhance road safety and minimize harm to communities (Singh & Kathuria, 2023).

Behaviors such as speeding, participating in unofficial races, and demonstrating aggression towards other drivers are particularly relevant in cases of road accidents. These attitudes play a crucial role in shaping road safety outcomes, indicating the importance of addressing them to enhance overall road safety. The persistence of these behaviors poses a serious threat to passenger safety and increases the risk of accidents. Therefore, there is an urgent need to address and mitigate such risky behaviors to prevent potential accidents and improve road safety (Akande, 2021).

Distracted driving becomes evident and poses significant risks to road safety. Activities such as using phones or getting distracted by objects increase the likelihood of accidents. These distractions cause drivers to lose focus and make poor decisions, amplifying the road's dangers. Addressing and mitigating these risks is imperative to enhance road safety and prevent potential accidents (Najar & Sanjram, 2021). The observance of high levels of road congestion significantly impacts driving behaviors. It highly indicates a notable correlation between heightened road usage and alterations in driving conduct. This underscores the critical necessity of addressing limitations in road infrastructure to bolster road safety measures (Feyzolla et al., 2024).

In the context of road safety, human factors play a critical role. Excessive speed in adverse weather conditions, driving under the influence, and operating a vehicle while experiencing fatigue are significant human factors contributing to road accidents. Research suggests that these factors account for a substantial portion, approximately 95%, of road accidents (Bouhsissin, Sael, & Benabbou, 2023). This highlights the urgent need to address human behaviors to improve road safety outcomes.

In examining road safety, it becomes evident that vehicle-related factors significantly contribute to accidents. These factors are among the primary contributors to road incidents. It was emphasized that over 19% of accidents are attributable to vehicle issues, leading to the loss of vehicle control (Sofyan, Matondang, Huda, & Ishak, 2023). This underscores the importance of addressing vehicle-related issues to enhance road safety and prevent accidents.

This study was anchored in the Social Learning Theory of Tontodonato and Drinkard (2020), which suggests that individuals learn behaviors through observation, imitation, and modeling of others. In the context of commuters' perceptions of drivers' road safety practices and behaviors, commuters may form their perceptions based on the behaviors they observe in other drivers. Suppose commuters frequently witness drivers engaging in violations such as speeding, reckless driving, or failing to yield. In that case, they may internalize these behaviors as normative or acceptable, leading to perceptions of widespread disregard for road safety practices. Conversely, if commuters observe drivers consistently adhering to traffic laws and practicing safe driving behaviors, they may develop more positive perceptions of drivers' road safety practices. Social learning theory highlights the importance of social influences in shaping commuters' perceptions of drivers'

behaviors on the road. It underscores the potential impact of modeling and reinforcement in promoting safe driving practices among road users.

In addition to the theory, the Attribution Theory proposed by Wickens et al. in 2011 offers valuable insights into how individuals explain the behavior of others. When assessing drivers' road safety practices, commuters may attribute observed behaviors to internal factors (e.g., the driver's personality or driving skills) or external factors (e.g., traffic conditions or road infrastructure). For instance, if a driver is observed speeding, commuters may attribute this behavior to the driver's disregard for safety (internal attribution) or to the urgency of reaching a destination (external attribution). The theory suggests that these attributions influence how commuters perceive drivers' road safety practices and behavior.

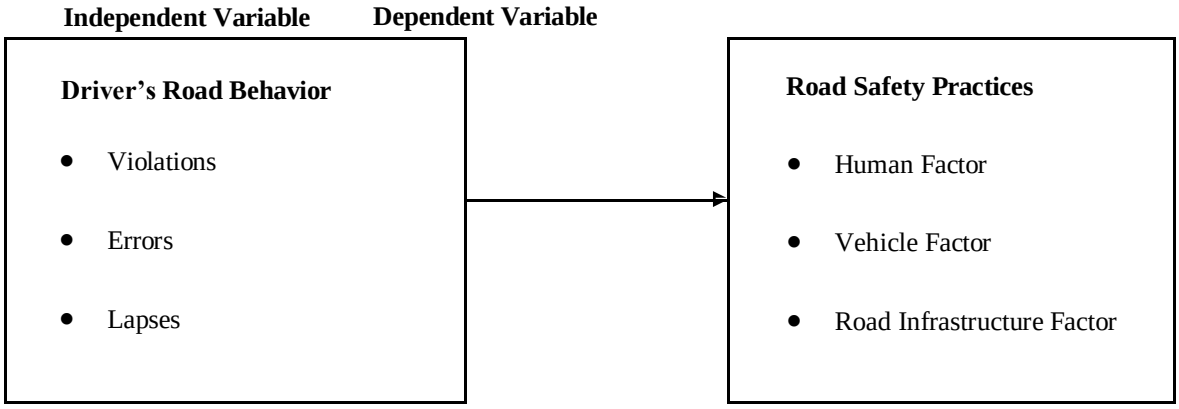

Figure1.*The Conceptual Framework of the Study*

Figure 1 shows the conceptual framework of the study. The independent variable is the driver's road behavior, and the dependent variable is road safety practices.

In the context of Davao City, there is limited existing knowledge in understanding how road users or commuters perceive and are influenced by driver behavior and road safety practices, particularly concerning the aspects of the human factor, vehicle factor, road infrastructure factor, violations, errors, and lapses. While prior studies have explored driver behavior and road safety practices in various settings, there is limited investigation into the unique dynamics of Davao City's roads, its specific traffic challenges, and the cultural aspects that influence driver conduct in these critical areas. This study aims to bridge this knowledge gap by examining the localized factors that shape driver behavior within these dimensions and their subsequent impact on road safety practices. By incorporating the perspectives of commuters within Davao City, this research strives to offer valuable insights that can inform tailored road safety measures, effectively addressing the distinctive conditions and perceptions prevalent in this urban environment.

The study's primary goal was to examine the connection between driver road behavior and road safety practices from the perspective of road users. First, it sought to determine the level of driver road behavior regarding violations, errors, and lapses. Second, it aimed to assess the level of road safety practices in terms of human, vehicle, and road infrastructure factors. Lastly, the significant relationship between driver road behavior and road safety practices should be known from the perspective of road users.

The formulated null hypotheses were tested at a significance level of 0.05. These hypotheses assumed no significant connection existed between road safety practices and behavior.

Furthermore, the study sought to determine whether the connection between drivers' road safety practices and behavior was significant. The study provided baseline data on road safety practices within Davao City, particularly from the perspective of commuters. Its significance lies in the potential to impact road safety, benefiting both local commuters and the broader community. This research can inform evidence-based policy recommendations and road safety initiatives tailored to the unique challenges and conditions of Davao City's roads, thereby benefiting the Land Transportation Office (L.T.O.) Davao. Furthermore, the findings of this study

can serve as a valuable foundation for future researchers who seek to delve deeper into this vital field, offering a platform for continued exploration and enhancement of road safety measures in the region. Ultimately, the research can be vital in reducing road accidents and promoting a culture of responsible and safe driving within Davao City.

II. METHODS

This section presents the methods used in the study, such as the study research subject, instruments, design, and procedure.

Research Respondents

The study's research respondents are 300 Davao City commuters, specifically from Barangay Ma-a, Barangay 76-A Bucana, and Barangay 74-A Matina Crossing, to ensure representation across various parts of the city. The respondents were chosen through a stratified random sampling method, aligning with established guidelines for sample presentation (American Association for Public Opinion Research, 2021).

Materials and Instruments

The primary data collection tools in this study were the Road Safety Perception Questionnaire (RSPQ) by Molina et al. (2021) and the Driver Behaviour Questionnaire (D.B.Q.) conducted by Parishad et al. (2020). These questionnaires assessed commuters' perceptions and attitudes regarding drivers' road behavior and safety practices.

The research adviser reviewed the draft survey questionnaire to ensure it aligned with the study's goals. Validators then provided further validation, guaranteeing the questionnaire's effectiveness in measuring the intended relationships between driver behavior and road safety practices. The questionnaire comprised two sections: one focusing on the independent variable, driver road behavior, and the other addressing the dependent variable, road users' perceptions of road safety practices.

The independent and dependent variables, driver's road behavior and road safety practices, were measured using the modified questionnaire employing a five (5) point Likert scale. A *Likert scale* is a rating system used to quantify attitudes, behaviors, and views that follow a statement or a question on which there are five or seven answer statements (Bandhari & Nikolopoulou, 2022).

A mean score of 4.20 to 5.00 indicates a very high level, suggesting that the connection between driver's road behavior and road safety practices from the perspective of road users is observable. A score ranging from 3.40 to 4.19 is considered high, indicating that the connection between driver's road behavior and road safety practices from the perspective of road users is frequently observable. A score falling between 2.62 and 3.39 is categorized as moderate, suggesting that the connection between driver's road behavior and road safety practices from the perspective of road users is sometimes observable. A score of 1.80 to 2.59 is deemed low, indicating that the connection between driver's road behavior and road safety practices from the perspective of road users is observed in only a few instances. Finally, a score ranging from 1.02 to 1.79 is classified as very low, implying that the connection between driver's road behavior and road safety practices from the perspective of road users is unobservable.

Design and Procedure

This study utilized a quantitative, non-experimental, correlational research design. The study employed a quantitative research design to precisely measure and quantify driver's road behavior and safety practices as perceived by commuters, enabling the generation of numerical data for rigorous analysis (Neuman, 2019). A non-experimental design was chosen because manipulating variables was not necessary for exploring the naturally occurring relationships between drivers' road behavior and road safety practices from commuters' perceptions (Mohajan, 2017). This design allowed for the observation and analysis of real-world phenomena

without interference. Furthermore, the study utilized a correlational research design to investigate the associations between drivers' road behavior and road safety practices as perceived by road users, aligning with the views of Babbie (2021) on the relevance of correlational research in unveiling relationships between variables.

Before conducting the study, the researchers obtained title approval from the Dean's College of Criminal Justice Education, ensuring the necessary authorization to proceed.

During the data collection phase, the researchers gathered data by surveying commuters from three different barangays in Davao City to capture diverse perspectives on driver behavior and road safety.

After gathering data, statistical methods like calculating the mean for average values, standard deviation for data spread, and using Pearson's R to understand relationships between variables were employed. These analyses were crucial for examining numerical data and answering research questions.

Throughout the research endeavor, the researchers steadfastly adhere to ethical principles. Participation in the study remains voluntary, with no requirement for potential participants to receive or complete the research questionnaire. They possess the liberty to decline involvement or opt out of responding. Before engaging in the study, the researchers acquired informed consent from all respondents, diligently safeguarding the confidentiality of personal data, encompassing names and ages. This investigation does not entail any high-risk components, including physical or psychological ramifications. It represents original research undertaking untainted by plagiarism or falsification.

III. RESULTS AND DISCUSSION

This section exhibited the results and discussion of the study. Furthermore, this section presents the analysis, data interpretation, and the study's findings.

Driver's Road Behavior as Perceived by Road Users

Table 1 shows the level of road users' perceptions of driver's road behavior. The findings discovered that errors obtained the highest mean score of 3.37 among commuters, indicating moderate concern. The standard deviation of 0.878 suggests that responses clustered closely around this average. On the contrary, lapses recorded a lowest mean score of 3.15, indicating a moderate level of concern among respondents. The standard deviation of 0.906 suggests clustered responses in this area.

Table 1
Drivers' Road Behavior as Perceived by Road Users

Indicators	SD	Mean	Descriptive Level
Violations	.888	3.36	Moderate
Errors	.878	3.37	Moderate
Lapses	.906	3.15	Moderate
Overall	**.796**	**3.29**	**Moderate**

Lastly, the overall mean score of 3.29, indicating a moderate level of driver's road behavior as perceived by commuters, was accompanied by a standard deviation of 0.796, suggesting relatively high and more dispersed scores, reflecting a moderate level of insight into commuters' observations of drivers' behavior. This suggests that commuters' perspectives vary, and the occurrence of errors and lapses depends on the driver's behavior (Yang et al., 2022).

Driver's Road Safety Practices as Perceived by Road Users

Table 2 exhibits road users' perceptions of drivers' road safety practices. The result uncovered that the road infrastructure factor obtained the highest mean of 3.50, signifying a high level of concern among respondents. The standard deviation of 0.877 indicates clustered responses in this area. Conversely, the vehicle factor attained the lowest mean score of 3.27, indicating a moderate level of concern, with a standard deviation of 0.967, suggesting clustered responses.

Table 2
Drivers' Road Safety Practices as perceived by road users

Indicators	SD	Mean	Descriptive Level
Human Factor	.919	3.34	Moderate
Vehicle Factor	.967	3.27	Moderate
Road Infrastructure Factor	.877	3.50	High
Overall	**.829**	**3.37**	**Moderate**

The analysis revealed moderate driver road safety practices, with an overall mean score of 3.37. Additionally, the low standard deviation of .829 suggests that respondents provided clustered answers, indicating a certain level of consistency. These findings support that road accidents are primarily influenced by cognitive factors (human behavior) and external factors like vehicle conditions and road infrastructure (Ahmad et al., 2021).

Correlation between Driver's Behavior and Road Safety Practices

The study uncovered a notable correlation between the two variables; firstly, the analysis revealed a significant relationship between driver's road behavior and safety practices perceived by road users. This was supported by a strong correlation coefficient (r-value) of .814, indicating a high-level association between the two variables. The p-value of 0.000, below the designated significant threshold of 0.05, provides relatively high evidence of a significant relationship. Hence, rejecting the null hypothesis confirms a notable correlation between driver's road behavior and safety practices that road users perceive.

Table 3
Correlation Matrix of the Variables ***n=300***

Driver's Road Safety Practices	**Driver's Road Behavior**				
	Violation	**Errors**	**Lapses**	**Overall**	**Decision on Ho**
Human Factor	.659**	.732**	.661**	.765**	Reject
	.000	.000	.000	.000	
Vehicle Factor	.711**	.655**	.587**	.728**	Reject
	.000	.000	.000	.000	
Road Infrastructure Factor	.651**	.690**	.541**	.702**	Reject
	.000	.000	.000	.000	
Overall	**.750****	**.769****	**.664****	**.814****	**Reject**
	.000	**.000**	**.000**	**.000**	

**p<0.05*
***p<0.001*

Moreover, the computed correlation values between driver's road behavior and various factors reveal significant relationships. A moderate positive correlation of 0.765 exists between driver's behavior and human factors, indicating that driver conduct moderately influences human behavior perceived by road users. Similarly, a moderate positive correlation of 0.728 is found between driver behavior and vehicle factors, suggesting that driver behavior significantly influences vehicle standards perceived by road users, potentially due to neglect or modifications for speed. Additionally, a moderate correlation of 0.702 is observed between driver's behavior and road infrastructure factors, indicating that driver conduct moderately influences road infrastructure perceived by road users, often leading to frustrations due to deficiencies such as lack of signals and poor road conditions.

The results demonstrated a significant correlation between the independent and dependent variables, highlighting an existing relationship between driver's road behavior and road safety practices perceived by road users. This indicates a direct link between drivers' road behavior and safety practices. These findings connect with the study of Farooq et al. (2020), which also found a positive relationship between driver road behavior and road safety practices.

IV. CONCLUSION AND RECOMMENDATION

This section provides the data's conclusions and the researchers' suggestions based on the following results.

The study strongly connects drivers' road behavior and safety practices. Human factors like speeding in bad weather, driving under the influence, and driving while fatigued are the leading causes of 95% of accidents (Bouhsissin et al., 2023). Additionally, vehicle-related issues, such as not following regulations or modifying vehicles, contribute to 19% of accidents, leading to loss of vehicle control (Sofyan et al., 2023). Further, the study found that limited road infrastructure can significantly affect driving behaviors (Feyzollahi et al., 2024). These findings emphasize the significant impact of drivers' behavior and safety practices on road accidents, affecting both commuters and society.

Moreover, the study highlights violations, specifically noting incidents of impatient overtaking witnessed by commuters from the inside lane. The researcher recommends stricter law enforcement, lane usage signage, and awareness campaigns by the Land Transportation Office (L.T.O.) to improve road safety and discourage dangerous driving habits. Similarly, concerning errors, such as overtaking without signaling, the study recommends awareness campaigns and incorporating relevant topics into driver education to promote safer driving practices. These efforts aim to increase signal awareness and reduce risky overtaking behaviors among drivers.

The research also addressed specific issues, such as drivers carrying excessive passengers. Researchers strongly advocate enforcing strict passenger limits, driver education through public campaigns, and close collaboration with transport operators to ensure adherence to regulations to mitigate the risks associated with overcrowded vehicles and promote road safety. Moreover, the study suggests exploring concerns regarding road conditions. Commuters have expressed dissatisfaction with poorly maintained roads, underscoring the importance of working alongside authorities to facilitate repairs, advocate for funding, and raise awareness to enhance road conditions.

A significant correlation exists between drivers' road behavior and road safety practices that road users perceive. This aligns with the findings of Farooq et al. (2020), which also found a positive relationship between driver's road behavior and road safety practices, emphasizing the crucial role that driver's behavior plays in shaping road safety outcomes. The findings underscore the importance of addressing problematic driving behaviors about road safety practices as perceived by road users. Further studies could explore specific driver behaviors and their impact on road safety practices in greater depth, providing valuable insights for developing effective road safety policies and initiatives.

ACKNOWLEDGEMENTS

The researchers would like to extend their appreciation to various individuals who contributed to the successful completion of this study.

To our parents for their unwavering support, belief in our abilities, and invaluable guidance. We also thank friends and professors for their understanding and encouragement, acknowledging their significant contributions.

To our research adviser, **Mechelle C. Gempesao, MSCJ,** for her invaluable guidance, unwavering support, and enduring mentorship. We deeply appreciate her dedication to our academic success.

To our panel validators, **Carmina Beatriz C. Deocampo, MSCJ,** and **Eduardo C. Berco JR., MSCRIM,** for their invaluable guidance during questionnaire validation and final defense, enhancing our research credibility.

To our research coordinator, **Irish P. Bandolos, MSCJ,** for her indispensable guidance and gracious support, which were instrumental in our progress. We also thank God for His guidance and strength throughout our journey.

To **Carmelita B. Chavez, Ph.D.,** Dean of the College of Criminal Justice Education, for granting permission to conduct the study and to the respondents who generously shared their insights and cooperated during its execution.

To our statistician, **Cymber Orvie G. Quevedo, MAT-Math,** for his timely assistance with our data analysis and his valuable insights and direction in interpreting the results and discussion.

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