GSJ: Volume 14, Issue 1, January 2026, Online: ISSN 2320-9186
www.globalscientificjournal.com

# Profiles of Road Accident in Ilocos Norte

A Thesis Presented to the Faculty of the Criminal Justice Education

Data Center College of the Philippines

In Partial Fulfillment of the Requirements for the Degree

Bachelor of Science in Criminology

by

Acosta, Kharell Vincent R.

Antonio, Mark James D.

Baniaga, Czar Ian M.

Belisario, Kobe Andrei S.

Cariño, John Patrick S.

Doctor, Christian Jay Y.

Domingo, John Hamphrey C.

Gaygay, Jordan A.

Gungab, Michael Renz D.

Mangaoang, Raven Idan

Mariano, James

Marquez, Aign Azrael

Pimentel, Carlos Miguel

Raymundo, Marvin Q.

November 2025

# Chapter I

# THE PROBLEM AND ITS SETTING

## Introduction

Profile of road accidents referred to the combined demographic and situational characteristics surrounding road incidents. It is a description and characteristics of individuals or circumstances involved in a traffic crash, including factors such as age, sex, vehicle type, licensing status, and other relevant variables that help analyze patterns and causes of road accidents (Mohan, 2021).



Road traffic accidents are a major global public health concern, causing approximately 1.19 million deaths and more than 50 million injuries each year, with the highest casualty rates observed among young people aged 5 to 29 (WHO, 2023). Low- and middle-income countries experience the greatest burden, accounting for about 93% of all road crash fatalities, and the economic impact globally is estimated at around 3% of the total GDP. In the Philippines, around 12,000 individuals lose their lives annually due to road crashes, with an average of 53 incidents reported daily in Metro Manila alone. Most of these accidents involve motorcycles and commonly affect individuals aged 15 to 34 years old. Over speeding, distracted driving, drunk driving, violation of traffic rules, and mechanical defects are among the leading causes of crashes both worldwide and in the Philippines (MMDA, 2023).

Young male drivers were the most frequently involved in road accidents due to risk-taking behaviors such as speeding, distracted driving, and driving under the influence (Xue et

al., 2023). Globally, people aged 15–29 represented a large proportion of road traffic deaths, highlighting the vulnerability of younger drivers (World Health Organization, 2018). Human errors were the leading cause of accidents, with additional contributions from poor road infrastructure, adverse weather, and vehicle mechanical failures. Traffic investigations systematically collected evidence to determine liability and support legal action (Carec, 2021).

In the Philippines, young male drivers were the most frequent victims of road accidents, with 72–81% of traffic injury patients being male, mostly aged 0–30 years (Herbosa & Lu, 2022). Human error, particularly driver inattention, overspeeding, and non-use of protective gear, was the leading cause, while environmental factors like congested roads and poor traffic infrastructure also contributed (Dimaano et al., 2020). Accident investigations followed LTO and police protocols, and outcomes ranged from mediation and penalties to prosecution for violations (Philippine National Police Highway Patrol Group, 2020).



This study sought to identify the profiles of road accidents in Ilocos Norte by examining the demographic profile of those who were involved, the factors that contributed to road accidents, and the disposition of the case by traffic investigators. The researcher believed that by exploring this issue through quantitative research methods, they aimed to provide actionable insights that could inform policy development and community-based interventions. Ultimately, this research endeavored to reduce the number of accidents, deaths, and injuries on the road and to improve road safety in general.

**Background of the study**

Worldwide, road accidents caused major health problems and were of concern to health institutions; nearly 1.35 million people were killed or disabled in traffic accidents

every year. In 2019, 93% of road traffic injury-related mortality occurred in low- and middle-income countries, with an estimated burden of 1.3 million deaths (Ahmed, 2023).

Internationally, studies showed that road accidents were prevalent in both developed and developing countries. For instance, research conducted in the United States revealed that car accidents were considered one of the main causes of death. In 2020 alone, about 40,000 people died in traffic accidents, and about 2.1 million people visited emergency units due to traffic accidents. Traffic injuries were the leading cause of death among children and young people aged 5 to 29. Each year, between 20 and 50 million people suffer non-fatal injuries in traffic incidents, many of which result in long-term disabilities and impose significant economic burdens. These costs stemmed from medical expenses and the loss of income due to injury or death (Ahmed, 2023).

Locally, according to UN data, an average of 32 people died daily in road accidents in the country. Supporting this, the Philippine National Police (PNP) reported a rise in road accidents in 2024, with fatalities increasing by 35%—from 2,030 deaths in 2023 to 2,747 in 2024. The PNP also revealed that 87.17% of these incidents, or 27,248 cases, were due to reckless driving behaviors such as bad overtaking, improper turning, speeding, drunk driving, overloading, and mobile phone use while driving. Additionally, 790 accidents were linked to vehicle issues, while 725 were caused by poor road conditions. Ten people were killed, and more than 30 were injured after a bus hit several vehicles at a toll gate on one of the busiest highways in northern Philippines. In 2023, 17 bus passengers died after the vehicle's brakes failed and it plunged into a ravine in central Philippines, along a winding road known among locals as the "killer curve" (Ewe, 2025).

Under Republic Act 4136, also known as the Land Transportation and Traffic Code, which contains all the traffic laws and provisions in the Philippines, no one should operate a

vehicle on any highway without due caution and consideration for the conditions of the road and weather. This includes paying attention to the width and traffic of the highway, as well as any crossings, curvatures, or other hazards. Failing to do so endangers not only the driver but also any pedestrians or property in the vicinity. Additionally, operating a vehicle in such a way that can cause extensive damage to the highway is also illegal and punishable. Therefore, any manner of driving that endangers the safety of other motorists, pedestrians, and highway users is included.

Road accidents were closely connected to the criminal justice system, particularly when negligence or violations of traffic laws resulted in injury or death (World Health Organization, 2018). Law enforcement agencies investigated accidents to determine causes and identify whether any criminal acts, such as reckless driving, driving under the influence, or vehicular homicide, had occurred (Herbosa & Lu, 2021). When evidence of criminal liability was found, the case was referred to prosecutors who filed charges, leading to court proceedings where offenders were tried and penalized (Xue et al.,2023). Through this process, the criminal justice system ensured accountability, provided justice for victims, and enforced legal and societal standards to prevent future road incidents (World Health Organization, 2018). Additionally, data from these cases contributed to improving traffic regulations and public safety policies (Herbosa & Lu, 2021).

Despite extensive documentation of the prevalence of road accidents both globally and locally, there remains a significant research gap, a lack of research studies and analysis in identifying the comprehensive profile of road accidents in Ilocos Norte.

This study sought to identify the profiles of road accidents in Ilocos Norte by examining the demographic profile of those who were involved, the factors that contribute to road accidents, and the disposition of the case by the traffic investigator.

## Statement of the Problem

This study focused on identifying the profile of road accidents in the province of Ilocos Norte. Specifically, this study sought to answer the following questions:

1. What is the demographic profile of those who were involved in road accidents as to:

    1.1 Age;

    1.2 Gender;

    1.3 Education;

    1.4 Type of driver's license; and

    1.5 Civil status?

2. What are the factors that contributed to road accidents as to:

    2.1 Personal;

    2.2 Mechanical; and

    2.3 Environmental factors?

3. What is the disposition of the case by the investigator as to:

    3.1 Amicable settlement; and

    3.2 Filed case?

## Theoretical Framework

Understanding the complexities of road accidents in Ilocos Norte requires a multifaceted approach. This theoretical framework provides unique insights to attain the objectives of the study:

### Domino Theory

The Domino Theory explains that accidents happen through a chain of events, where an unsafe act or unsafe condition acts as the first domino. Once triggered, this sets off a sequence that leads to an accident. Preventing or removing one key factor in the chain can stop the accident from occurring (Khanzode, 2012).

The first domino could be a driver's risky behavior (e.g., speeding), which may lead to a loss of control, resulting in a crash. Other factors, such as poor road conditions or vehicle malfunctions, can also act as dominoes in this chain. Understanding this sequence can help identify critical intervention points to prevent accidents.

**Multiple Causation Theory**

The Multiple Causation Theory states that accidents result from several interacting factors, such as human behavior, environmental conditions, mechanical problems, and organizational elements. It highlights that accidents are complex events that must be analyzed from multiple angles rather than attributing them to a single cause (Shahab et al., 2012).



Road accidents can be attributed to various interrelated factors, including driver behavior (e.g., distraction, intoxication), environmental conditions (e.g., weather, road design), and vehicle-related issues (e.g., maintenance). By recognizing the multifaceted nature of accidents, stakeholders can develop comprehensive strategies that address all contributing factors, rather than focusing on a single cause.

**Cognitive Theory of Mind**

The Cognitive Theory of Mind focuses on how individuals think, perceive, and interpret information. It posits that behavior is shaped by internal cognitive processes like judgment, attention, and decision-making, meaning people act based on how they mentally understand situations (Schunk and DiBenedetto, 2023).

This theory can be applied to understand how drivers make decisions on the road. For instance, a driver's perception of risk, influenced by their past experiences and knowledge, can affect their driving behavior. If drivers underestimate the dangers of speeding or distracted driving, they may engage in these risky behaviors. Enhancing drivers' cognitive awareness through education and training can lead to safer driving practices.

**Social Cognitive Theory**

The Social Cognitive Theory states that people learn behaviors through observing others, their own experiences, and environmental factors. It emphasizes modeling (imitating what others do) and self-efficacy, and explains that behavior is influenced by the interaction of personal factors, environment, and actions (Nickerson, 2025).

SCT can be applied to understand how drivers learn behaviors by observing others on the road. For example, if drivers see others engaging in safe driving practices, they may be more likely to adopt those behaviors. Additionally, enhancing self-efficacy through training can empower drivers to make safer choices.



**Conceptual Framework/ Operational Framework**

The IPOO Model was used in this study to identify the profiles of road accidents in the province of Ilocos Norte. The IPOO Model explains how a system transforms resources into results. It starts with inputs such as data, materials, or manpower, which go through a process involving activities or procedures. These produce outputs, the immediate products or services, which then lead to outcomes, the long-term effects or impacts of the system. This model is widely used in research and organizational evaluation because it clearly shows how actions lead to meaningful results (Nakpodia, 2023).

Input comprised of the demographic profile of those who are involved in road accidents, the factors that contributed to road accidents, and the disposition of the case by the investigator.

The process includes a quantitative research method using the descriptive design and survey checklist, interpretation, and analysis of data. The output was an informative video titled **"Road Safety Rules Are Your Best Tools,"** which has the goal of encouraging drivers to follow traffic rules to reduce road accidents. The outcome is improved public safety through incidents, enhancing awareness of road traffic rules and regulations, and promoting responsible driving behavior to help lessen road accidents.

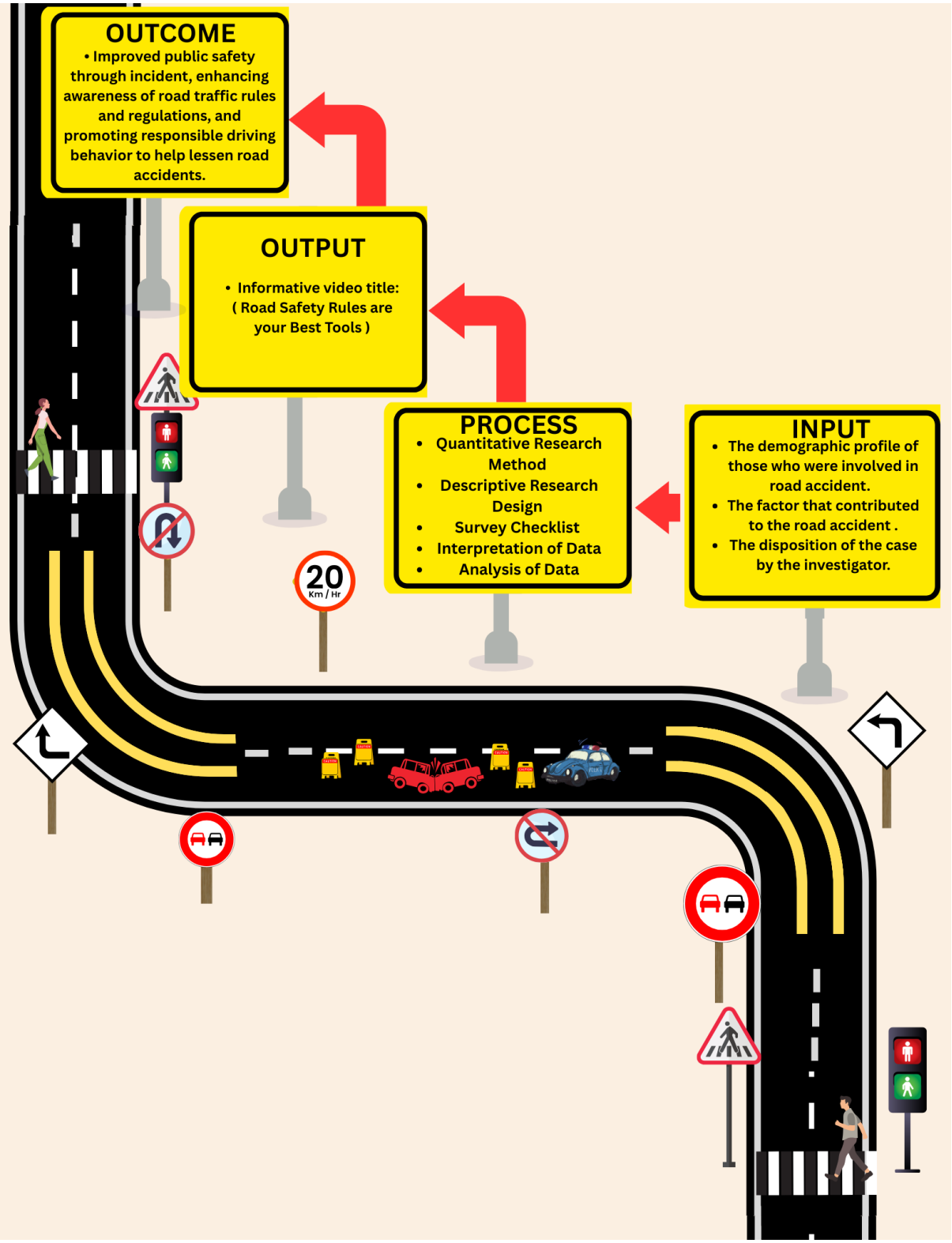


**Figure 1. Paradigm of the Study**

**Significance of the Study**

This research holds substantial value for various sectors involved in road safety, transportation management, and policy implementation. The findings aimed to benefit the following groups:

**Drivers.** As primary users of the road, drivers will gain insights into safer driving practices, awareness of updated traffic laws, and the importance of adherence to regulations. This study may also highlight areas where further driver education is needed.

**Community.** The general public stands to benefit from safer roads, reduced traffic incidents, and better transportation systems. A safer and more efficient transport network contributes to improved quality of life.

**Traffic Law Enforcers.** Traffic enforcers and police officers will find the study useful in understanding common issues in traffic law compliance, enabling them to enhance enforcement strategies and promote discipline among road users.



**Land Transportation Office (LTO) / Department of Transportation (DOTr).** The research provides data that can inform policy reviews, licensing procedures, and future transportation programs. It can serve as a reference in shaping more effective road safety campaigns and regulatory measures.

**Seminar Organizers / Educators.** This study may assist institutions or individuals conducting seminars or training related to traffic rules, road safety, and driver education by offering updated and research-based content.

**Department of Public Works and Highways (DPWH).** The DPWH can utilize the findings to identify infrastructure-related causes of road incidents, thus aiding in the planning and maintenance of safer roads and highways.

**Future Researchers.** This research can serve as a valuable reference point for future studies in the fields of transportation, road safety, and policy development, allowing for the exploration of deeper or related issues.

**Researchers**. The study contributes to the academic body of knowledge on transportation safety, compliance behavior, and inter-agency collaboration, encouraging further inquiry and research-based solutions.

**Scope and Delimitations of the Study**

This study focused on profiling road accidents in the province of Ilocos Norte, specifically, the demographic profile of persons involved in the road accidents, the factors that contributed to the accidents, and the disposition of the case by the traffic investigator.

This study was limited to people involved in road accidents in Ilocos Norte, particularly in Laoag City, Batac City, San Nicolas, Sarrat, Bacarra, and Pasuquin. The year of the accident covers the year 2022 to the first quarter of 2025. This study was conducted in the First Semester of the Academic Year 2024-2025 to the Second Semester of the Academic Year 2025-2026.

**Definition of Terms**

The following terms used in the study are defined conceptually and operationally to ensure clarity and better understanding.

**Amicable settlement**. This refers to a mutually agreeable resolution of a dispute reached by the parties involved, without resorting to formal litigation (Respicio,2024).

**Demographic profile.** This refers to the statistical characteristics of individuals involved in or affected by accidents.

**Disposition of the case.** This refers to how the case is finally resolved or decided. It explains the outcome of whether the case was settled or filing a case in court.

**Factors.** This refers to the conditions and behaviors that increase the chances of a crash, such as driver actions, vehicle condition, and road or environmental situations.

**Filed case.** This refers to an officially reported and documented incident submitted to authorities for investigation or legal processing (Mitra&Varghese, 2017).

**Mechanical factors.** This refers to vehicle-related issues that contribute to crashes due to malfunctions, defects, or poor maintenance.

**Personal Factors.** This refers to individual characteristics, behaviors, and conditions that contribute to Road Accidents. These factors can influence a driver's ability to react, make decisions, and operate a vehicle safely.

**Physical or Environmental Factors.** This refers to environmental and infrastructure-related elements that contribute to Road Accidents.

**Road Accidents.** This refers to incidents involving at least one vehicle on public roads that result in injury, death, or property damage.



## CHAPTER II

## REVIEW RELATED LITERATURE AND STUDIES

This chapter undertakes a comprehensive examination of existing literature and studies relevant to road accidents, focusing on various aspects such as accident patterns, contributing factors, and potential interventions. A robust understanding of the current state of knowledge is crucial for contextualizing the present research, identifying gaps in the existing literature, and informing the methodological approach.

### Legal and regulatory framework in the Philippines

In the Philippines, the legal and regulatory framework for road accidents is primarily governed by Republic Act No. 4136, the Land Transportation and Traffic Code. This law

outlines various aspects of road safety, including driver responsibilities, penalties for violations, and procedures for accident investigation. The Land Transportation Office (LTO) plays a key role in enforcing these laws and promoting road safety through regulations, inspections, and campaigns. This act lays down traffic rules and regulations such as speed limits, overtaking rules, and right-of-way provisions. Violation of these rules often constitutes the basis for negligence if found to be the proximate cause of a vehicular accident.

Furthermore, there has been an increase in motorcycle-related traffic accidents in the Philippines. These are caused by environmental and individual factors, including age, illumination, and traffic flow, weather, the nature of the road, the type of junction, the hour, the day, the surface conditions, and driving habits.

Additionally, the street-level study reveals that deadly pedestrian collisions occur near various types of transportation stations. The results of this study of three cities in Metro Manila reflect the double challenge to pedestrian safety in rapidly urbanizing areas in lower-middle-income countries such as the Philippines. Therefore, policies and planning that promote pedestrian safety must address this dual problem in contexts where they are most necessary. The study aims to determine significant personal and environmental variables in predicting motorcycle accidents in the Philippines, compare the results with findings in other countries, and propose possible government interventions (Seva, 2013).

**Ilocos Norte Provincial Ordinance No. 2012-01**

Ilocos Norte has local ordinances that address road safety, traffic management, and accident prevention, generally aligning with the Philippine Traffic Code (Republic Act No. 4136). These ordinances typically cover:

1. Obligations of Drivers and Vehicle Owners – Drivers must adhere to speed limits, traffic signs, and rules of the road, while vehicle owners must ensure their vehicles are in good condition.

2. Reporting of Accidents – Accidents, whether involving injury, death, or property damage, must be immediately reported to the local police or traffic authority. Failure to report can result in fines or legal liability.

3. Penalties for Violations – Violations such as reckless driving, drunk driving, failure to yield, or driving without a license can incur fines, suspension of driving privileges, or other sanctions as specified in the ordinance.

4. Road Safety Measures – The ordinance often mandates safety measures like proper street lighting, road signs, pedestrian crossings, and public awareness campaigns to reduce accidents.

5. Investigation and Disposition of Accidents – Local authorities are tasked to investigate accidents and, where applicable, facilitate restitution or legal proceedings for cases involving damages or injuries.

These regulations are enforced by local traffic authorities and the police, who are tasked with investigating accidents and facilitating restitution or legal proceedings when necessary (Sangguniang Panlalawigan, Ilocos Norte, Philippines, 2012).

The Ilocos Norte vest ordinance requires drivers and riders of motorcycles, bicycles, e-bikes, tricycles, "kurong-kurong," and farm machinery to wear high-visibility or reflective vests at night or during poor weather conditions. The ordinance is in effect from 6 p.m. to 6 a.m. daily and applies to all national, provincial, city, and barangay roads. Violators face penalties ranging from a PHP500 to PHP1,500 fine or community service (Adriano,2022).

**Philippine News Agency: Laoag to dry-run 90-day traffic scheme**

Laoag City has various traffic ordinances and policies, including a recent 90-day experimental traffic scheme aimed at improving rush hour flow, a Zoning Ordinance that includes traffic impact assessments, and the implementation of cashless transactions through the Paleng-QR PH Program. The city also addresses traffic issues through enforcement, road

closures for special events, and by implementing regulations for tricycles and other local transport (Adriano, 2022).

Laoag City, Ilocos Norte, enforces local ordinances aimed at promoting road safety and reducing traffic accidents. One key ordinance is City Ordinance No. 10, Series of 2018, which provides measures for traffic management, road safety, and proper reporting of vehicular accidents within the city. The ordinance mandates drivers, pedestrians, and vehicle owners to strictly observe traffic rules, including speed limits, pedestrian rights-of-way, and the use of safety devices. It also requires that any road accident, regardless of severity, be immediately reported to the Laoag City Traffic Management Office and the local police for proper documentation and investigation. Violations of these rules, such as reckless driving, failure to report an accident, or causing injury due to negligence, are subject to fines, penalties, or administrative sanctions as prescribed by the ordinance. This framework is intended to enhance public safety, ensure prompt accident response, and facilitate accountability among road users (Laoag City Ordinance No. 10, 2018).

**Global road traffic injury statistics: Challenges, mechanisms and solutions**

Globally, road accidents are a major public health concern, resulting in about 1.19 million deaths and 20 to 50 million injuries globally each year (World Health Organization, 2023). Low-and middle-income countries bear the highest burden, largely due to weak infrastructure, limited traffic law enforcement, and poor emergency services. Vulnerable road users-such as pedestrians, cyclists, and motorcyclists -make up more than half of all fatalities. Common causes include speeding, alcohol and drug impairment, lack of protective gear, and unsafe road conditions. However, gaps in data collection and inconsistent reporting remain significant obstacles to effective prevention. Zhao et al.,(2020).

Road accidents are undoubtedly the most frequent and, overall, the cause of the most damage. The reasons for this are the extremely dense road traffic and the relatively great

freedom of movement given to drivers. Accidents involving heavy goods vehicles (especially coaches and lorries with trailers) occur all too frequently despite calls for responsible behavior, for respect of the loading regulations and the highway code, as well as the obligation for drivers to adapt their speed, which affects stopping distances, to the traffic and weather conditions. The prevention of road accidents is also extremely important and will be ensured by strict laws, by technical and police controls, ongoing training for drivers (especially those involved in the transport of dangerous substances), and, if need be, by legal and administrative penalties for those responsible.

**A Summary of Incidents and Legal Violations on Road Accidents in Ilocos Norte.**

In 2015, Ilocos Norte experienced a series of tragic road accidents that raised concerns about traffic safety and enforcement in the province. One of the most devastating incidents occurred in Sarrat, where a jeepney collided with a 14-wheeler truck, resulting in 13 fatalities, including several high school students. Other notable accidents involved a drunk driver in Piddig who caused the deaths of five family members, and a van that overturned in Bangui due to driver inexperience and poor road conditions. These incidents underscore the vulnerability of both passengers and drivers on provincial roads (Arzadon, 2012).

A review of these accidents reveals frequent violations of key transportation laws. Among them are Republic Act No. 4136, which prohibits overloading and mandates strict adherence to traffic rules; Republic Act No. 10054, which enforces the wearing of standard helmets for motorcycle riders; and Republic Act No. 10586, which penalizes driving under the influence of alcohol or drugs. In cases involving minors, Republic Act No. 7610 holds guardians liable for allowing children to operate vehicles without a proper license. These violations suggest a pattern of negligence and a lack of enforcement that contributed to the high number of casualties.

In response to the increasing road fatalities, Ilocos Norte authorities launched several safety measures in 2015. Local police intensified checkpoints and patrols to monitor reckless driving, while the Land Transportation Office (LTO) held educational campaigns to promote traffic discipline. Infrastructure improvements, such as better signage and lighting in high-risk areas, were also initiated. Despite these efforts, the events of 2015 highlighted the ongoing need for stricter implementation of traffic laws and continued public education to prevent further loss of life on the roads.

**Risk Indicators and Road Accident Analysis for the Period 2012–2016**

Road and traffic accidents involve uncertainty and are unpredictable. These accidents are based on a number of causes that depend on a number of variables, such as: no priority to pedestrians, no priority to vehicles, the unlawful crossing of pedestrians, the bicycle rider's deviations, speed not adapted to road conditions, deviations of the drivers of animal traction vehicles, and so on. It can be argued that road and traffic accidents are defined by a set of variables, some known and others unknown, which are more subtle. The study of Cioca and Ivascu (2017) focused on identifying the causes of accidents, road safety performance indicators, and risk indicators.

This study used qualitative and semi-quantitative methods to interpret the statistical data on the number of traffic and road accidents in Romania. From the statistical data, the selected variables for analysis included collision mode, road configuration, conditions of occurrence, road category, type of vehicle involved, personal factors, and length of time of the driving license. For statistical analysis, the period 2012 to 2016 was chosen. The analysis of the road accident trend identifies the causes of accidents, road safety performance indicators, and risk indicators. Analysing and evaluating the data leads to obtaining a framework for the improvement of the road safety system and reducing accidents, which is included in this research.

The result of the study revealed that most road accidents are caused by human behaviour with certain deficiencies. That's why its correction is of great importance. In Romania, a considerable number of road accidents are due to personal factors. To improve the current situation, the national road safety and security strategy must include infrastructure investments and raise awareness among drivers of the importance of physical and mental health monitoring.

The study showed that the road accident factors are mainly dependent on: the driver's experience, the environment of the accident, the road category, the driver's age, the type of vehicle, and the length of time from acquiring the driving license (Cioca and Ivascu, 2017)

**Identification of Risk Factors for Road Traffic Accidents using Injured Drivers: A Cross-Sectional Study conducted in Sri-Lanka**

Road traffic accidents (RTAs) are a leading cause of injury and death worldwide, posing a serious public health challenge, especially in developing countries. In Sri Lanka, the increasing number of vehicles, poor road infrastructure, and risky driving behaviors have led to a rising trend in traffic-related injuries and fatalities. The study of Madhumali NWM et al. (2020) focused on identifying the human, environmental, and vehicle-related factors that contribute to road accidents.

This study used a mixed research method by using an interviewer- administrative questionnaire to collect data, which consists of five sections: demographic data, information about the accident, information about the vehicle, human and behavioural factors, and environmental factors. Driver input was sought on how to improve driving safety and increase driver satisfaction. The inclusion criterion for the research was those who were medically approved by a physician to speak with them. Serious injuries to persons and deaths of RTAs were obtained by interviewing family members or relatives and surveying police

reports. People excluded from the research were admitted to the hospital accident wards as a consequence of another accident (excluding RTA), and who weren't drivers.

The results of the study indicate that the most common age group involved in RTAs was 26-35 years, where 97% of patients were males. Most drivers (47.8%) had less than 10 years of experience, and 33.1% of drivers had between 11 to 20 years of driving experience. Motorcycle accidents were more common (79.44%) than three-wheeler (11%), or other vehicle RTAs (8.61%) (Table 1). 33.5% of drivers had met with RTA while traveling at a speed between 31-45 km/h, while the high-speed range of 46-60 km/h showed a 27.8% RTA rate. Of all the drivers, 6.9% were under the influence of alcohol when the RTA occurred, and 14.4% were professional drivers.

This study shows the importance of targeted road safety interventions, such as awareness campaigns focusing on young and male drivers, stricter enforcement of traffic regulations on speed and alcohol consumption, and enhanced training programs to improve driving skills and hazard perception, especially among motorcyclists and less-experienced drivers (Madhumali NWM et al.,2020).



**Risk factors of road crash: An empirical analysis among an Italy driver sample**

Road crash reports can be a very useful and efficient means for studying driving behavior incident factors, and causes. But at their best, Police reports can't provide reliable in-depth information about behaviors, as well as about the motives leading to risky driving and errors. Road accidents are complex events resulting primarily from human, technical, and environmental contributing factors. Investigations carried out on accident phenomena have shown the complexity, dynamic character, and significance of many dimensions in accident production. The study of Olimpia P et al. (2014) focused on the causal factors that have determined road accidents based on the task capability interface (TC) model.

This study used quantitative research a survey checklist was used as the study instrument to determine the crash causes and distributions of demographic variables, vehicle, road, and factors derived from police records. To calculate the association between crashes and any probable risk factor, adjusted odds ratios (OR) with 95% confidence interval (95% CI) were obtained through a multivariate unconditional logistic regression [29]. All potential confounding factors were entered into the logistic model. In this model, the odds ratio can be considered as a relative risk. Unadjusted ORs are not calculated since the interest of the present study was not aimed at establishing a causal relationship for every single factor.

The result of the study reveals that a total of 1489 road accidents occurred in the year 2008 in Northern Italy. Logistic regression was used to evaluate the association between drivers, accident characteristics, and accident outcomes (killed, severely, and mildly injured). Age classes most involved in road crashes were 26-25 and 36-35 years. Men were more frequently responsible for accidents than women. The hourly distribution of crashes for working days, Saturday and Sunday showed that the prevalence was higher during the late night hours (0-3 on Sunday and 20-23 on Saturday, respectively). The youngest age class was involved in a greater number of accidents, especially in the 0-3 time of day class. About half of road crashes were directly attributed to violations. High-speed, alcohol and drug abuse affected only a small portion of cases. The highest combined risk of dying or being severely injured was found in males, driving a motorcycle. These results will influence transport and local safety measures and policies, which will change inappropriate behaviors of drivers and protect the least experienced road users.

This study clearly shows how much human behavior contributes to road accidents. The fact that most crashes involved young male drivers, especially at night, suggests that carelessness, overconfidence, and risky habits play a big role in road safety problems. (Olimpia P et al.,2014).

**Predisposing- Personal Factors Associated with Passenger Safety and Safe Riding Behaviors Among Cyclists (Boda Boda Riders) in Kampala**

Bodabodas are bicycle and motorcycle taxis commonly found in East Africa. While motorcycle taxis like bodabodas are present throughout Africa and beyond, the term bodaboda is specific to East Africa. Although mortality in motorcycle crashes is largely due to head injury, musculoskeletal problem such as limb injury is the leading cause of morbidity (Galukande et al., 2009). Several factors determine the degree of morbidity and mortality patterns following motorbike-related accidents, ranging from the use of protective helmets, site of injury, type and mechanism of collision and injury-medical care interval (Boniface et al., 2016). The study of Afolabi IB et al. (2020) focused on the level of predisposing personal factors associated with passenger safety and safe riding behaviors among cyclists (bodabodariders) in Kampala and the relationship between age, educational attainment and the risk of road accident.



The study used quantitative research a cross-sectional study design employing a two-sectioned semi-standard questionnaire whose validity had been previously established with face and content validity to collect quantitative data between september 2019 and November 2019 on the predisposing-personal factors and safe riding behaviors among 422 randomly selected riders in Kampala, Makindye division with sound state of mind and who were able to speak and understand English language or Luganda as the questionnaire was translated into the most locally spoken language (Luganda). This research employed a multistage sampling and a simple random sampling to sample the stages in Makindye division and then a simple random sampling was used to select the respondents. This method enabled the researcher to obtain the sample from the population in a way that the sample will give an equal chance for everyone to be chosen.

The result of the study shows that the majority of the respondents were between the ages of 25 and 29 (35.5%), where most of them (36.0%) had secondary educational attainment. The mean score for the level of predisposing-personal factors measured on a 31-point reference scale among respondents in our study was 23.9% denoting a prevalence of 77.1% while the mean score for the safe riding behaviors as measured on a 24-point scale was 9.3 % which translates to a prevalence of 38.8%. The study further revealed that older respondents and riders with non-formal education inconsistently reported the lowest score for predisposing personal factors, whereas older respondents and riders with tertiary educational attainment constantly displayed the lowest scores for safe riding behaviours.

The study indicates that education plays a significant role in road safety. Individuals with lower educational attainment may have limited knowledge of traffic laws, safe driving practices, and defensive driving techniques, making them more likely to commit violations or misjudge road situations (Afolabi IB et al.,2020).



**Professional and non-professional drivers' stress reactions and risky driving**

Driving exposes both professional and non-professional drivers to various stressors such as traffic congestion, time pressure, and fatigue. These stress factors can influence emotions and decision-making, often leading to risky driving behaviors like speeding or aggression. Professional drivers experience stress mainly from long hours and work demands, while non-professional drivers are more affected by inexperience and emotional responses. Understanding how stress impacts driving behavior in both groups is essential for improving road safety and developing effective prevention strategies. The study of Bahar O et al. (2010) focused on the different stress reactions between professional drivers and non-professional drivers in the United States.

The study used quantitative research, a survey questionnaire to determine the stress reactions between professional and non-professional drivers because it allows for the collection of measurable data, objective comparison, and statistical analysis. This method ensures consistency, reliability, and efficiency in identifying differences and patterns in stress levels between the two groups.

The results of the study revealed that the majority of road accidents involve drivers holding non-professional licenses. This may be attributed to their generally lower level of training, limited driving experience, and reduced exposure to formal road safety education compared to professional drivers. Non-professional license holders are typically private vehicle owners who drive less frequently and may not undergo the comprehensive training, assessments, and defensive driving courses required for professional drivers. In addition, many belong to younger age groups, who are often more susceptible to risky driving behaviors such as overspeeding, distraction, and neglecting traffic regulations.



The study shows that road safety programs should not only focus on technical driving skills but also include stress management and emotional control, especially for non-professional and younger drivers. Integrating psychological awareness into driver education could significantly reduce accident rates and promote safer driving habits for everyone on the road (Bahar O et al.,2010).

**Law Enforcement of Police Discretion to Resolve Traffic Accidents at the Investigation Level**

Traffic accidents are one of the serious problems that are often faced in the context of law enforcement, especially in countries with high traffic density, such as Indonesia. This kind of accident not only caused material and physical losses but also presented challenges in the investigation and law enforcement process. In this situation, Police officers are faced with

a complexity that requires quick and appropriate decisions to determine the next steps, including whether to continue the investigation or take other discretionary measures. The study of Nurhadinata et al. (2019) focused on evaluating how the discretionary decisions taken by police investigators can affect the case settlement process, taking into account aspects of justice and public interest.

The study used qualitative research using a case study design, using the qualitative method focuses on evaluating discretionary decisions made by police investigators and how these affect the case settlement process, considering justice and public interest. This indicates that the researchers aimed to understand behaviors, decision-making processes, and perspectives rather than measure numerical data. A case study design is being used because it involves a detailed analysis of how police officers make discretionary decisions during traffic accident investigations. Such a design allows the researchers to explore real-life experiences, contexts, and factors influencing police actions.

The result of the study shows that most road accident cases are resolved through amicable settlement, with restitution as the most common approach. This method is preferred because it is faster, less costly, and less stressful than going to court. Restitution, which involves monetary compensation for damages or medical expenses, reflects the community's concern for the value of human life and the need for immediate assistance. Reparation follows as a secondary option, involving non-monetary actions like repairs or replacement of damaged property. Overall, the preference for restitution highlights a practical, compassionate, and efficient way of resolving disputes while maintaining harmony and prioritizing human welfare.

This study offers valuable insights into the importance of police judgment in law enforcement, showing that discretion, when exercised responsibly, can strengthen trust between the police and the community while ensuring justice is served humanely and

efficiently. It recognizes that quick and peaceful settlements can help maintain social harmony, reduce the burden on courts, and provide timely relief to victims (Nurhadinata A et al.,2019).

**Road Traffic Accident: Retrospective Study**

Road Traffic Accident (RTA) is one of the varieties of transportation injuries (Road, Rail, and Air). Accidents and injuries are rapidly on the increase and appear to emerge as the leading causes of morbidity and mortality in the age group of 15 to 34 years. India has a fatality rate in road accidents that is 20 times that of developed countries, perhaps the highest accident rate in the world. The study of Gupte et al. (2001) was planned to study the major causes/risk factors as well as the nature, type and mode of occurrence of road traffic accidents in Ujjain city.

This study used quantitative research. A descriptive study was planned using different possible sources of information for Road traffic accidents. Private hospitals, district hospital, Traffic Police (having a collection of data from all police stations and other departments like transport, health, insurance and corporation officials record) and all the victims of road traffic accidents in last one month recorded from different sources were the study subjects and filtering of all cases was done for duplication of cases, all duplicate cases were removed. Data was collected for a complete month, and all the cases in the month were included in the study, which thus constitute the sample for the study.

The result of the study revealed that the total number of accidents noticed during the study period was 87, with 9 deaths, i.e. mortality rate is 10.3%. It was found that the age group most prone to accidents is 25-34 years, with males predominance with 70:17 ( i.e., 80.5%males: 19.5% females). Maximum mortality was noticed on Saturdays, and the time most prone to accident was between 10.00 AM-11.00 AM, but deaths were more in accidents that occurred between 9.00 PM to 12.00 midnight. Road traffic accidents were more on state

highways as compared to other urban roads. Pedestrians were more prone to accidents as compared to two-wheeler or four vehicles, and most of them were males, and the main cause of road traffic accidents was due to driving above the speed limit (47%) (i.e., limit mentioned for driving in particular areas). Pedestrian accidents were followed by accidents of two-wheelers (26.4%), but injuries were not serious with the involvement of four-wheelers(mainly trucks). Injuries were found to be serious.

This study showed that based of the results obtained major causes of road traffic accidents were pedestrians and animals sharing roadways with fast and slow moving vehicles, Increased driving speed of vehicles, widespread spread of disregard of traffic rules, unusual behaviour of men and animals and among all the above causes increase speed driving of vehicle cause maximum mortality (Gupte et al., 2001).

**Road Traffic Accident Victims' Experiences of Return to Normal Life: A Qualitative Study**

Road traffic accidents are a major public health problem. Currently, more than 1.2 million people each year are killed in road traffic crashes around the world, while an additional 20 to 50 million are injured by these accidents. According to the Global Burden of Disease study 2010, road traffic injuries (RTIs) were responsible for over a third of the world's injury burden, which resulted in the loss of 76 million disability-adjusted life years. The study of Abedi (2016) focused on the experience of return to normal life in road accident victims in Iran.

This study used qualitative research and the content analysis approach for the data analysis. The data were collected through deep semi-structured face-to-face interviews. The interview began with an open-ended question based on the major research question and continued with probing and follow-up questions about effective factors in reintegration into life for patients with physical disabilities caused by traffic accidents. A purposeful sampling

method was applied until reaching data saturation. Data were collected using semi-structured interviews. Afterwards, the gathered data were analyzed through conventional content analysis.

The result of the study revealed that traffic accident casualties are doubtful for successful returning to normal life. Some of the studies have stated that the physical and mental recovery of patients after traffic accidents depends on multiple factors. They usually face various physical, mental, and social problems. Most traffic accident victims had difficulty returning to normal life.

This study shows that most of the traffic accident victims suffer from different types of injuries and disabilities, which can affect their quality of life. These problems may affect the quality of patients' lives and their families (Abedi,2016).

**Analysis of Transport and Vehicular Crash Cases Using the Online National Electronic Injury Surveillance System (ONEISS) from 2010 to 2019**

Transport and vehicular crashes remain a major public health concern in the Philippines, contributing significantly to injury, disability, and death. With the continuous growth of the population, urbanization, and the increasing number of vehicles on the road, the risk of traffic-related incidents has also risen over the years. To better understand the patterns, causes, and impacts of these incidents, the Department of Health (DOH) established the Online National Electronic Injury Surveillance System (ONEISS), a data-driven system designed to monitor and record injury cases across the country. The study of Lu JL et al. (2020) focused on the transport and vehicular crashes in the Philippines as recorded in the DOH-ONEISS database.

The study used a quantitative research method using a descriptive and retrospective epidemiological design. It analyzed secondary data from the (ONEISS) covering January 2010 to June 2019 to describe patterns and trends in transport or vehicular crash (TVC) cases

in the Philippines. The analysis focused on numerical data such as the total number of cases, regional distribution, age and sex of patients, and hospital participation rates. Through statistical summaries and percentages, the study aimed to provide a comprehensive overview of the incidence, demographic characteristics, and hospital reporting trends of vehicular crash cases nationwide.

The result of the study is that most of the cases belong to the 0- to 30-year-old age group. The histogram first peaked for 5-year-olds, while the final peak was for 20-year-olds. The mean age was 29.42 (SD 16.57). A huge majority of TVC patients are males (72.5%), almost 3 times the number of females. For civil status, the two most common were single (62%) and married (36%). Only 1.6% were reported as widowed, and 0.1% were separated. The most common victim types for TVC were driver (45.6%), followed by rear passengers (25.8%), and Pedestrians (13.9%). There were also 11.6% unknown victim types. The most commonly reported activity of TVC patients when involved in a road crash was “leisure” (32.5%). Meanwhile, work-related activities are reported to be at 4.9%. The majority (75.2%) of the TVC patients were brought to the hospital through a private vehicle. Only 15.8% were brought by ambulance, and the least used vehicle was a public vehicle at 0.3%. Also, 99.7% of TVC Patients were alive when brought to the hospital.

This study shows the importance of data-driven policymaking in road safety. The insights gathered from ONEISS should encourage the government to strengthen preventive measures such as driver education, stricter licensing systems, and improved emergency medical response while also ensuring that all hospitals consistently report injury data for better national monitoring (Lu JL et al., 2020).

**Evaluation of Traffic Accidents in the Province of Albay: Basis for Sustainable Traffic Management Framework**

A road traffic accident is any accident involving at least one road vehicle in motion on a public or private road to which the public has the right to access. Road traffic accidents, driven by numerous interconnected risk factors, continue to escalate globally, causing significant injury, death, and disability through collisions involving vehicles, pedestrians, and animals, leading to property damage and fatalities. The study of Echaluce FG and Macabeo MB (2020) focused on determining the causes and risk factors of traffic accidents regarding drivers' behaviors, road conditions, vehicle conditions, traffic signs, and traffic management.

The study used a quantitative descriptive design to analyze and identify specific causes and frequencies of road accidents, which are measurable variables such as types of violations, frequency of incidents, or percentage of causes. Descriptive research design, which is used to describe the characteristics or factors contributing to this case, the causes of road accidents. It aims to present what factors are most common or significant without manipulating variables.

The result of the study revealed that the leading causes of road accidents include overspeeding, misjudgment of distances, and lack of awareness of speed limit laws. Driving under the influence of alcohol, worsened by a social culture that normalizes drinking, also plays a significant role. Additionally, improper overtaking due to failure to gauge distances or signal correctly, unsafe turning habits, and jaywalking, where pedestrians choose convenience over safety by ignoring designated crossings, were found to contribute substantially to road incidents.

This study serves as a strong foundation for developing a sustainable traffic management framework in Albay. It underscores the importance of integrating enforcement, education, and infrastructure improvements to reduce accidents and promote safer road practices for both drivers and pedestrians. Person discipline and lifestyle habits play a very important role in ensuring road safety (Echaluce, FG and Macabeo, MB, 2020).

**Analysis of Factors Affecting Road Traffic Accidents in the City of Makati, Philippines**

Road traffic accidents are one of the leading causes of morbidity and fatality in the Philippines. The number of vehicular accidents has been on a rising trend, doubling from 63,072 incidents in 2007 to 116,906 in 2018. According to the latest WHO data published in 2018, Road Traffic Accident Deaths in the Philippines reached 10,624, which accounted for 1.74% of total deaths in the country. The age-adjusted Death Rate is 11.40 per 100,000 of the population, ranking the Philippines #118 in the world. The study of (Noroña et al.,2020) focused on assessing the factors that affect road traffic accidents and determining the significant relationships between causal factors and accidents, and proposing corresponding strategies to reduce risks of road traffic accidents and minimize fatal and non-fatal injuries therefrom.

This study used quantitative research using survey analysis to determine the total number of Traffic accidents in Makati. In the City of Makati, a premier business district in the Philippines, a total of 210,542 road traffic accidents were recorded based on the Metro Manila Accident Recording and Analysis System (2016), with cars significantly accounting for 51.44%, followed by motorcycles 10.97%, trucks 9.31%, vans 8.92%, jeepneys 5.30% and buses 4.54%. In the same record for 2016, there were 210,542 road traffic accidents, 86.3% were Damage to Property, 13.4% were Non-Fatal Injury, and 0.3% were Fatal. It was unknown if the vehicle type is a factor in each kind of road traffic accident recorded.

The result of the study on road safety can be understood as the result of the safe interaction of participants of traffic with themselves and the environment. It is well-established that driving under the influence of alcohol increases the risk of accident involvement (Borkenstein et al., 1964).

This study shows that when there is a change in a sub-factor, it can also affect the other sub-factors contributing to road traffic accidents. Take a scenario when a female driver

has a longer driving experience than a male driver; still, they can contribute to the same on-road traffic accident occurring along roadways (Noroña et al.,2020).

**Causes of Vehicular Accidents in the Province of Ilocos Sur as Perceived By Police Officers**

Vehicular accidents are unexpected phenomena and consequences that are beyond control, which cause loss of life, injury, or damage to property. They occur anytime at the least expected moments. They happen in split seconds or minutes. The study of Munar and Rosal Jr. (2001) focused on determining the causes of vehicular accidents in the province of Ilocos Sur.

This study used quantitative research, and a questionnaire supplemented with informal interviews with the respondents was used in gathering the data. Frequencies, Percentages, and means were used in the analysis of data. The police officers were asked about the causes of vehicular accidents in the province of Ilocos Sur. Over speeding was the number one cause, as perceived by 75.93% of the respondents. This was followed by “driver under the influence of liquor/drugs” (73.03%); not familiar with the road (55.19%); overtaking (53.94%); slippery road (53.53%); lost brake (36.93%); lack of road/traffic signs and markings (31.12%); poor road conditions (25.31%); overloading (24.48%); miscalculations (20.75%); and reckless driving ( 16.60%). Only a few stated the last two causes: undisciplined driver (2.07%) and ignorance of the right way (1.66%).

The result of the study revealed that most of the causes of vehicular accidents are faults or negligence of the drivers. Over speeding, driver under the influence of liquor, drugs, not familiar with the roads, etc., are due to the faults of the driver. It could be observed that these were the primary causes of vehicular accidents along the national highway of Ilocos Sur. There were also causes outside the control of the drivers, like slippery roads and poor road conditions.

The study showed that most of these vehicular accidents happen on highways, causing loss of lives, injury to pedestrians and/or passengers, or property damage. This study aimed to find out the causes of vehicular accidents, thereby finding out possible solutions/measures accomplished by the PNP and the NGO's to minimize their occurrence. (Munar and Rosal Jr., 2001).

Overall, the global and local studies on road traffic accidents reveal a multi-dimensional problem rooted in human error, weak enforcement, and inadequate infrastructure. Preventive strategies must be multi-pronged, involving legal reforms, stricter monitoring, targeted education, infrastructure development, and rehabilitation support for victims. The Philippines, like many other countries, must focus on both proactive and reactive mechanisms to significantly reduce road traffic injuries and fatalities. Local government interventions include intensified law enforcement, public education campaigns, and infrastructure improvements such as better signage and lighting. However, studies show that these measures remain insufficient in ensuring long-term road safety unless coupled with rigorous implementation and community engagement. Across all studies, a common thread emerges: human behavior is the dominant factor in road accidents. Whether in Romania, India, or the Philippines, driver error, negligence, and law violations are repeatedly cited as root causes. While environmental and infrastructural factors play a role, addressing human error through continuous education, strict law enforcement, and behavioral interventions remains the most effective approach.

## CHAPTER III

## RESEARCH METHODOLOGY

This chapter presents the research design and methodology, population and respondents of the study, data gathering tool, data gathering procedure, data analysis and ethical consideration.

## Research Method and Design

This study employed a quantitative method through a descriptive research design to systematically identify the profile of road accidents in Ilocos Norte.

Quantitative research is an approach for testing objective theories by examining the relationship among variables. These variables, in turn, can be measured, typically on instruments, so that numbered data can be analyzed using statistical procedures (Creswell, 2014).

Quantitative descriptive design is a means of testing objective theories by examining the relationship among variables. These variables can be measured so that numerical data can be analyzed using statistical procedures (Creswell,2013).

## Data and Locale of the Study



The data, composed of the demographic profile of persons involved in the road accidents, the factors that contributed to the accidents, and the disposition of the case by the traffic investigator, were primarily obtained from the Ilocos Norte Police Provincial Office (INPPO) and other police stations in Laoag City, Batac City, San Nicolas, Sarrat, Bacarra, and Pasuquin. The data records from the year 2022 to the first quarter of 2025.

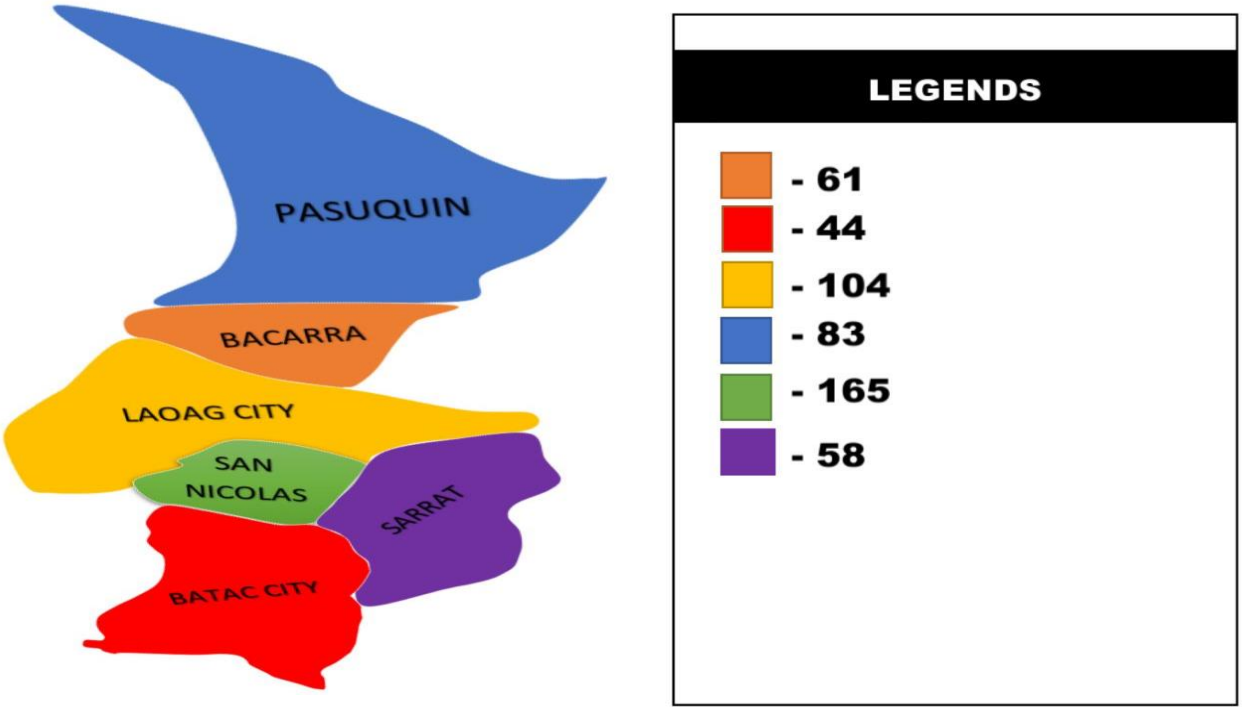


**Figure 2. Data Record of Road Accidents.**



**Data Gathering Tool**

A survey checklist was used in this study, specifically designed to capture relevant information on road accidents. The survey checklist is composed of the following: the demographic profile of the person involved in the road accidents, the factors that contributed to the accidents, and the disposition of the case by the traffic investigator. This tool was developed to ensure the systematic collection of accurate, consistent, and relevant data from each accident case studied. A checklist is a grouping of items by which something may be confirmed or verified. It can be called a behavioural inventory. It is basically a method of recording whether a particular attribute is present or absent, or whether an action has or has not taken place. It consists of a list of steps, activities, or behaviors that the observer records

when an event occurs. The educational and instructional objectives should be kept in mind when preparing and using a checklist (Grounlund,2005).

**Data Gathering Procedure**

The researchers drafted a formal letter addressed to the Ilocos Norte Police Provincial Office (INPPO) to request assistance in checking the records and demographic profiles of individuals involved in road accidents from 2022 to the first quarter of 2025 in two cities and four municipalities within Ilocos Norte. The researchers also drafted formal letters to other police stations in Laoag City, Batac City, San Nicolas, Sarrat, Bacarra, and Pasuquin to obtain additional data and information related to road accidents. After obtaining approval and access to the records, the researchers collected demographic data, including age, gender, occupation, and educational attainment, as well as data on contributing factors categorized into personal, mechanical, and environmental factors, also the disposition of the case by the traffic investigator as to amicable settlement or filed case. The collected data were systematically entered into statistical software for analysis. A checklist was created to guide the process, which included drafting request letters, defining the data collection strategy, determining sampling criteria, conducting the pilot test, collecting data, and analyzing the results. Throughout the research process, ethical considerations were prioritized to ensure the confidentiality of documents or records.



**Treatment of Data**

The gathered data were studied using a systematic approach that collects, analyzes, and interprets data from various sources. The demographic profile is analyzed using frequency and percentage analyses to examine age, gender, education, driver's license type, and civil status of individuals involved in accidents. Contributing factors are prioritized by ranking personal, mechanical, and environmental causes based on the frequency of

occurrence. While the disposition of the case was analyzed using frequency and percentage analyses shows how cases were resolved, including amicable settlements, filed cases, or dismissal. Frequency refers to the number of times a particular event, value, or category occurs in a dataset, providing a basic count of occurrences to identify patterns or trends. The percentage represents this frequency as a proportion of the total, expressed as of 100, allowing for easy comparison across categories or groups. While frequency shows how many times something happened, percentage indicates how much it contributes to the whole. Rank refers to the position or order of a particular item within a dataset when the items are arranged according to a specific criterion, such as size, score, or frequency. Ranking allows researchers to identify the relative standing of each item, making it easier to compare data points and determine priorities or patterns (Bhattacherjee, 2021).

**Ethical Considerations**

Maintaining the confidentiality of documents related to road accidents provided by the Ilocos Norte Police Provincial Office and its affiliated police stations in Laoag City, Batac City, Sarrat, San Nicolas, Bacarra, and Pasuquin was a fundamental ethical responsibility of the research team. The records received contained sensitive information such as personal details and case-related data that needed to be protected from unauthorized access and misuse. The researchers ensured strict compliance with data privacy regulations by securely storing the documents, limiting access only to authorized members of the research team, and using the information exclusively for academic purposes. No identifying details were disclosed in the researchers' analysis, and all data were handled with the highest level of confidentiality. Any information shared outside the research team was anonymized to safeguard the rights and privacy of individuals involved. By responsibly managing these documents and ensuring their confidentiality, the researcher upheld ethical research standards

and reinforced the trust extended to the research team by the police institutions that provided the data.

## Chapter IV

## PRESENTATION, INTERPRETATION, AND ANALYSIS OF DATA

This chapter presents the data gathered, which are shown in tabular and graphical form, accompanied by related interpretations. All data had undergone proper analysis and evaluation.

### Demographic Profile of Respondents

This shows the demographic profile of persons involved in road accidents, including their age, gender, educational attainment, type of driver's license, and civil status.



| AGE | f | % |
|---|---|---|
| 17 years old and below | 16 | 3.11 |
| 18-25 years old | 80 | 15.53 |
| 26-35 years old | 169 | 32.81 |
| 36-45 years old | 115 | 22.33 |
| 46-55 years old | 57 | 11.07 |
| 56 years old and above | 78 | 15.15 |
| **TOTAL:** | **515** | **100%** |

**Table 1. Age of persons involved in the Road Accidents.**

Table 1 shows the demographic profile of person involved in road accidents, showing their distribution based on age.

**Age**. In terms of age, most accident-involved individuals are 26–35 years old (32.81%), followed by 36–45 years old (22.33%), 18–25 years old (15.53%), and 46-55 years old (15.15%). This indicates that young and middle-aged adults are more prone to road

accidents, likely due to their higher level of mobility and driving activity. On the other hand, only 3.11% are 17 years old and below, suggesting fewer incidents among minors.

This indicates that the demographic profile of persons involved in road accidents in Ilocos Norte in terms of age shows that young to middle-aged adults are more exposed to road accidents, due to their high mobility and frequent driving. On the other hand, Minors or individuals under the legal driving age have the lowest cases of involvement in road accidents, mainly because they are less exposed to driving activities. Most underage individuals are not legally permitted to drive and usually rely on parents, guardians, or public transportation for travel, which limits their time on the road. Since they have less responsibility for operating vehicles, their chances of causing or being directly involved in accidents are significantly lower compared to adults.

According to Madhumali NWM et al. (2020). The most common age group involved in Road Traffic Accidents (RTAs) was 26-35 years. Persons in this age range tend to engage in riskier driving behaviors, since many of them own or regularly use vehicles; their higher exposure, combined with lifestyle factors and occasional disregard for traffic rules, makes them the group most commonly involved in road accidents.



**Table 2. Gender of persons involved in the Road Accidents.**

| GENDER | f | % |
|---|---|---|
| Male | 458 | 88.93 |
| Female | 57 | 11.07 |
| **TOTAL** | **515** | **100%** |

Table 2 shows the demographic profile of person involved in road accidents, showing their distribution based on gender.

**Gender.** The data shows a significant disparity, with males accounting for 88.93% of cases compared to females at 11.07%. This suggests that men are more frequently involved in road accidents, possibly because they drive more often or engage in riskier driving behaviors.

It shows that in terms of gender, males are generally more involved in road accidents than females due to several behavioral and social factors. Studies show that men are more likely to engage in risk-taking behaviors, such as overspeeding, aggressive driving, and violating traffic rules, compared to women, who tend to be more cautious on the road.

The study of Olimpia P et al. (2014). Violations and fast driving were reported in many studies more frequently by males than by females. Women were involved in fewer accidents than men. As reported, the characteristics of cases, the distributions of demographic variables, accidents, the vehicle, the road, and other factors were obtained from police records. As far as the gender is concerned, 76% drivers were males, 24% were females. In addition, female drivers were less likely to die or be severely injured. The most likely explanation is the difference in risk-taking behavior between males and females.



**Table 3. Educational Attainment of persons involved in the Road Accidents.**

| EDUCATIONAL ATTAINMENT | f | % |
|---|---|---|
| Elementary Level | 1 | 0.20 |
| High School Level | 107 | 20.78 |
| High School Graduate | 218 | 42.33 |
| College Level | 97 | 18.83 |
| College Graduate | 92 | 17.86 |
| **TOTAL** | **515** | **100%** |

Table 3 shows the demographic profile of person involved in road accidents, showing their distribution based on educational attainment.

**Educational attainment.** This table presents the percentage regarding the educational background of persons involved in road accidents. The High school graduate has 42.33%,

followed by those with high school level education (20.78%). Meanwhile, college-level (18.83%) and college graduate (17.86%), and only 0.20% reached the elementary level. This shows that individuals with secondary education dominate the group of accident-involved drivers.

In this case, the data shows that regarding education, some may lack proper knowledge of traffic rules, safe driving practices, and defensive driving skills, making them more prone to committing violations or misjudging road situations. Limited access to advanced driver education and safety awareness programs also contributes to their higher involvement in accidents compared to individuals with higher educational attainment, who may have better access to road safety information and a stronger sense of responsibility.

According to the study of Afolabi I.B et al. (2020). The findings showed that mostly secondary educational attainment was being exposed to or involved in a vehicular traffic accident. High school graduates or individuals with secondary educational attainment are often more involved in road accidents because this group typically includes young adults who are still gaining driving experience and developing road awareness.



**Table 4. Types of Driver's License of persons involved in the Road Accidents.**

| TYPE OF DRIVER'S LICENSE | f | % |
|---|---|---|
| Student Permit | 40 | 7.77 |
| Non-Professional | 185 | 35.92 |
| Professional | 150 | 29.13 |
| None | 140 | 27.18 |
| **TOTAL** | **515** | **100%** |

Table 4 shows the demographic profile of persons involved in road accidents, showing their distribution based on the types of driver's licenses.

**Types of Driver's License.** The table shows the percentage in terms of the types of driver's licenses. The non-professional license holders represent the highest percentage at 35.92%, followed by professional license holders (29.13%). Interestingly, 27.18% of the

respondents do not have a driver's license, while 7.77% are student permit holders. This highlights a significant concern, as a notable portion of those involved in accidents may lack proper licensing or driving experience.

The data shows that most road accidents involve drivers with non-professional driver's licenses because these drivers generally have less training, limited driving experience, and less exposure to formal road safety education compared to professional drivers. Non-professional license holders are often private vehicle owners who drive occasionally and may not undergo the same rigorous training, testing, and defensive driving courses required for professional drivers. Many of them are also younger individuals who tend to be more prone to risky behaviors, such as overspeeding, distracted driving, and disregarding traffic rules.



According to the study of Bahar O et al. (2010), driving is a more self-paced task for non-professional driver's and they can largely determine the difficulty and risk level of their driving. A vast amount of studies have been conducted to understand the nature of on-the-road behaviours and their relationships to traffic accidents among non-professional drivers. It aims that investigate the differences among driver groups of professional and non-professional in terms of stress reactions, speeding, number of penalties, and accident involvement, and to examine the relationships between driver stress and risky driving.

**Table 5. Civil Status of persons involved in the Road Accidents.**

| CIVIL STATUS | f | % |
|---|---|---|
| Single | 254 | 49.31 |
| Married | 203 | 39.42 |
| Widowed | 17 | 3.30 |
| Separated | 23 | 4.47 |
| Divorced | 18 | 3.50 |
| **TOTAL** | **515** | **100%** |

Table 5 shows the demographic profile of person involved in road accidents, showing their distribution based on civil status.

**Civil Status**, This table shows that nearly half of the respondents are single (49.31%), followed by married individuals (39.42%). Smaller proportions include separated (4.47%), widowed (3.30%), and divorced (3.50%) respondents. The dominance of single individuals suggests that younger, independent drivers are more likely to be involved in road accidents.

This indicates that most persons involved in road accidents were single. It can also be explained by demographic and lifestyle factors. Many single people, particularly those in their 20s and 30s, belong to the most active age group when it comes to driving and traveling. They often have busy social lives, work commitments, and personal activities that require frequent mobility, which naturally increases their chances of encountering road hazards.



According to the study of Lu JL et al. (2020). The majority of the patients were single individuals, and they are more likely to drive at night, attend social events, and travel longer distances, which exposes them to higher accident risks. Unlike married individuals, who may have more responsibilities at home and are often more cautious on the road, single drivers may have fewer constraints, leading to increased opportunities for risk-taking behaviors.

Overall, the data reveal that the majority of those involved in road accidents are young adult males, mostly high school graduates, with a significant number holding non-professional licenses or no license at all. These findings suggest the need for stricter traffic enforcement, road safety education, and licensing regulations to reduce accident risks, especially among younger drivers.

**Factors that Contributed to Road Accidents**

The data presents the factors that contributed to road accidents, ranked according to their frequency and significance as to personal, mechanical, and environmental factors.

**Table 6. The Personal Factors that contributed to the road accidents.**

| FACTORS | f | RANK |
|---|---|---|
| Over speeding (Personal Factors) | 123 | 1 |
| Miscalculation (Personal Factors) | 114 | 2 |
| Influence of Alcohol (Personal Factors) | 70 | 3 |
| Overtaking (Personal Factors) | 54 | 4 |
| Inexperience/Lack of Driving Skills (Personal Factors) | 46 | 5 |
| Encroached Lane (Personal Factors) | 20 | 7 |
| Sudden Turn (Personal Factors) | 10 | 9 |
| Tailgating (Personal Factors) | 5 | 11 |
| Influence of Drugs (Personal Factors) | 0 | 0 |
| Fatigue (Personal Factors) | 0 | 0 |
| Distrusted Driving (Personal Factors) | 0 | 0 |

Table 6 shows the various causes of road accidents as to personal factors, along with their corresponding rankings based on their frequency and impact.

The table presents the personal factors contributing to road accidents, and these show overwhelmingly high frequencies compared to mechanical and environmental factors. Over speeding tops the list with (123 cases) and a ranking of first, followed by miscalculation with (114 cases) and a ranking of second, and the influence of alcohol with (70 cases) and a ranking of third. Other significant contributors include overtaking (54 cases) and a ranking of fourth, inexperience or lack of driving skills (46 cases) and a ranking of fifth, and encroached lanes (20 cases) and a ranking of seventh. Lesser but still noteworthy factors include sudden turns (10 cases) and a ranking of ninth and tailgating (5 cases) and a ranking of eleventh, while the influence of drugs, fatigue, and distracted driving recorded no occurrences. This pattern indicates that human error and irresponsible driving behaviors are the major causes of road accidents. The high frequencies emphasize the need for stronger driver education, strict enforcement of traffic rules, and awareness campaigns targeting common risky behaviors.

This shows that personal factors such as overspeeding, miscalculation, alcohol influence, overtaking, and inexperience are the leading causes of road accidents in Ilocos

Norte. This highlights the need for stricter traffic enforcement, better driver education, proper road maintenance, and vehicle safety checks to reduce accidents and improve road safety. Personal discipline and lifestyle habits play a very important role in ensuring road safety. When drivers are careless, distracted, or reckless, they put not only themselves but also other people at risk. Being responsible and disciplined while driving is essential to preventing accidents and keeping the roads safe for everyone.

According to the study of Echaluce FG and Macabeo MB (2020). Mostly, the causes of road accidents include overspeeding, miscalculation, and Awareness of speed limit laws, driving under the influence of alcohol, exacerbated. By the prevalent social culture of alcohol consumption, bad overtaking practices are resulting from failure to gauge distances and signal properly, improper turning habits, and jaywalking, with pedestrians opting for convenience over safety by disregarding designated crossing.

**Table 7. The Mechanical Factors that contributed to the road accidents.**

| FACTORS | f | RANK |
|---|---|---|
| Brake Malfunction (Mechanical Factors) | 9 | 10 |
| Defective Lights (Mechanical Factors) | 1 | 13 |
| Windshield wipers malfunction (Mechanical Factors) | 0 | 0 |
| Engine Failure (Mechanical Factors) | 0 | 0 |
| Tire Failure (Mechanical Factors) | 0 | 0 |
| Steering Failure (Mechanical Factors) | 0 | 0 |
| Horn Malfunction (Mechanical Factors) | 0 | 0 |

Table 7 shows the various causes of road accidents as to mechanical factors, along with their corresponding rankings based on their frequency and impact.

The data presented in the table highlights the mechanical factors that contributed to road accidents. Among the listed mechanical issues, brake malfunction appears to be the only significant factor, with a frequency of (9 cases) and a ranking of tenth in overall importance, and defective lights with a frequency of (1case) and a ranking of thirteenth. All other

mechanical factors, such as engine failure, steering failure, tire failure, and horn malfunction, recorded zero occurrences. This finding implies that mechanical issues played a minimal role in the road accidents investigated, suggesting that vehicles involved were mostly in proper working condition or regularly maintained. The low frequency also suggests that, compared to other categories of factors, mechanical defects are not a major determinant of road accidents within the locality or period studied.

This shows that mechanical factors such as brake malfunction and defective lights are the most contributing cause of road accidents, indicating that many vehicles on the road are poorly maintained or not regularly inspected. This implies that accidents can be reduced through proper vehicle servicing, stricter roadworthiness checks, and increased awareness of the importance of maintenance.

The study of Zhang et al. (2018) examined truck accidents on highways in China and found that brake malfunction was a leading mechanical factor contributing to road crashes. The research highlighted that vehicles with faulty braking systems were more likely to be involved in high-severity collisions, particularly on steep slopes or during sudden stops. The study emphasized that proper maintenance and timely inspection of brake systems are critical in preventing such accidents, as drivers often have little to no control once brake failure occurs. This study underscores the importance of addressing mechanical reliability, especially in commercial vehicles, to reduce the risk and severity of road accidents.

| FACTORS | f | RANK |
|---|---|---|
| Poor Lighting (Environmental Factors) | 30 | 6 |
| Sudden Entry/ Road Crossing (Environmental Factors) | 20 | 7 |
| Slippery Road (Environmental Factors) | 11 | 8 |
| Obstruction on the Road (Environmental Factors) | 2 | 12 |
| Pavements (Environmental Factors) | 0 | 0 |
| Lack of Signage/ Markings (Environmental Factors) | 0 | 0 |
| Road Works (Environmental Factors) | 0 | 0 |

| | | |
|---|---|---|
| Debris (Environmental Factors) | 0 | 0 |
| Weather Conditions (Environmental Factors) | 0 | 0 |
| Animal Crossing (Environmental Factors) | 0 | 0 |
| Unexpected Pedestrian Crossing (Environmental Factors) | 0 | 0 |

**Table 8. The Environmental Factors that contributed to the road accidents**

Table 8 shows the various causes of road accidents as to environmental factors, along with their corresponding rankings based on their frequency and impact.

In this table, the environmental factors contributing to road accidents reveal a different trend. Poor lighting ranked highest in this category, with 30 recorded cases and a ranking of sixth, followed by sudden entry or road crossing with 20 cases and a ranking of seventh and slippery roads with 11 cases and a ranking of eighth. Minor contributions include road obstructions with (2 occurrences) and a ranking of twelfth, while all other environmental factors, such as pavements, road works, debris, weather conditions, and animal or unexpected pedestrian crossings, recorded zero frequencies and are not in ranking. These results indicate that environmental conditions, especially inadequate lighting and unsafe pedestrian or road-crossing behavior, pose considerable risks to road safety. The absence of data in many environmental subcategories suggests that although environmental factors do influence accidents, they are limited to specific and recurring issues that need targeted intervention.

This shows that environmental factors such as poor lighting, sudden entry, slippery roads, and road obstructions are the main contributors to road accidents, indicating that the road environment itself poses significant risks to drivers. This implies the need for improved road lighting, better signage, regular clearing of road obstructions, and enhanced road surface maintenance to reduce accidents and improve overall road safety.

According to Elvik (2019), inadequate road lighting is a significant contributor to traffic accidents, particularly during nighttime. His meta-analysis of multiple international

studies found that poorly illuminated roads substantially increase the likelihood of crashes, as drivers' ability to detect obstacles, pedestrians, and other vehicles is impaired under low visibility conditions. Improving street lighting, on the other hand, was shown to reduce nighttime accidents by up to 30–50%, demonstrating the critical role of proper illumination in enhancing road safety.

Overall, the data reveals that road accidents are primarily driven by personal factors, with speeding emerging as the most frequent cause, indicating that risky driving behavior is the major contributor to accidents. In comparison, mechanical factors play a minimal role, as brake malfunction is the highest in its category yet occurs far less often, suggesting that vehicle defects are not a significant source of accidents. Environmental factors show moderate influence, with poor lighting identified as the most common issue, highlighting that certain road conditions still pose safety risks, especially in low-visibility areas. When combined, these findings reveal that while environmental and mechanical issues contribute to road accidents, the overwhelming majority stem from human behavior, emphasizing the need for improved driver discipline, stricter enforcement of traffic regulations, and targeted safety interventions to reduce accident occurrence.



**Disposition of the case by the Traffic Investigation**

This data presents the disposition of cases handled by the traffic investigator, showing the distribution of cases resolved through amicable settlement and filed cases.

**Table 9. The disposition of the case by the traffic investigators as to an amicable settlement.**

| AMICABLE SETTLEMENT | f | % |
|---|---|---|
| Restitution | 334 | 64.85 |
| Reparation | 157 | 30.49 |

Table 9 shows the disposition of cases handled by the traffic investigator, showing how road accident cases were resolved through amicable settlement.

From the table, the cases were resolved through amicable settlement. Restitution accounts for (334 cases) 64.85% of all settlements, while reparation makes up (157 cases) 30.49%, indicating that most accident cases were settled privately between parties rather than pursued in court. This suggests a preference for swift and less adversarial resolution methods, possibly due to cultural norms, financial considerations, or the desire to avoid lengthy legal processes.

This shows that amicable settlements, such as reparation and restitution, those cases are resolved through restitution and reparation. It indicates that the involved parties prefer a peaceful resolution rather than pursuing formal legal action. This implies effective negotiation by investigators, reduced court congestion, faster case closure, and restored relationships between parties, as compensation or agreement is reached without further conflict.



According to the study of Cayabyab (2018) on road-traffic incidents handled by local police stations in Northern Luzon found that the majority of non-fatal road-accident cases were resolved through amicable settlement and restitution, usually facilitated by the police. The research noted that parties involved commonly preferred financial restitution, such as payment for vehicle damage, medical expenses, or repair costs, instead of pursuing formal court action. According to the study, this preference for restitution was driven by factors such as faster resolution, avoidance of legal fees, and the desire to maintain community harmony, especially in provinces where parties often know each other. The findings indicate that restoration of loss through restitution remains the predominant method of resolving minor to moderate road-accident cases in many Philippine provinces.

**Table 10. The disposition of the case by the traffic investigators as to the filed case.**

| FILED CASE | f | % |
|---|---|---|
| Undergoing trial | 13 | 2.52 |
| Conviction | 1 | 0.20 |
| Acquittal | 10 | 1.94 |

Table 10 shows the disposition of cases handled by the traffic investigator, showing how road accident cases were resolved as to filed cases.

The table shows that very few cases resulted in formal filing, with only 13 cases (2.52%) undergoing trial, 1 case (0.20%) ending in conviction, and 10 cases (1.94%) in acquittal. This implies that only a small proportion of incidents escalate to legal proceedings, reinforcing the observation that most parties involved in road accidents prefer amicable resolution over litigation.

When most cases are resolved through filed cases, such as undergoing a trial and resulting in a conviction. It indicates that the incidents require formal legal action due to their seriousness or lack of agreement between parties. This implies stricter accountability for offenders, stronger enforcement of the law, and a greater reliance on the judicial process to ensure justice and proper resolution of road-related cases.

According to the study of Mendoza and Roces (2019) analyzed traffic-related criminal cases in selected provinces in Northern Luzon and found that cases involving serious physical injuries or homicide due to reckless imprudence commonly proceeded to formal court trial because they required judicial determination of negligence, liability, and penalties under the Revised Penal Code. The authors emphasized that while minor traffic incidents were often settled amicably at the police level, grave road-accident cases typically advanced to trial, especially when victims sought criminal accountability or compensation through legal channels. Although the study did not focus solely on Ilocos Norte, its findings reflect similar trends observed in police case monitoring reports within the region.

Overall, it revealed that most road accident cases are resolved through amicable settlements, with restitution being the most common outcome, indicating that involved parties typically choose to settle matters privately through compensation rather than pursue formal legal actions. In contrast, Table 10 reveals that only a very small number of cases proceed to the legal system, with trial being the most frequent outcome among those formally filed, though still minimal compared to amicable settlements. This pattern suggests a strong preference for cooperative, non-adversarial resolutions and highlights that formal judicial processes, such as conviction or acquittal, are rarely utilized in handling road accident cases.



# INFORMATIVE VIDEO: "ROAD SAFETY RULES ARE YOUR BEST TOOLS"

**Rationale**

Road accidents are a common issue in the Province of Ilocos Norte. The Comprehensive Profile of Road Accidents aims to provide actionable insight that can inform policy development and community-based intervention, and also to reduce the number of accidents or injuries on the road and improve road safety.

Based on the results of the study, personal factors are the common reasons for road accidents, such as speeding, miscalculation, the influence of alcohol, overtaking, and inexperience. Additionally, there are a lot of violators who are irresponsible for driving, lack discipline in terms of driving, and lack knowledge about the traffic rules and traffic safety. This emphasizes the importance of stricter traffic enforcement, improved driver education, road maintenance, and vehicle safety checks. Lastly, due to inadequate information dissemination, many drivers are unaware of the importance of traffic rules and regulations and the safety of the individual who is responsible for driving and to address this issue, the researchers created an informational video as part of the study's output to enhance risk awareness or promote awareness in terms of road accidents.



The output is an informative video titled **"Road Safety Rules Are Your Best Tools,"** which has the goal of encouraging drivers to follow traffic rules to reduce road accidents.

**Objectives**

- Inform viewers about essential traffic rules and regulations that help prevent accidents and protect all road users.
- To raise awareness about risky driving behaviors, promote responsible road practices, and encourage individuals to follow safety guidelines as part of their daily travel.

### Strategy

The researchers designed an informational video about traffic and road safety rules and collaborated with the College of Criminal Justice Education to upload it on their official Facebook page for wider dissemination of road safety information.

## Chapter V

## SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents a summary of the findings from Chapter IV, where conclusions and recommendations were developed based on the data gathered and analyzed. The chapter begins by reviewing the key findings of the study, highlighting the most significant results. It then proceeds to present the conclusions drawn from the data. Finally, the chapter outlines recommendations for future research and practice, based on the insights gained from the study.



### Summary

The data analysis and results obtained showed that most individuals involved in road accidents in Ilocos Norte were males (88.93%), aged 26–35 years old (32.81%), high school graduates (42.33%), non-professional license holders (35.92%), and single (49.31%). Personal factors were identified as the top contributors to accidents, particularly overspeeding, miscalculation, the influence of alcohol, overtaking, and inexperience, while environmental and mechanical factors contributed less. Most accident cases were resolved through amicable settlements, mainly through restitution, with reparation as the second most common option.

### Conclusions

Based on the findings of the study, the following conclusions were drawn:

The data revealed that the majority of those involved in road accidents are young adult males, mostly high school graduates, with a significant number holding non-professional licenses or no license at all. These findings suggest the need for stricter traffic enforcement, road safety education, and licensing regulations to reduce accident risks, especially among younger drivers.

The data revealed that road accidents are primarily driven by personal factors, with speeding being the most frequent cause, indicating that risky driving behavior is the major contributor to accidents. In comparison, mechanical factors play a minimal role, as brake malfunction is the highest in its category yet occurs far less often, suggesting that vehicle defects are not a significant source of accidents. Environmental factors show moderate influence, with poor lighting identified as the most common issue, highlighting that certain road conditions still pose safety risks, especially in low-visibility areas. When combined, these findings reveal that while environmental and mechanical issues contribute to road accidents, the overwhelming majority stem from human behavior, emphasizing the need for improved driver discipline, stricter enforcement of traffic regulations, and targeted safety interventions to reduce accident occurrence.

According to the data, it revealed that most road accident cases are resolved through amicable settlements, with restitution being the most common outcome, indicating that involved parties typically choose to settle matters privately through compensation rather than pursue formal legal actions. In contrast, it revealed that only a very small number of cases proceed to the legal system, with trial being the most frequent outcome among those formally filed, though still minimal compared to amicable settlements. This pattern suggests a strong preference for cooperative, non-adversarial resolutions and highlights that formal judicial processes such as conviction or acquittal, are rarely utilized in handling road accident cases.

## Recommendations

The researchers recommend the following based on the data gathered.

- Drivers are recommended to practice safe driving and regularly maintain their vehicles by checking brakes, lights, and tires to prevent mechanical failures because these actions significantly reduce the likelihood of road accidents.
- Road users are recommended to follow speed limits, practice defensive driving, and participate in safety training because these behaviors promote discipline and reduce risky actions that often lead to road accidents.
- The LTO is recommended to expand community-based education programs and strengthen license testing standards to enhance drivers' knowledge and hazard awareness, ultimately reducing unsafe driving practices. Targeted campaigns for specific age groups further ensure that high-risk drivers receive appropriate guidance to promote safer roads.
- The PNP and LGUs should improve investigator training and promote proper documentation of accident settlements to ensure fair, transparent, and lawful handling of road incidents. They should also implement penalty awareness drives to discourage over speeding and reinforce responsible driving behavior.
- The DPWH is recommended to upgrade road design, improve signage, and conduct regular inspections and repairs to eliminate hazards that contribute to accidents. Installing traffic-calming devices such as speed bumps and rumble strips helps control speeding, making roads safer for all users.

## REFERENCES

Abedi, H.A., Bastami, A., Khankeh, H.R., Saadat, S., Sabet, F.P., & Tabrizi, K.N. (2016). Road Traffic Accident Victims' Experiences of Return to Normal Life: A Qualitative Study https://doi.org/10.5812/ircmj.29548

Afolabi L.B., Mansir B.A, Abdullahi L.A., Aremu A.B, Omogbadegun O.R., Maidoki L.A., Galadima A., Yahaya S.S., and Atulomah N.O.(2020). Predisposing- Personal Factors Associated with Passenger Safety and Safe Riding Behaviors Among Cyclists (Boda Boda Riders) in Kampala. http://dx.doi.org/10.21474/1JAR01/13148

Aggarwal, P., Gupta, D., Kakkar, M., & Kakkar, R. (2014). Road Traffic Accident: Retrospective Study https://doi.org/10.11604/pamj.2020.36.24.21754

Chang, F. R., Huang, H. L., Schwebel, D. C., Chan, A. H. S., & Hu, G. Q. (2020). Global road traffic injury statistics: Challenges, mechanisms and solutions. Chinese journal of traumatology = Zhonghua chuang shang za zhi, 23(4), 216–218. https://doi.org/10.1016/j.cjtee.2020.06.001

Cioca, L., & Ivascu, L.(2017). Risk Indicators and Road Accident Analysis for the Period 2012–2016 https://doi.org/10.3390/su9091530

Creswell,J.W.(2013). Quantitative descriptive design https://www.ucg.ac.me

Creswell, J.W.(2014). Quantitative research method https://doi.org/10.5539/elt.v12n5p40

Echaluce, F., & Macabeo, M. (2020). Evaluation of Traffic Accidents in the Province of Albay: Basis for Sustainable Traffic Management Framework. JPAIR Multidisciplinary Research, 55(1), 137-161. https://doi.org/10.7719/jpair.v55i1.487

Grounlund (2005). The Complete Survey Design Checklist https://survicate.com

Khanzode(2012). The Domino Theory was proposed by H.W. Heinrich in the 1930s

https://www.onecaribbean.orgDOCdominotheory.doc

Khanzode, V. V., Maiti, J., & Ray, P. K. (2012). Occupational injury and accident research: A comprehensive review. Safety Science, 50(5), 1355–1367 https://doi.org/10.1016/j.ssci.2011.12.015

Lu, J. L., Herbosa, T. J., & Lu, S. F. (2020). Analysis of transport and vehicular crash cases using the Online National Electronic Injury Surveillance System (ONEISS) from 2010 to 2019. Acta Medica Philippina, 56(1). https://doi.org/10.47895/amp.v56i1.3874

Madhumali, N. W. M., Bandaranayaka, H. M. T., Hashari, G. C., Ayesha, H. K. B., Rathnayaka, R. M. K. P., Withana, I. U. M., ... & Jayasekara, J. M. K. B. (2020). Identification of risk factors for road traffic accidents using injured drivers: a cross-sectional study conducted in Sri-Lanka. International journal of community medicine and public health, 8(9), 4232-4239. https://dx.doi.org/10.18203/2394-6040.ijcmph20213524

Munar, D., & Rosal, Jr.E.(2001). Causes of Vehicular Accidents in the Province of Ilocos Sur as Perceived by Police Officers

http://dx.doi.org/10.69566/ijestm.v10i1.147

Nickerson,C.(2025). Social Cognitive Theory was developed by Albert Bandura.

https://www.simplypsychology.org

Norona, M., Rodriguez, R., & Villamaria, J. (2021, April). Analysis of Factors Affecting Road Traffic Accidents in the City of Makati Philippines. In 2nd South American International Conference on Industrial Engineering and Operations Management, https://doi.org/10.46254/SA02.20210602.

Nurhadinata, A., Wibowo, C., Harmono, H., & Dimyati, A. (2024). Law Enforcement of Police Discretion to Resolve Traffic Accidents at the Investigation Level. INJURITY: Journal of Interdisciplinary Studies, 3(9), 580-587. https://doi.org/10.58631/injurity.v3i9.298

Öz, B., Özkan, T., & Lajunen, T. (2010). Professional and non-professional drivers' stress reactions and risky driving. Transportation research part F: traffic psychology and behaviour, 13(1), 32-40. https://doi.org/10.1016/j.trf.2009.10.001

Pino, O., Baldari, F., Pelosi, A., & Giucastro, G. (2014). Risk factors of road crash: An empirical analysis among an Italian drivers sample. International Journal of Innovation and Applied Studies, 5(4), 301. http://www.issr-journals.org/ijias/

Schunk.,& Dibenedetto (2023). Cognitive Theory of Mind. https://consensus.app

Shahab(2012). Multiple Causation Theory. https://hseindia.wordpress.com