DRIVERS' KNOWLEDGE AND ATTITUDE TOWARD ROAD SAFETY IN GUIMARAS PROVINCE: A KNOWLEDGE OF ATTITUDE AND THEORY OF PLANNED BEHAVIOR ANALYSIS

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ABSTRACT This study assessed drivers' knowledge and attitude toward road safety in the Guimaras Province using a descriptive-correlational design grounded in the KAP model and the TPB. Specifically, the study examined the level of knowledge and attitude, determined differences across selected demographic variables, and analyzed the relationship between knowledge and attitude. A total of 250 drivers across municipalities were selected through quota sampling. Data were collected using a validated questionnaire and analyzed using the mean, Mann–Whitney U-test, Kruskal-Wallis H-test, and Spearman's rho test at a 0.05 level of significance. The findings revealed that drivers demonstrated a very high level of knowledge (M = 4.58) and a high level of attitude (M = 3.78) toward road safety. Significant differences were found in knowledge and attitude when grouped according to civil status, educational attainment, and years of driving, whereas no significant differences were observed in terms of age, sex, type of vehicle, and license. A significant positive relationship was also established between knowledge and attitude. The results indicate that although drivers possess strong awareness of road safety regulations, this does not fully translate into optimal behavioral disposition. This study highlights the importance of behavioral reinforcement strategies, contextualized interventions, and policy implementation to bridge the KAI gap. These findings provide empirical support for the integration of cognitive and behavioral frameworks in road safety programs.

Keywords: Driver Behavior, Knowledge-Attitude-Practice (KAP), Road Safety, Traffic Safety Awareness, Transportation Safety

INTRODUCTION

Road safety continues to be a major global public health concern, with approximately 1.19–1.2 million people dying annually from road traffic accidents and millions more sustaining injuries worldwide. Road traffic injuries are also recognized as one of the leading causes of death among young individuals aged 5–29 years, highlighting the widespread and persistent nature of this problem across developed and developing countries. The burden of road traffic accidents is disproportionately experienced in low- and middle-income countries, where rapid motorization, inadequate infrastructure, and weak enforcement of traffic regulations contribute to increased vulnerability. In the Philippines, road accidents are largely attributed to human factors, particularly driver behavior, which accounts for a significant proportion of traffic-related incidents. This underscores the importance of examining behavioral determinants to improve road safety outcomes.

Driver behavior is a complex interplay of cognitive, psychological, and social factors that influence individuals' responses to road safety rules and regulations. Knowledge of traffic laws and safety practices provides the foundational understanding necessary for safe driving. However, knowledge alone does not guarantee compliance, as behavior is also shaped by attitudes, beliefs, and external influences. Attitude, defined as an individual's evaluation or disposition toward road safety, plays a crucial role in determining whether knowledge is translated into practice. Previous studies have shown that drivers may possess sufficient knowledge of road safety rules but still engage in risky behaviors due to negative attitudes, risk perception, or social influences (Bachani et al., 2017; Baniya & Timilsina, 2018). This discrepancy highlights a critical gap between awareness and behavior, emphasizing the need for a more comprehensive understanding of the factors that influence driver compliance.

Complexity of the relationship between knowledge, attitude, and behavior in road safety A KAP study conducted in the Philippines revealed that although drivers were aware of traffic regulations, their attitudes and actual practices remained inadequate, indicating a weak relationship between knowledge and safe behavior (Tabuñar, 2020) . Similarly, safety awareness and attitudes significantly influence driving behavior, with poor attitudes leading to increased violations, errors, and risky driving practices (Jin et al., 2021; Farooq et al., 2019).

This study is anchored on the KAP model, which posits that knowledge influences attitudes, which in turn shape behavior. The KAP model has been widely used in public health and safety research to identify gaps between awareness and actual practices. However, empirical evidence suggests that this relationship is not always linear, as external factors such as social norms, regulations, and resource accessibility can disrupt the progression from knowledge to behavior. Drivers may understand the importance of wearing seatbelts or adhering to speed limits but may fail to comply due to convenience, perceived invulnerability, or social acceptance of risky behaviors.

To provide a more comprehensive explanation of driver behavior, this study integrates the TPB. According to TPB, three key components influence behavior: attitude toward the behavior, subjective norms, and perceived behavioral control. Attitude refers to the individual's evaluation of a behavior, subjective norms involve perceived social pressure, and perceived behavioral control reflects the individual's perception of their ability to perform the behavior. Collectively, these components influence behavioral intention, which ultimately determines actual behavior. Studies applying TPB in road safety contexts have consistently demonstrated that these factors significantly influence risky driving behaviors such as speeding, lane-changing, and non-compliance with traffic regulations (Li et al., 2021; Wang & Xu, 2021; Yang et al., 2019; Etika et al., 2020).

Moreover, the role of implicit attitudes and psychological tendencies in shaping driver behavior has been highlighted. For example, implicit or automatic attitudes are strong predictors of safety behaviors, such as seatbelt use, particularly among inconsistent users (Ledesma et al., 2018). Factors such as sensation seeking, overconfidence, and risk perception significantly influence risky driving behaviors, especially among novice and young drivers (Li et al., 2021; Yang et al., 2019). These findings reinforce the notion that knowledge and psychological and social factors influence road safety behavior, highlighting the need for multidimensional approaches to road safety interventions.

These behavioral dynamics are particularly relevant in provincial settings such as Guimaras. The province's transportation system is largely dominated by motorcycles and small vehicles, which are often associated with higher accident risks. In addition, informal driving practices, varying levels of driver education, and inconsistent enforcement of traffic regulations may contribute to differences in road safety knowledge and attitudes. Understanding these variations is essential for developing targeted interventions that address specific behavioral patterns within the local context.

Furthermore, demographic factors such as age, sex, civil status, educational attainment, driving experience, type of vehicle used, and driver's license may influence drivers' knowledge and attitudes toward road safety. Studies have shown that educational attainment enhances cognitive understanding of traffic rules, while driving experience may influence risk perception and behavioral adaptation. Similarly, civil status-associated social roles and responsibilities may affect decision-making and risk-taking behavior. These variations highlight the importance of examining differences across demographic groups to identify specific factors that contribute to safe or risky driving behaviors.

This study aims to provide a comprehensive assessment of drivers' knowledge and attitude toward road safety in the Guimaras Province. Specifically, it seeks to: (1) assess the level of drivers' knowledge and attitude toward road safety; (2) determine the differences in knowledge and attitude when grouped according to selected profile variables; and (3) determine the relationship between drivers' knowledge and attitude toward road safety. By integrating the KAP model and the TPB, the study offers a robust framework for understanding the interplay between cognitive awareness, psychological factors, and behavioral outcomes. This study's findings are expected to contribute to the development of evidence-based interventions, policy improvements, and educational programs aimed at enhancing road safety compliance and reducing traffic-related accidents in the province.

METHODOLOGY

Research Design

This study employed a quantitative descriptive-correlational research design to examine drivers' level of knowledge and attitude toward road safety and determine the relationship between these variables. The descriptive component of the design was used to systematically describe the current status of drivers' knowledge and attitudes without manipulating any variables. This approach is appropriate for capturing real-world conditions and identifying patterns within a specific population. Meanwhile, the study's correlational aspect enabled the determination of the degree and direction of association between knowledge and attitude, without implying causation. This design is widely used in behavioral and social science research, particularly in studies that aim to explore relationships among variables in their natural context.

Respondents of the Study

The study's respondents consisted of 250 drivers from the Province of Guimaras, representing various municipalities within the province. Participants were selected using a quota sampling technique, which ensured proportional representation across different areas. This non-probability sampling method was appropriate given the need to capture a diverse range of respondents based on predefined characteristics such as age, sex, civil status, educational attainment, years of driving experience, type of vehicle used, and driver's license classification. The inclusion criteria required respondents to be active drivers residing in the province at the time of the study. By incorporating drivers with varying demographic and experiential backgrounds, the study provided a comprehensive understanding of road safety knowledge and attitudes within the local context.

Research Instrument

This study used a researcher-developed questionnaire as the primary data-gathering instrument. The questionnaire was structured to measure two main variables: knowledge and attitude toward road safety. It consisted of a series of statements aligned with drivers' traffic rules, safety practices, and behavioral tendencies. A Likert-scale format was used to quantify responses, allowing participants to indicate their level of agreement or frequency of behavior. This format is widely recognized for its effectiveness in measuring perceptions and attitudes in quantitative research, as it facilitates statistical analysis and interpretation. The development of the instrument was guided by relevant literature on road safety and behavioral frameworks, such as the KAP model and TPB. This ensured that the questionnaire items were theoretically grounded and relevant to the constructs being measured. The instrument was designed to capture both cognitive understanding (knowledge) and behavioral disposition (attitude), providing a comprehensive assessment of road safety orientation.Validity and Reliability of the Instrument

To ensure the accuracy and credibility of the collected data, the questionnaire was validated using the Eight-Point Criteria, which evaluated its clarity, relevance, coherence, and adequacy. Subject matter experts reviewed the instrument to ensure that the items appropriately reflected the variables under investigation. Validation is a crucial step in research, as it ensures that the instrument measures what it is intended to measure.

The instrument was subjected to a reliability test involving 30 respondents who were not part of the final sample following validation. Reliability testing was conducted to determine the instrument's consistency and stability over time. The questionnaire demonstrated acceptable levels of internal consistency, confirming its suitability for use in this study. Ensuring both validity and reliability strengthened the research's overall rigor and credibility.

Data Gathering Procedure

The data collection process involved several systematic steps to ensure accuracy and consistency. Prior to data collection, the researchers obtained permission from relevant authorities and informed the respondents about the study's purpose and significance. The questionnaires were then personally distributed to the selected respondents to ensure a high response rate and to provide clarification when necessary. Personal administration of the instrument also helped minimize misinterpretation of questions and ensured that all items were completed accurately.

The questionnaires were collected, checked for completeness, and organized for analysis upon completion. The use of a structured questionnaire allowed for standardized data collection, reducing variability, and ensuring uniformity in responses. The collected data were then encoded and prepared for statistical analysis.

Statistical Treatment of Data

The collected data were analyzed using both descriptive and inferential statistical tools. Descriptive statistics, specifically the mean, were used to determine drivers' level of knowledge and attitude toward road safety. The mean provided a measure of central tendency, allowing for the interpretation of each variable's overall level.

Non-parametric statistical tests were employed for inferential analysis due to the nature of the data. The Mann–Whitney U-test was used to determine significant differences between two independent groups, whereas the Kruskal-Wallis H-test was used for comparisons involving more than two groups. These tests are appropriate for ordinal data and do not require the assumption of normal distribution.

The relationship between knowledge and attitude was determined using Spearman's rho correlation coefficient. This statistical tool measures the strength and direction of the association between two variables. The level of significance was set at 0.05, indicating statistical significance for results with a probability value less than 0.05. The use of these statistical tools ensured a comprehensive data analysis, addressing both the descriptive and relational objectives of the study.

Ethical Considerations

Ethical standards were strictly observed throughout the study. Before participation, the study's purpose, procedures, and expected outcomes were clearly explained to the respondents. Informed consent was obtained to ensure that participation was voluntary and based on a full understanding of the research. Participants were assured of the confidentiality and anonymity of their responses, with no personal identifiers included in the data analysis or reporting.

In addition, the respondents were informed of their right to withdraw from the study at any time without any consequences. All collected data were used solely for academic purposes and were handled with strict confidentiality. These ethical safeguards were implemented to protect the participants' rights and welfare and to uphold the integrity of the research process

Result and Discussion

Level of Knowledge and Attitude of Drivers Toward Road Safety

The findings indicate that drivers in the Province of Guimaras exhibit a very high level of knowledge regarding road safety, yet only a high level of attitude, suggesting a disparity between cognitive awareness and behavioral disposition. This pattern implies that while drivers are well-informed about traffic rules, road signs, and safe driving practices, their commitment to consistently applying such knowledge remains less than optimal. The high level of knowledge may be attributed to formal driver education, licensing procedures, and continuous exposure to road safety campaigns, which effectively enhance awareness. However, the relatively lower attitude level reflects a limitation in translating knowledge into consistent behavioral adherence, highlighting a critical gap between what drivers know and how they behave.

Several behavioral and contextual factors can explain this divergence. First, behavioral inertia and habitual practices play a significant role, as drivers often develop ingrained habits that persist despite awareness of safer alternatives over time. Risky behaviors, such as speeding or neglecting safety precautions, may become normalized through repeated practice, making them resistant to change. Second, weak enforcement of traffic laws reduces compliance, particularly in environments where violations are rarely penalized. Drivers may perceive that adherence to rules is optional rather than mandatory in such contexts. Third, from the perspective of TPB, perceived behavioral control influences decision-making, wherein drivers may overestimate their ability to manage risky situations, leading to overconfidence and increased risk-taking. Lastly, risk normalization further reinforces unsafe behaviors because frequent exposure to violations without immediate consequences diminishes the perceived severity of risks, making such behaviors appear acceptable or routine.

These findings are consistent with existing literature emphasizing that knowledge alone does not guarantee safe driving behavior. According to Bachani et al. (2017) and Baniya and Timilsina (2018), individuals often possess adequate knowledge of road safety but fail to demonstrate corresponding safe practices, indicating a disconnect between awareness and action. Similarly, Tabuñar (2020) found that drivers' knowledge and attitudes do not strongly correlate with safe practices, suggesting a weak linkage within the KAP framework. Moreover, Jin et al. (2021) highlighted that safety awareness effectively reduces violations only when positive attitudes and behavioral interventions reinforce it. Collectively, these studies affirm that psychological and environmental factors must complement cognitive awareness to produce meaningful behavioral change.

From a theoretical standpoint, the results support the KAP model, which posits that knowledge influences attitude. However, the incomplete translation of knowledge into a stronger behavioral disposition reveals the model's limitations, particularly its assumption of a linear progression from knowledge to behavior. The findings are more comprehensively explained when integrated with the TPB, which accounts for additional determinants such as subjective norms and perceived behavioral control. These factors provide a deeper understanding of why drivers may not consistently exhibit safe attitudes and behaviors despite being knowledgeable. Thus, the interplay between cognitive awareness and behavioral intention underscores the need for multidimensional road safety interventions that address not only knowledge but also attitudes, social influences, and behavioral control mechanisms.Table 1. Level of Knowledge and Attitude of Drivers Toward Road Safety

Variable	Mean	Interpretation
Knowledge	4.58	Very High
Attitude	3.78	High

Differences in Knowledge and Attitude Across Profile Variables

The findings reveal that drivers' knowledge and attitude toward road safety vary significantly across selected socio-demographic and experiential variables, particularly civil status, educational attainment, and years of driving experience, while no significant differences were observed in terms of age, sex, type of vehicle, and driver's license classification. This pattern suggests that road safety awareness is relatively widespread across general demographic groups; however, when factors associated with life experience, social responsibility, and educational exposure are considered, deeper cognitive and behavioral differences emerge. The absence of significant differences across age and sex indicates that access to road safety information may be relatively uniform, likely due to standardized licensing procedures and widespread dissemination of traffic rules. This implies that awareness is not differentiated by these basic demographic characteristics but is instead shaped by more complex experiential and social factors.

The significant differences observed in educational attainment highlight the role of formal education in enhancing cognitive understanding and risk awareness. Individuals with higher education levels are more likely to comprehend traffic regulations, evaluate potential risks, and appreciate the consequences of unsafe driving behaviors. Education fosters critical thinking and informed decision-making, which contribute to favorable attitudes toward road safety. Similarly, years of driving experience significantly influence knowledge and attitude, as prolonged exposure to real-world driving conditions enhances familiarity with road hazards and reinforces learning through experience. However, this relationship is not entirely linear, as increased experience may also lead to overconfidence or complacency, potentially diminishing adherence to safety practices over time.

The influence of civil status further underscores the role of social and psychological factors in shaping driver behavior. Married individuals or those with familial responsibilities may exhibit more cautious attitudes toward road safety due to heightened risk perception and a stronger sense of accountability. This aligns with the notion that social roles and responsibilities influence behavioral decisions, particularly in personal safety and well-being contexts. In contrast, the lack of significant differences across variables, such as vehicle

type and license classification, suggests that possession of formal credentials or specific driving contexts does not necessarily guarantee differences in knowledge or attitude. This finding challenges the assumption that licensing alone ensures competence and highlights the importance of CBR beyond formal certification.

These results agree with previous studies emphasizing the influence of experiential and psychological factors on road safety behavior. Jin et al. (2021) reported that driving experience significantly affects safety awareness and behavioral patterns, with experienced drivers demonstrating varying levels of compliance depending on their exposure to road conditions. Similarly, Farooq et al. (2019) noted that behavioral differences in driving are often shaped by individual experience and psychological tendencies rather than demographic characteristics alone. The literature also supports the influence of education on knowledge and attitude, indicating that higher educational attainment enhances understanding of safety regulations and promotes responsible behavior.

These findings can be explained through both the KAP model and the TPB. The KAP model accounts for variations in knowledge across individuals based on exposure and learning, while the TPB provides a deeper explanation of how social roles (e.g., civil status) and experiential factors (e.g., driving experience) influence attitudes and PBC. The significant differences observed across these variables suggest that knowledge determines behavior and is shaped by social expectations, personal experiences, and perceived ability to manage risks. This underscores the need for targeted road safety interventions that consider demographic and experiential differences, rather than adopting a one-size-fits-all approach.

Table 2. Differences in Drivers' Knowledge and Attitude Toward Road Safety Across Profile Variables

Profile Variable	Knowledge (Test Value)	p-value	Interpretation	Attitude (Test Value)	p-value	Interpretation
Age	H = 7.652	0.164	Not Significant	H = 6.963	0.149	Not Significant
Sex	U = 2191.500	0.219	Not Significant	U = 1994.000	0.199	Not Significant
Civil Status	H = 15.739	0.001	Significant	H = 14.323	0.001	Significant
Educational Attainment	H = 14.491	0.027	Significant	H = 13.187	0.025	Significant
Years of Driving	H = 21.963	0.004	Significant	H = 19.986	0.004	Significant
Type of Vehicle	H = 7.145	0.264	Not Significant	H = 6.502	0.240	Not Significant
Driver's License	H = 4.855	0.406	Not Significant	H = 4.418	0.369	Not Significant

Relationship Between Knowledge and Attitude

The results presented in Table 3 reveal a statistically significant positive relationship between drivers' knowledge and attitude toward road safety ($r = 0.657$, $p < .01$), indicating that higher levels of knowledge are associated with more favorable attitudes toward compliance with traffic rules and safety practices. This finding suggests that cognitive awareness plays a meaningful role in shaping the behavioral disposition of drivers, as individuals who are more informed about road safety are more likely to develop positive perceptions and a stronger inclination toward safe driving practices. However, the moderate strength of the relationship indicates that the association is not absolute, implying that knowledge, while influential, is not the sole determinant of attitude.

The influence of knowledge on risk perception and cognitive processing can explain the observed relationship. As drivers become more knowledgeable about traffic regulations, potential hazards, and the consequences of unsafe behaviors, they develop a heightened awareness of risks, which in turn fosters more cautious and safety-oriented attitudes. This aligns with cognitive-behavioral principles, which suggest that increased awareness influences perception and that perception shapes decision-making. Furthermore, from the perspective of the TPB, knowledge contributes to the formation of attitudes, which are key determinants of behavioral intention. However, TPB also emphasizes that additional factors, including subjective norms and perceived behavioral control, influence behavior, which may weaken the direct relationship between knowledge and attitude. For instance, drivers may possess high levels of knowledge but still exhibit less favorable attitudes due to peer influence, cultural expectations, or perceived inconvenience of strictly adhering to safety regulations. Similarly, overconfidence in driving ability may reduce the perceived necessity of compliance, thereby moderating the impact of knowledge on attitude.

The findings of this study are consistent with those of previous research on road safety behavior. Tabuñar (2020) reported that knowledge influences attitudes but does not always translate into safe practices, highlighting a gap within the KAP framework. Likewise, studies grounded in TPB have demonstrated that social norms and perceived control significantly shape behavioral outcomes while knowledge contributes to attitude formation (Li et al., 2021; Wang & Xu, 2021). These studies suggest that a broader set of psychological and environmental factors influences the relationship between cognitive and behavioral variables. Additionally, Ledesma et al. (2018) emphasized the role of implicit attitudes in shaping behavior, indicating that unconscious beliefs and automatic responses may influence safety practices independently of explicit knowledge.

The results provide empirical support for the KAP model, confirming that knowledge is a significant predictor of attitude. However, the moderate strength of the relationship highlights the KAP model's limitations, particularly its assumption of a linear progression from knowledge to behavior. The integration of the TPB offers a more comprehensive explanation by accounting for additional behavioral determinants, including social and psychological influences. This combined theoretical perspective underscores the complexity of driver behavior and suggests that improving road safety requires more than simply increasing knowledge. Instead, interventions that address social norms, behavioral control, and psychological factors that influence how knowledge is translated into attitudes and actions are required.

Overall, the significant yet moderate relationship between knowledge and attitude underscores the importance of adopting a holistic approach to road safety interventions. While educational programs remain essential in enhancing awareness, they must be complemented by strategies that promote positive social norms, strengthen behavioral control, and address contextual barriers to compliance. Such an approach is critical for ensuring that increased knowledge leads not only to improved attitudes but also to sustained safe driving practices.

Table 3. Relationship Between Drivers' Knowledge and Attitude Toward Road Safety

Variables Compared	r-value	p-value	Strength of Relationship	Interpretation
Knowledge vs. Attitude	**0.657**	**0.000**	**Moderate**	**Significant Positive Relationship**

Note. r = Pearson correlation coefficient. Significant at p < .01 (two-tailed).

CONCLUSION

In conclusion, this study contributes to the growing body of road safety literature by demonstrating that while knowledge is a critical foundation, it is not sufficient to ensure safe driving behavior. The integration of the KAP and TPB frameworks highlights the importance of addressing behavioral psychological and social determinants. By adopting a holistic approach that combines education, enforcement, and behavioral interventions, stakeholders can develop more effective strategies to promote road safety and reduce traffic-related incidents in Guimaras Province and similar contexts.

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