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Transport and Traffic Violations in Iriga City, Philippines

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ABSTRACT

This study aimed to identify the types of transport and traffic violations in Iriga City and explore the perceived and actual factors contributing to these violations. The research focused on human error, road deficiencies, vehicle factors, traffic signs, and traffic enforcement. It also examined the significant differences in perception between respondents and proposed strategies to reduce violations. The findings are expected to benefit various stakeholders, including the community, the Philippine National Police, the Local Government Unit, the Land Transportation Office, public safety officers, external and internal stakeholders, students, the researcher, and future researchers.

The study utilized a descriptive research method, employing a survey questionnaire to collect data from 144 respondents, which included members of the PNP in Iriga CPS, public safety officers, and riders representing the community.

The analysis revealed that the most prevalent violations from 2019 to 2021 were failure to observe road signs, driving without a necessary license, not wearing crash helmets, and student drivers not accompanied by licensed drivers. Respondents generally disagreed that human error, road deficiencies, vehicle factors, traffic signs, and traffic enforcement were primary contributors to these violations. Instead, they identified attitudes, values, and awareness levels as significant factors. There was a notable difference in perception between public safety officers and riders regarding the actual factors contributing to violations. To address these issues, the study proposed a traffic management manual focused on enforcement, education, and engineering, with an emphasis on public participation.

Keywords: Traffic Rules, Traffic Signs, Traffic Violations, Transport, Road deficiency, Traffic enforcement, traffic error

Introduction

The global traffic safety situation has become a pressing concern due to the increasing number of motor vehicles and pedestrians. Governments are exerting significant efforts to impose regulations aimed at easing traffic and minimizing congestion. Traffic violations often stem from irregularities in traffic management and a lack of discipline among road users. These violations are among the most distinctive and unsafe driving behaviors. Various factors influence traffic conditions, including driver and pedestrian awareness, observance of laws, types of vehicles, traffic flow, and road features. Traffic regulations alone do not determine the traffic situation; other elements such as public discipline, road dimensions, and the effectiveness of traffic law enforcement agencies are equally important.

Transportation is a vital aspect of modern civilization, and improving traffic regulations can enhance daily traffic conditions and improve citizens' lives. Conversely, poor traffic regulation and enforcement can lead to chaos and disaster. Urbanization has accelerated, leading to numerous traffic safety issues. As the number of automobiles increases annually, problems like road congestion, traffic disorder, and accidents have become more frequent (Sigua in Hintura, et al., 2016).

In the Philippines, traffic laws are governed by Republic Act 4136, which regulates transportation and has replaced previous laws. This act outlines penalties for various violations, such as late vehicle registration and driving without a valid license (De castro et al., 2016).

Traffic management encompasses several pillars, including traffic enforcement, education, engineering, ecology, and economy, which help address daily traffic challenges. These operations are carried out by transportation agencies to improve road safety and efficiency. In Iriga City, the implementation of City Ordinance #2004-03 and Republic Act 4136 aims to manage traffic effectively. Despite these efforts, traffic problems persist, with a significant number of violations reported from 2019 to 2021. These issues contribute to economic delays, affecting the movement of workers and goods.

Traffic enforcement is bolstered by the Philippine National Police-Traffic Management Group and other auxiliaries, focusing on directing traffic and enforcing laws. Traffic-related problems impact all aspects of life, necessitating effective traffic management and accident investigation. As part of the

traffic system, understanding and analyzing traffic issues is crucial for developing effective solutions. This need underscores the importance of conducting studies to address these challenges comprehensively.

Objectives

This study aimed to:

1. Identify the types of transport and traffic violations in Iriga City.
2. Determine the perceived and actual factors contributing to the following violations: *human error, road deficiencies, vehicle factors, traffic signs, and traffic enforcement*.
3. Recommend strategies to lessen transport and traffic violations based on the results of the study.

Methods

A descriptive research design was employed, utilizing a survey questionnaire to collect data from 144 respondents, including members of the Philippine National Police (PNP), Public Safety Officers (PSOs), and local riders. The survey aimed to gather insights on perceptions of traffic violations and contributing factors.

Results and Discussion

Transport and Traffic Violations in Iriga City

Republic Act 4136, known as the Land Transportation and Traffic Code, is the foundational law governing traffic regulations in the Philippines. Enacted in 1964, it established the Land Transportation Commission, now the Land Transportation Office (LTO), to oversee vehicle registration and driver licensing[1][2]. This act sets standards for speed limits, penalties, and licensing requirements, forming the basis for all subsequent traffic laws[3].

In Iriga City, Ordinance No. 2002-02 codifies local transport and traffic ordinances. It regulates the operation of various vehicles and establishes land transport terminals. Amendments were made through Ordinance No. 2004-03 to refine specific articles[2].

From 2019 to 2021, the *most common traffic violations in Iriga City included failure to observe road signs, driving without a license, not wearing crash helmets, and student drivers not accompanied by licensed drivers*. Respondents generally disagreed that human error or road deficiencies were primary contributors to these violations. Instead, they identified attitudes, values, and awareness levels as significant factors[2].

There was a notable difference in perception between public safety officers and riders regarding the actual factors contributing to violations. The study proposed a traffic management manual focusing on enforcement, education, and engineering, with an emphasis on public participation[2].

The study highlights that traffic violations are prevalent due to a lack of discipline among riders. An integrated approach involving education, engineering, and enforcement is necessary to stimulate sustainable behavioral change and minimize violations. Implementing a standard traffic management system is crucial to align perceptions between public safety officers and riders[2].

Research by Luo et al. (2017) and Zhang et al. in Pan et al. (2020) suggests that traffic violation monitoring can alert drivers and reduce speeding and illegal lane changes but may negatively affect driving behaviors[3][4]. Qian in Pan et al. (2020) found that such monitoring helps ensure traffic safety at intersections[5].

Factors Contributing to Transport and Traffic Violations

This study examines the perceived and actual factors contributing to transport and traffic violations in Iriga City, focusing on human error, road deficiencies, vehicle factors, traffic signs, and law enforcement. Each of these variables was analyzed through five indicators, which were evaluated by respondents to provide a comprehensive understanding of their impact on traffic safety.

Human error is a significant factor in transport and traffic violations. It involves situations where drivers fail to avoid accidents due to limitations in perception, attention, and memory. The study in Iriga City identified several indicators of human error, with inexperience and lack of skill being the most significant factor, having an average weighted mean of 2.55. Incapacitation, such as drivers falling asleep or experiencing medical emergencies, followed with a mean of 2.45. Driving fast and poor visibility ranked third with a mean of 2.36, while driving while impaired by alcohol had a mean of 2.30. Exceeding speed limits was the least significant factor with a mean of 1.82. The study revealed a disparity in perceptions between Public Safety Officers (PSO) and drivers. PSOs strongly disagreed that human error contributes to violations, with a mean of 1.55, while drivers moderately agreed, with a mean of 3.04. Overall, the study concluded that human error is not strongly perceived as a contributing factor, suggesting a need for increased awareness and responsibility among drivers.

The study indicates differing perceptions between respondent groups regarding human error as a contributing factor to transport and traffic violations. PSO respondents viewed the attribution of violations to human error as merely an excuse used by drivers. Furthermore, the results suggest that full

compliance with traffic regulations was not achieved, primarily due to a lack of discipline, serious consideration, and comprehensive awareness among drivers. This highlights the necessity of instilling a stronger sense of responsibility concerning traffic rules.

Rivera (2021) defines this type of violation as careless driving that could potentially lead to accidents or property damage. In 2018, reckless driving accounted for 3,113 recorded violations. In the Philippines, penalties for reckless driving begin with a P500 fine for the first offense, escalate to P750 for the second, and can ultimately result in driver's license suspension or revocation, accompanied by a P1,000 fine.

According to "Human Error Examining the Role of Human Factors" (2016), human factors experts possess specialized knowledge of human capabilities and limitations, particularly concerning interactions with technology and the environment. They analyze the design, operation, maintenance, and use of products, systems, and environments to determine the adequacy of design measures implemented by manufacturers, or the operational measures taken by employers, to minimize human error. These experts are frequently called upon to evaluate individual actions within specific environments, helping to understand the audible, visual, and instructional cues that influenced behavior.

Praveen (n.d), in his study of traffic violations in India, identifies key infractions such as not wearing a helmet on two-wheeled vehicles, neglecting to use seat belts in cars, improper lane driving (including overtaking on the left), speeding in restricted areas, and disobeying traffic signals. Praveen asserts that these violations are major contributors to accidents.

It is important to recognize that roadways are social environments where interactions occur, typically between drivers who are unknown to each other and whose interactions are brief and non-recurring. Communication is limited and relies on mechanical aids like lights and horns. Traffic laws aim to minimize confusion and conflict among vehicles and people. Achieving this will, in turn, reduce accidents."

Road deficiencies also play a crucial role in traffic violations. Poor road conditions can lead to accidents due to inadequate infrastructure or maintenance issues. Addressing these deficiencies is essential for improving road safety. Ensuring that roads are well-maintained and that infrastructure is adequate can help reduce the likelihood of accidents caused by road deficiencies.

The perceived and actual factors contributing to transport and traffic violations in terms of road deficiencies. Road deficiencies, encompassing a wide range of road defects, have the potential to cause serious accidents due to poor road design or conditions. The study identified several indicators of road deficiencies, with inadequate street capacity (crowded to capacity) ranking first among the five indicators, having an average weighted mean of 2.62. This was followed by inadequate lighting and the failure to install traffic signals, with a mean of 2.50, ranking second. Faded centerlines and the lack of reflective markers ranked third with a mean of 2.49. Poor roadway and intersection design, along with poor drainage and standing water on freeways, tied for fourth place with a mean of 2.45.

The study revealed differing perceptions between Public Safety Officers (PSO) and drivers regarding the impact of road deficiencies. PSO respondents strongly disagreed that road deficiencies contribute to transport and traffic violations, with a weighted mean of 1.92. In contrast, driver respondents moderately agreed, with a weighted mean of 3.10. Overall, road deficiencies as a factor contributing to transport and traffic violations had an average weighted mean of 2.51, interpreted as "Disagree."

These findings highlight the critical issue of inconsistent and non-standard road design, which significantly affects driving behavior and perceived safety. With the increasing importance of roads in facilitating the movement of freight and people, the development of better and more sustainable road infrastructure is crucial. This would not only prevent transport and traffic violations but also reduce accidents. According to Rivera (2021), obstruction-related violations, such as blocking the passage of other vehicles on highways while unloading freight or passengers, are prevalent. In 2018, the Metropolitan Manila Development Authority (MMDA) recorded 32,155 such violations, with penalties of P150 for the first, second, and third offenses.

Vehicle factor. "Vehicle-related factors, such as inadequate maintenance and the absence of modern safety features (e.g., lane assist, brake assist, electronic stability control), can significantly contribute to transport and traffic violations. Operationally, these vehicle deficiencies are potential causes of such violations. The study results indicate that 'Poorly maintained vehicle' and 'Vehicle Defects' were ranked 1.5 overall (meaning they shared the top rank) among the five indicators considered. 'Lack of modern safety features (such as lane assist, brake assist, electronic stability control (ESC), ABS brakes)' followed with a ranking of 3 (mean = 2.49), 'Minimal or no safety features provided' ranked 4th (mean = 2.43), and 'Frequent vehicle breakdowns' ranked 5th (mean = 2.27).

PSO respondents largely disagreed that vehicle factors contribute to transport and traffic violations, with a weighted mean of 1.79. In contrast, driver respondents moderately agreed, with a weighted mean of 3.13, that vehicle factors are a contributing element. Overall, the combined average weighted mean for vehicle factors as a contributor to transport and traffic violations was 2.46, which is interpreted as 'Disagree.'

These findings suggest a correlation between vehicle factors and transport and traffic violations in Iriga City. Car maintenance is a critical, yet frequently neglected, aspect that can lead to vehicle malfunctions. It is imperative that vehicle owners recognize the importance of maintaining critical vehicle components and understand that neglecting these can have serious consequences while driving.

Research from the National Highway Traffic Safety Administration (NHTSA) indicates that approximately 20% of all traffic accidents are caused, at least in part, by inadequate vehicle maintenance or a complete lack thereof. The failure of motorists or commercial vehicle owners to adhere to proper maintenance procedures, inspection schedules, and other routine services results in preventable accidents.

Traffic signs and enforcement

Traffic signs are essential for providing relevant information to drivers and other road users. This study examines how inadequate or poorly placed traffic signs can contribute to transport and traffic violations. Specifically, it focuses on situations where signs are either poorly constructed or not established at all, leaving road users without adequate instructions or information.

Data analysis reveals that 'Disobeying Traffic Signals/Disregarding Traffic Signs' ranked first among the five indicators, with an average weighted mean of 2.50. This was followed by 'Confusing traffic signs and markings' (rank 2, mean = 2.42), 'Lack of dedicated loading and unloading areas' (rank 3, mean = 2.41), 'Low supervision and maintenance of traffic control devices (traffic lights, pavement markings, traffic signs)' (rank 4, mean = 2.36), and 'Absence of traffic signs and markings' (rank 5, mean = 1.87).

PSO respondents strongly disagreed that traffic signs are a significant factor in transport and traffic violations (weighted mean = 1.79). However, driver respondents perceived traffic signage as moderately effective (mean = 2.83) in preventing violations. Overall, the average weighted mean for traffic design as a contributing factor to transport and traffic violations was 2.31, interpreted as 'Disapprove.'

This suggests that traffic signs are a primary means of visually communicating traffic laws and regulations, serving as reminders, directions, or warnings. Effective traffic signs should meet a specific need, capture the driver's attention, and convey a clear and simple message that allows users sufficient time to respond appropriately. Traffic sign design should enable drivers to readily and accurately understand information to prevent violations and accidents in dynamic traffic environments. The ability to comprehend traffic signs is crucial for road safety, and failures in comprehension can lead to serious problems.

Rivera (2021) emphasizes the importance of traffic signs for conveying information, instructions, or warnings to drivers. While traffic signs should be followed, not all motorists comply. In 2018, there w

ere 44,433 recorded traffic sign-related violations, making them the most frequent type of traffic violation. The penalty for these violations is P150 for the first, second, and third offenses.

Loading and unloading in prohibited areas can also disrupt traffic flow. In 2018, approximately 10,316 violations related to loading and unloading passengers in prohibited areas were recorded, with a penalty of P150 for the first, second, and third offenses.

Summary of Factors Contributing to Transport and Traffic Violations

This section summarizes the key factors contributing to transport and traffic violations in Iriga City, as shown in Table 1.

Table 1

Summary of Factors Contributing to Transport and Traffic Violations

Factor/s	AWM	AI	Rank
Human Error	2.30	D	4
Road Deficiency	2.51	D	1
Vehicle Factor	2.46	D	2
Traffic Sign	2.31	D	3
Traffic Enforcement	2.09	D	5

Despite the presence of traffic and transport violations in the area, the respondents' contrasting statements resulted in an overall disagreement regarding the factors that lead to these violations. It's noteworthy that the community generally does not acknowledge that human error (2.30), road deficiencies (2.51), vehicle factors (2.46), traffic signs (2.21), and traffic enforcement (2.09) are significant contributors to transport and traffic violations.

These findings suggest that other factors might be at play, such as the attitudes, values, and awareness of the populace, as well as drivers' conscious and unconscious efforts to participate in and maintain traffic management. This indicates a potential disconnect where individuals don't recognize their own capacity to alleviate traffic issues in the area.

Overall, the respondents generally trust the existing traffic management system and are optimistic that transport violations can be minimized through the enforcement of laws and regulations. This suggests a general perception that the current system is effective."

Significant difference in the perception of the respondents

Table 2 presents the significant difference in the perception of the respondents.

Table 2

Significant difference in the perception of the respondents

U_1	U_2	$U.0_5$	Decision	Conclusion
0	25	0	Reject null hypothesis	Significant

The results indicate that the computed U value (U1) of 0 is less than the critical U value of 2 at a 0.05 significance level, leading to the rejection of the null hypothesis in favor of the research hypothesis. This signifies a statistically significant difference in the perceptions of Public Safety Officers (PSOs) and riders regarding the actual factors contributing to transport and traffic violations in Iriga City.

The primary duties of Public Safety Officers include monitoring traffic and patrolling areas within the city. They frequently issue citations to drivers for offenses such as speeding, driving under the influence, illegal parking, and other transport and traffic violations. PSOs possess in-depth knowledge of traffic management, rules, and regulations applicable to various transportation environments, enabling them to effectively identify violations and apprehend offenders. As such, PSOs are an integral part of the traffic management system and maintain close coordination with local authorities.

However, despite the existence of transport and traffic laws and ordinances, riders often exhibit undisciplined behavior, and violations sometimes occur intentionally. These riders perceive obeying traffic laws as only moderately essential.

Strategies to lessen the Transport and Traffic Violations in Iriga City

Traffic violation is the main cause of traffic accident. The best way to prevent traffic accident is not only follow traffic regulations but also being aware of environment as possible as you can, which is known as defensive driving. Furthermore, road safety is a serious problem in many countries and affects the lives of many people. Improving road safety starts with the drivers, and the best way to make them change their habits is to offer incentives for better, safer driving styles.

Strategies to improve driver safety habits include employing a system of visual road-sign recognition, coupled with a vehicle tracking system, to accurately determine how often a driver violates traffic regulations1. These systems use image processing techniques to detect traffic signs5. Detection methods include color-based, shape-based, and learning-based approaches5. Some systems utilize Convolutional Neural Networks (CNNs) for real-time recognition of traffic signs and provide voice alerts to enhance driver awareness1. These alerts notify the driver of important regulatory information, reducing the need to visually scan for signs and improving focus on the road1. Traffic sign recognition systems can also be integrated with Advanced Driver Assistance Systems (ADAS) to provide additional functionality like adaptive cruise control or lane departure warnings1.

To mitigate transport and traffic violations in Iriga City, the researcher suggests several strategies including: distributing informational pamphlets, posters, or handouts to drivers and motorists1. These materials should cover traffic safety rules and regulations and present statistical reports on road accidents, with the aim of deterring future violations that may lead to accidents or endanger public safety1. It is also important to coordinate with educational institutions to integrate road safety education into the curriculum, maximize the use of media channels to disseminate traffic information, proactively monitor traffic problems by studying emerging issues1. This includes periodically assessing high-accident locations, parking conditions, pedestrian issues, and congestion, as well as checking signal timing1. Regular schedules should be established for inspecting, reconditioning, and maintaining traffic signs and signals1. Street improvement plans should undergo expert review to ensure they enhance street capacity and safety1. A comprehensive inventory of traffic signs, signals, and pavement markings should be maintained to ensure compliance with uniform standards1. Modernizing traffic control signals and updating traffic regulations to reflect present traffic conditions are also crucial1. Table 3 presents the strategies to lessen the Transport and Traffic Violations in Iriga City."

Table 3

Strategies to lessen the Transport and Traffic Violations in Iriga City

Indicators	WM	AI
1. Provide pamphlet, posters or handouts for drivers and motorists regarding traffic safety rules and regulation including the statistical report of road accident to deter motorists of future violation that may result to accident or endanger others' safety.	4.85	SA
2. Coordinate with various institutions to incorporate road safety education among citizens	4.92	SA
3. Maximize use of various media to disseminate traffic information	4.86	SA

4.	Keep abreast of traffic problems by studying any problems which may be developing. Periodically study high accident locations, parking conditions, pedestrian problems, and evidences of congestion, and check signal timing.	4.85	SA
5.	Schedules for inspection, reconditioning and periodic maintenance of signs and signals.	4.86	SA
6.	Plans for street improvements should be referred to the appropriate/expert persons for checking from the standpoint of street capacity and safety.	4.90	SA
7.	Inventory of traffic signs, signals, and pavement markings to make sure that citizens are fully in conformance with the Uniform Standards as required by state law	4.89	SA
8.	Provide standard signs with uniform signs along with a program of modernizing traffic control signals	4.85	SA
9.	Provide traffic regulations and restrictions up to date and in step with present traffic conditions by modernizing traffic ordinance.	4.83	SA
TOTAL		**4.89**	**SA**

Legend: 4.21-5.00-Strongly Agree, 3.41-4.20 -Moderately Agree, 2.61-3.40-Agree, 1.81 2.60-Disagree, 1.00-1.80-Strongly Disagree

Based on the results, the PNP respondents Strongly Agree with a weighted mean of 4.89 from the identified strategies to lessen the transport and traffic violations in Iriga City. This implies that except for the existing law and ordinance, strategies are needed to lessen the transport and traffic violations. These strategies primarily focused on enforcement, education and engineering with proper encouragement of public participation.

Conclusions and recommendations

This study investigated the factors contributing to transport and traffic violations in Iriga City, exploring perceptions of Public Safety Officers (PSOs) and riders regarding human error, road deficiencies, vehicle factors, traffic signage, and traffic enforcement. The research revealed a significant divergence in perceptions between the two groups, with PSOs generally disagreeing that these factors substantially contribute to violations, while riders expressed moderate agreement, particularly concerning vehicle-related issues.

The study highlighted that poor maintenance and lack of modern safety features in vehicles are considered critical factors by riders, while PSOs are less convinced of their significance. Furthermore, deficiencies in traffic signage, including inadequate placement, confusing designs, and insufficient maintenance, were identified as potential contributors to violations. The research also pointed to a potential disconnect between the community's perception and the reality of traffic violations, as respondents tended to disagree that these factors play a major role, despite the persistence of traffic issues.

In light of these findings, the study recommends implementing a multi-faceted approach to mitigate transport and traffic violations in Iriga City. This includes strategies such as enhancing road safety education, modernizing traffic control infrastructure, increasing public awareness through targeted informational campaigns, and employing advanced technologies like traffic sign recognition systems to improve driver compliance. Ultimately, addressing the identified gaps in perception and implementing comprehensive strategies are crucial for fostering a safer and more efficient transportation environment in Iriga City.

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