



Unveiling Restorative Justice Regulation in A Traffic Accident Crime based on Pancasila Justice

Eva Yuliana

Faculty of Law, Universitas Sebelas Maret, Surakarta, Indonesia
Ir. Sutami street, No. 36 Kentingan, Jebres, Surakarta, Jawa Tengah, Indonesia 57126
evayuliana@student.uns.ac.id

Hartiwiningsih Hartiwiningsih

Faculty of Law, Universitas Sebelas Maret, Surakarta, Indonesia
Ir. Sutami street, No. 36 Kentingan, Jebres, Surakarta, Jawa Tengah, Indonesia 57126
hartiwiningsih@staff.uns.ac.id

I Gusti Ayu Ketut Rachmi Handayani

Faculty of Law, Universitas Sebelas Maret, Surakarta, Indonesia
Ir. Sutami street, No. 36 Kentingan, Jebres, Surakarta, Jawa Tengah, Indonesia 57126
ayu_igk@staff.uns.ac.id

Abstract— If the parties involved reach a peace agreement, the Traffic and Road Transport Law permits the resolution of criminal acts and traffic accidents through non-judicial means. Nevertheless, this approach does not halt the criminal procedure in court. This research aims to determine the National Police's discretion in terminating investigations by incorporating the concept of restorative justice, a foundational principle of Pancasila justice. This research is normative and employs a legal and conceptual framework. The statutory regulatory approach entails an examination of all statutory regulations relating to traffic accident offenses. A conceptual approach is used to analyze the concepts and theories of justice, restorative justice, and punishment. This research's results indicate that courts continue to resolve traffic accident offenses today. The reconciliation between the perpetrator and the victim of a traffic accident offense is solely a mitigating factor in the courtroom. Consequently, a more comprehensive law is required to address criminal traffic incidents by intervening in all law enforcement agencies by Pancasila values. Police investigations can conclude without depending on the discretionary and transparent system's norms.

Keywords—Restorative Justice, Traffic Accident, Pancasila Justice.

I. INTRODUCTION

A traffic accident is an unforeseen and accidental occurrence on the road that involves a vehicle, whether or not other road users are present, and leads to human casualties and property damage. Traffic accidents on highways lead to uncertainty. This uncertainty may influence victims' and suspects' material and immaterial losses.[1] This type of situation results from a combination of human factors (such as mechanical failures or faults) and natural factors (weather conditions or damaged roads), which can occur at any time and location. People frequently refer to this feeling of insecurity as "risk." The advent of social risks closely correlates with the escalation of societal issues.[2]

Prioritizing legal positivism has generally led to successful traffic accident management. However, implementing an investigation system based on a positivistic paradigm may not always positively impact the justice of a motorcyclist who does not fall under the child category.[3] The individual, who was riding piggyback with his mother, faced legal proceedings for his negligence in failing to observe the flow of vehicles in front of him, even though the deceased victim was his biological mother. Of course, this situation does not provide justice for motorcyclists, even though the rider eventually acknowledges his negligence. This issue then prompts investigators to conduct the legal process in a normative manner without prioritizing the social and moral aspects experienced by the individual. The investigators took this action because Indonesia's criminal procedural law does not yet technically regulate the resolution of cases that differ from its guidelines.[4]

Punishment fundamentally reflects a society's moral system, human values, and philosophical beliefs at a specific juncture. Consequently, issues related to the criminal system must be addressed from three distinct perspectives: philosophical, sociological,

and criminological. Article 234-236 of the Traffic and Road Transport Law permits the optional settlement of criminal traffic incidents outside of court, provided that the parties involved reach an amicable agreement.[5] However, the comprehensive derivative regulations do not dictate the criteria and conditions for out-of-court resolutions. Consequently, each agency has its own set of rules and standards for implementing settlements. The National Police Chief Regulation No. 6 of 2019 pertains to criminal investigation, while the Prosecutor's Regulation No. 15 of 2020 governs the termination of prosecution through restorative justice. In addition, the Criminal Procedure Code has not provided a comprehensive regulation for resolving criminal acts outside of court.[6]

For instance, this presents a new challenge for the police, as they must balance providing the highest quality service to the community and adhering to the current traffic law enforcement system, as outlined in Traffic Law Number 22 of 2009. The police are currently facing a perplexing situation in this regard. The community insists on resolving all accident cases at the police level to avoid judicial punishment, even though adhering to the procedure necessitates court proceedings in all cases. In resolving traffic accident cases, the police prioritize the public interest, which reduces social conflict based on the principle of public interest (opportunity). Accident investigators may take actions that marginally deviate from the enacted legislation, particularly Law Number 22 of 2009.[7]

Investigators' actions are part of the penal mediation concept, founded on the principles of victim protection, harmonization, restorative justice, overcoming rigidity or formality in the current system, and avoiding the adverse effects of the justice system. This concept is relevant to the current criminal system and criminal law, particularly in seeking alternatives to prison sentences. Penal mediation is a component of the investigation team's efforts to resolve accident cases that have occurred so far. The process of renewing or perfecting a legislative construction involves penal mediation. Consequently, the process of resolving criminal cases outside the judicial process through a mediator is penal mediation.[8]

The lack of synchronization in the rules for resolving traffic offense cases and their implementation stems from multiple regulations and standards. In reality, numerous cases end in court. In 2022, the Supreme Court will adjudicate 54,784 traffic accident cases out of over 100,000. The data presented above indicates that a relatively high number of incidents result in court proceedings. Regrettably, the formal justice system, which involves the resolution of cases through a court verdict, is a slow process for law enforcement. The process must pass through lengthy stages and levels, including the police, prosecutor's office, district court, high court, and supreme court, where appeals and cassations are conducted. In other words, people perceive the judiciary's resolution of traffic accident cases as excessively formal and technical, leading to time wastage and reduced responsiveness to public interests. Furthermore, the Indonesian criminal justice system is currently overcapacity, resulting in additional issues related to facilities and infrastructure. Conversely, the substantial number of inmates in prisons and detention centers also influences the state budget.[9]

In Indonesian criminal law, the application of retributive justice is typically the main focus of case resolution.[10] However, this retributive justice approach requires reform. Restorative justice, an alternative solution to criminal issues, offers a hopeful path. It prioritizes the resolution of conflicts and the establishment of equilibrium in society. Indonesia's criminal justice system continues prioritizing the rights of suspects or defendants, a practice known as offender orientation. The criminal justice system's tendency to be offender-oriented necessitates a solution concept that is not offender-oriented.[11]

The conditions above lead to resolving traffic accident cases without ensuring justice, legal certainty, or legal benefits for both victims and perpetrators. This is directly opposed to Pancasila's principles and does not reflect them. Therefore, it is crucial to explore the concept of restorative justice. This exploration is not just a suggestion, but a necessity.[12] Restorative justice, which mirrors legal justice in this case, stems from the principles of Pancasila. Pancasila serves as a "way of life" and the cornerstone of all legal sources, guiding the implementation and use of legislative regulations. The resulting law must incorporate the values of Pancasila. The five interconnected precepts of Pancasila serve as the foundation for law. The proposed resolution aims to resolve criminal cases within the framework of restorative justice. A restorative justice approach emphasizes the conditions necessary to establish justice for both perpetrators and victims. Restorative justice is a concept that involves parties who have an interest in the criminal act that occurred (victim, perpetrator, victim's family, perpetrator's family, community, and mediator) in order to resolve problems or conflicts.

II. METHOD

This normative research generates novel theories, concepts, or arguments as recommendations for resolving existing issues. This research employs a conceptual approach, a statutory approach, and a case approach. The statutory regulatory approach entails an examination of all statutory regulations relating to traffic accident offenses.[13] A conceptual approach is employed to conduct an analysis predicated on justice, restorative justice, and punishment concepts and theories. Analytical techniques are used to analyze and process data to identify patterns, relationships, and information from existing legal regulations in conjunction with the proposed concept of restorative justice.[14]

III. RESULT AND DISCUSSION

A. Restorative Justice in Police Institutions and Institutional Rules

Criminal justice applies rigorous evidence rules encompassing all constitutional boundaries to determine an individual's guilt. This process culminates in a courtroom examination. The formulation of this model subsequently complicates the assessment of criminal cases in court. The examination process in court is typically lengthy, convoluted, one-sided, and complicated, as stated in the normative rules of the Criminal Procedure Code. Additionally, law enforcement officials frequently disregard the rights of victims and defendants during the examination process due to their excessively normative approach, which neglects to consider factors beyond the scope of the law. During court examinations, law enforcers occasionally disregard the rights of victims and defendants due to their excessive normativeness, which excludes factors not explicitly addressed by the law.[15]

Investigators from the National Police can conduct penal mediation through peace between victims and suspects in traffic accident cases where material losses occur. The National Police can halt or continue a criminal justice case for specific reasons. Article 18, paragraphs (1) and (2) of Law No. 2 of 2002 concerning the National Police of the Republic of Indonesia serve as the legal foundation. When examined from a theoretical and practical perspective, the concept of restorative justice or penal mediation, which involves resolving cases outside of court, represents a novel dimension. When analyzed from a practical standpoint, penal mediation will be associated with achievements in justice. Over time, the volume of cases in all forms and variations entering the court has increased, resulting in a burden for the court in examining and deciding cases by the principle of "simple, fast, and low-cost justice" without compromising the goal of justice, which is certainty, law, expediency, and justice. Does the court need to register and resolve all types of criminal cases, or can it resolve specific cases through penal mediation? This is permissible in penal mediation and polarization mechanisms, provided that the parties (victim and suspect) genuinely desire it and serve broader objectives, such as maintaining social harmony.[16]

Before issuing a police report, the police exercise discretionary authority to resolve traffic accident cases outside of court. Only victims with minor injuries or minimal material loss are eligible for traffic accident cases in this case. In this instance, the resolution mechanism involves the police investigator convening the perpetrator and the victim to discuss the resolution of the selected case. Suppose the perpetrator and victim agree to make peace, and the perpetrator is willing to compensate for material and immaterial losses. In that case, the investigator creates a written peace agreement on a stamp and signs it with known witnesses. The investigator then documents the traffic accident case in the register book and maintains it in a safe location. Nevertheless, the case is pursued by the mechanism for resolving traffic accident cases as outlined in the law if the perpetrator and victim cannot reach an agreement.[17]

The police exercise discretionary authority in resolving traffic accident cases when they issue a police report. The victim sustained severe injuries and passed away. The case can be resolved by providing first aid to the victim and transporting them to the hospital. During treatment, it is feasible to negotiate a peaceful resolution or determine the traffic accident outside of court with the perpetrator, the victim, and the victim's successors. Once the parties have agreed to reconcile, the perpetrator, victim, and known witnesses sign a written peace agreement on a stamp. The Deputy Chief of Police, the Head of Traffic, the Head of Intelligence, the Head of Police, Provos, the Head of Traffic Police, and Traffic Police investigators are all present as detectives continue examining witnesses, suspects, and confiscating evidence. After that, the police department will file a new case. The case results were communicated to the police chief to determine whether the case could be resolved outside of court or if it should proceed through the criminal justice system.[18] Each participant in the case provided their perspective on the outcome. Suppose the Chief of Police permits the resolution of a traffic accident case outside of court based on the facts and opinions of the case participants. In that case, the investigator will still complete the investigation report and will not send a letter notifying the public prosecutor of the investigation's commencement. Subsequently, the investigator accurately documents the traffic accident case in the register book.[19]

Individual discretion refers to operational officers' discretionary actions taken directly in the field without seeking instructions or decisions from their superiors. Conversely, actions to set aside cases, detain or not detain suspects or perpetrators of law violations, or halt the process are considered discretionary. An investigation represents a type of bureaucratic discretion where the wisdom of the organization's leadership or superiors informs or influences discretionary decision-making, interpreted as a mutual agreement between them. The resolution of traffic accident cases through deliberation among the parties involved in the accident is one example of individual police discretionary authority. Due to a lack of intent, police discretion can resolve traffic crime cases with negligence as the sole element.[20]

Penal mediation is one of the ADR mechanisms in criminal law. Deliberation leads to an out-of-court settlement, known as alternative dispute resolution (ADR). Penal mediation is a viable alternative to prosecution that offers the potential for a mutually agreed-upon resolution between the perpetrator and the victim. The victim's condition is the initial consideration in the resolution of traffic accident cases, including whether they sustained minor injuries or severe injuries that resulted in their death. Penal mediation will be implemented upon the victim's request for individuals who have sustained minor injuries and suffered material losses.[21]

Additionally, traffic accident cases resulting in material loss often employ penal mediation. Many individuals are satisfied with the outcome, as it quickly resolves without trial. This is because they want to refrain from pursuing legal action against one another, allowing investigators to concentrate their efforts and time. This approach is beneficial in situations where additional treatment is

necessary. Investigators will strive for a peaceful resolution through penal mediation, especially when the suspect is still a minor, to prioritize the child's future and secure benefits.

The following steps are involved in the penal mediation process: the parties agree to compensate for damages resulting from the traffic accident; they draft a letter of agreement; the investigators continue to examine witnesses to finalize the case file; and they withdraw the police report. The Magetan Police Traffic Unit investigators conducted penal mediation by considering various factors, including the victim and the suspect, who had consented to resolve the case solely at the investigation level and refrain from advancing to the next stage.[22]

In the realm of law enforcement, law enforcers have the ability to take action by setting aside cases or resolving them without advancing to the next stage (out-of-court settlement). Law Number 2 of 2002 grants the National Police the authority to exercise police discretion. Discretion is a policy that permits public officials to implement a policy that contravenes the law, subject to three conditions: it must be in the public interest, remain within the boundaries of its area of authority, and not violate the General Principles of Good Government (AUPB).[23]

Law Number 2 of 2002 grants investigators additional authority to conduct responsible actions by the law. The police, acting as investigators, carry out these actions to further their investigations. To fulfill its obligations, the Indonesian National Police has the authority to conclude the investigation. Investigators have the authority to end investigations due to their responsibilities. If the investigator ceases the inquiry for any of the three reasons above, the investigator will inform the public prosecutor, suspect, or suspect's family. Naturally, it is also necessary to consider the concept of terminating an investigation on discretionary grounds. The author can infer from the description above that there needs to be more clarity and firmness regarding the limits of police discretion within police authority. Consequently, if police or Polri investigators use their discretionary authority to resolve criminal cases through a penal mediation mechanism, they have at least violated provisions, particularly internal regulations (both disciplinary rules and the National Police's professional code of ethics).[24]

This is a result of the uncertainty surrounding the boundaries of discretionary authority and the application of penal mediation, which lacks a legal framework. The National Police, in their role as law enforcers, must comply with all pertinent laws and regulations to carry out their law enforcement duties. This is a direct result of the Indonesian state's adoption of the rule of law. The National Police investigators can implement penal mediation as an alternative resolution to certain cases by exercising police discretion. Restorative justice, a concept closely related to penal mediation, focuses on the needs of the victims and the offenders, and the principles of restorative justice serve as the foundation for penal mediation. Consequently, the police discretion that Polri investigators possess serves as a source of inspiration for the implementation of penal mediation during the investigation stage, to establish a sense of justice and advantage for all parties involved in the case.

B. Restorative Justice as Reform in Traffic Accident Criminal Law Based on Pancasila Justice

The values enshrined in Pancasila can serve as the foundation for Indonesia's implementing a penal mediation mechanism to resolve criminal cases. The national legal system and national development contribute to developing a national criminal law system, which juxtaposes the concept of the rule of law with the fundamental notions of balance and protection. Establishing a national criminal law system necessitates fundamental concepts derived from protection and balance. Indonesia, a Pancasila country, inextricably links the development of its legal system to the basic concept of Pancasila, which serves as the foundation of the national legal system and upholds the balance of national development objectives. The fundamental concepts of Pancasila should be interpreted as values that are symbolized by the principles of Pancasila. These principles include the divine paradigm (moral-religious), the humanitarian paradigm (humanistic), the national paradigm (unity/nationalistic), the populist/democracy paradigm, and the justice paradigm. Social. These paradigm principles can be classified into three (three) balance values: divine values (moral-religious), human values (humanistic), and social values (nationalistic, democratic, and social justice).[25]

The Criminal Code reform necessitates the establishment of guidelines, criteria, or indicators that align with national values, particularly the Pancasila ideology, and universal legal values or principles recognized by the community of civilized nations, also known as "the general principles of law." The protection of victims and the restoration of the disrupted balance of values within society are crucial. To satisfy this aspect, sanctions are necessary, including the payment of compensation and the fulfillment of customary obligations. The public frequently perceives the formal juridical resolution of issues by imposing essential criminal sanctions solely on the defendant as a comprehensive solution, prompting incorporating these two types of sanctions as supplementary forms of punishment.[26]

People often perceive the threat of criminal sanctions as a form of encouragement or a higher level of coercion to ensure community adherence to established laws. This also provides provisions for implementing and law enforcement officials to carry out repressive actions that contain penal or criminal elements. Society perceives the threat of criminal sanctions as an effective instrument for ensuring adherence to the law. Therefore, the public often perceives laws that do not include the threat of criminal sanctions as incomplete or "useless" due to their lack of enforcement. This understanding of the law leads to numerous unregulated criminal laws and regulations outside the Criminal Code. The development of the contemporary concept of criminal individualization demonstrates the multifaceted nature of punishment. The aim of punishment is general prevention, correction, conflict resolution, or dismissal of the convict's guilt, which depends on the perpetrator's quality and motive for carrying out the

criminal act. Additionally, there is a trend towards regulating restorative justice and alternative forms of punishment, such as social work and supervision. [27]

Article 70(1) of the New Criminal Code stipulates that imprisonment should not be imposed if the defendant has paid compensation to the victim, while considering the provisions of the Purpose and Guidelines for Sentencing to the greatest extent possible. This article provides a resource for resolving IPR criminal cases through restorative justice outside of court. In his theory of economic analysis of law, Richard Posner posits that it is feasible to achieve more efficient outcomes with minimal sacrifice or effort. The costs of resolving a criminal traffic accident case through a penal mediation process will undoubtedly be lower than those associated with litigating in court. The concept of restorative justice, which is a logical consequence of the principle of *ultimum remedium* (the idea that punishment should be the last resort), embodies the principles of justice, proportionality, speed, simplicity, and low costs, safeguarding the interests of victims and other laws. [28]

Employing restorative Justice to resolve disputes undoubtedly benefits both parties more. Restorative Justice designs its resolution to protect victims, restore perpetrators to their original state through mentoring, and restore the rights of those who have suffered losses. Therefore, the goal is to improve victim well-being and develop perpetrators into individuals capable of reintegrating into society. [29]

The concept of resolving traffic accident criminal cases through restorative justice is inherently collaborative. Perpetrators, victims, and the community come together in this approach to swiftly seek a fair solution for all parties involved. This resolution through restorative justice is aimed at establishing a sense of justice for the victim, who is the holder of the pertinent exclusive rights. [30] These two concepts can be used to establish a shared understanding of the fundamental objective that must be accomplished, which is the establishment of restorative justice. This justice prioritizes not only retribution for the perpetrator of the violation, but also justice in the sense of fostering prosperity and bringing joy to the victim.

IV. CONCLUSION

To address the current conditions for handling traffic accident cases and the current norms for resolving them, the Law Enforcement Regulations for traffic accident crimes must be based on legal objectives, specifically legal justice, legal benefits, and legal certainty, by Pancasila justice standards. Pancasila principles must underpin regulation development to achieve this. Restorative justice embodies the values of all the principles in Pancasila when they are connected to the values contained within it. Restorative justice is a solution that must be incorporated into the Road Transport Traffic Law. It must integrate restorative justice to provide a comprehensive framework for enforcing traffic offenses. s, with minimal impact on penalizing criminal cases that meet the vital justice concept's criteria for suspending investigations.

REFERENCES

- [1] E. Zapico, J. F. Baños-Pino, and M. Mayor, "Optimal toll rates accounting for traffic accidents: A productive efficiency approach," *Transp. Res. Part A Policy Pract.*, vol. 181, p. 103981, Mar. 2024, doi: 10.1016/j.tra.2024.103981.
- [2] N. Zhou *et al.*, "Analysis of road traffic accidents and casualties associated with electric bikes and bicycles in Guangzhou, China: A retrospective descriptive analysis," *Heliyon*, vol. 10, no. 9, p. e29961, May 2024, doi: 10.1016/j.heliyon.2024.e29961.
- [3] M. Jia *et al.*, "Finite element analysis to determine the cause of ring fractures in a motorcyclist's head," *Leg. Med.*, vol. 45, p. 101697, Jul. 2020, doi: 10.1016/j.legalmed.2020.101697.
- [4] M. Martitah, D. Sulistianingsih, R. Mohd Yusoff, and N. Ismail, "Insufficient criminal justice system response to the severity of domestic violence during the pandemic in Indonesia," *Heliyon*, vol. 10, no. 14, p. e33719, Jul. 2024, doi: 10.1016/j.heliyon.2024.e33719.
- [5] K. Karpov and L. Spektor, "Problems of criminalization of systematic gross violation of traffic rules," *Transp. Res. Procedia*, vol. 63, pp. 2315–2320, 2022, doi: 10.1016/j.trpro.2022.06.264.
- [6] E. M. Castillo, R. N. Gandhi, and G. M. Vilke, "Road Traffic Accidents: Airbag-Related Injuries and Deaths," in *Reference Module in Social Sciences*, Elsevier, 2024. doi: 10.1016/B978-0-443-21441-7.00177-1.
- [7] L. Martínez-Buelvas, A. Rakotonirainy, D. Grant-Smith, and O. Oviedo-Trespalcacios, "A transport justice approach to integrating vulnerable road users with automated vehicles," *Transp. Res. Part D Transp. Environ.*, vol. 113, p. 103499, Dec. 2022, doi: 10.1016/j.trd.2022.103499.
- [8] J. Suh, "Human Rights and Corruption in Settling the Accounts of the Past: Transitional Justice Experiences from the Philippines, South Korea, and Indonesia," *Bijdr. tot taal-, land- en Volkenkd. / J. Humanit. Soc. Sci. Southeast Asia*, vol. 179, no. 1, pp. 61–89, 2023, doi: <https://doi.org/10.1163/22134379-bja10049>.
- [9] R. B. González, "The evolution of extrajudicial expert advice in motor vehicle accidents: Situation in 2024," *Spanish J. Leg. Med.*, vol. 50, no. 2, pp. 45–46, Apr. 2024, doi: 10.1016/j.remle.2024.06.001.
- [10] R. Hasan, B. Watson, N. Haworth, O. Oviedo-Trespalcacios, and L. Bates, "How do perceptions of procedural justice, police legitimacy, and legitimacy of laws influence intentions to drug drive?," *J. Safety Res.*, vol. 90, pp. 86–99, Sep. 2024, doi: 10.1016/j.jsr.2024.06.006.

- [11] E. Kusdarini, A. Priyanto, S. Hartini, and S. Suripno, "Roles of justice courts: settlement of general election administrative disputes in Indonesia," *Heliyon*, vol. 8, no. 12, p. e11932, Dec. 2022, doi: 10.1016/j.heliyon.2022.e11932.
- [12] A. Melcarne, B. Monnery, and F.-C. Wolff, "Prosecutors, judges and sentencing disparities: Evidence from traffic offenses in France," *Int. Rev. Law Econ.*, vol. 71, p. 106077, Sep. 2022, doi: 10.1016/j.irle.2022.106077.
- [13] A. K. Jaelani and R. D. Luthviati, "The Crime Of Damage After the Constitutional Court's Decision Number 76/PUU-XV/2017," *J. Hum. Rights, Cult. Leg. Syst.*, vol. 1, no. 1, Mar. 2021, doi: 10.53955/jhcls.v1i1.5.
- [14] I. G. A. Mulyawarman, P. G. Arya Sumerta Yasa, and L. Cait, "Blocking Dangerous Content in Electronic Communications Networks: Evidence from Netherlands, United States and Singapore," *J. Hum. Rights, Cult. Leg. Syst.*, vol. 4, no. 1, pp. 237–262, Feb. 2024, doi: 10.53955/jhcls.v4i1.216.
- [15] M. C. Van Hout, R. Kaima, V. Mhango, S. Kewley, and T. Mariniello, "Judicialisation of the mentally ill and/or mentally incapacitated in the Malawi criminal justice system: Gaps and flaws of human rights protection," *Forensic Sci. Int. Mind Law*, vol. 4, p. 100121, Dec. 2023, doi: 10.1016/j.fsimpl.2023.100121.
- [16] R. Solhjell, "How acts become hate crime: The police's documenting of criminal cases," *Int. J. Law, Crime Justice*, vol. 72, p. 100574, Mar. 2023, doi: 10.1016/j.ijlcj.2022.100574.
- [17] M. Jabbari, D. Eskandari, S. Farhang Dehghan, R. Saeedi, M. H. Vaziri, and G. Pourtaghi, "Comprehensive analysis and investigation of accident/occupational disease responsibility rates: A case study for accidental CO poisoning," *Sci. Justice*, vol. 61, no. 5, pp. 493–504, Sep. 2021, doi: 10.1016/j.scijus.2021.05.001.
- [18] A. Kaur, J. Williams, R. Recker, D. Rose, M. Zhu, and J. Yang, "Subsequent risky driving behaviors, recidivism and crashes among drivers with a traffic violation: A scoping review," *Accid. Anal. Prev.*, vol. 192, p. 107234, Nov. 2023, doi: 10.1016/j.aap.2023.107234.
- [19] L. Xu, B. He, H. Zhou, and J. He, "Impact and revolution on law on road traffic safety by autonomous driving technology in China," *Comput. Law Secur. Rev.*, vol. 51, p. 105906, Nov. 2023, doi: 10.1016/j.clsr.2023.105906.
- [20] K. Aati, M. Houda, S. Alotaibi, A. M. Khan, N. Alselami, and O. Benjeddou, "Analysis of Road Traffic Accidents in Dense Cities: Geotech Transport and ArcGIS," *Transp. Eng.*, vol. 16, p. 100256, Jun. 2024, doi: 10.1016/j.treng.2024.100256.
- [21] M. Ayuso, R. Sánchez, and M. Santolino, "Does longevity impact the severity of traffic crashes? A comparative study of young-older and old-older drivers," *J. Safety Res.*, vol. 73, pp. 37–46, Jun. 2020, doi: 10.1016/j.jsr.2020.02.002.
- [22] V. Chang, B. S. C. Liu, D. Sudharshan, and Q. A. Xu, "Towards an effective negotiation modeling: Investigating transboundary disputes with cases of lower possibilities," *Technol. Forecast. Soc. Change*, vol. 165, p. 120491, Apr. 2021, doi: 10.1016/j.techfore.2020.120491.
- [23] C. G. Calabrese, B. R. C. Molesworth, J. Hatfield, and E. Slavich, "Effects of the Federal Aviation Administration's Compliance Program on aircraft incidents and accidents," *Transp. Res. Part A Policy Pract.*, vol. 163, pp. 304–319, Sep. 2022, doi: 10.1016/j.tra.2022.07.016.
- [24] J. I. Castillo-Manzano, M. Castro-Nuño, and L. Lopez-Valpuesta, "Planning traffic surveillance in Spain: How to optimize the management of police resources to reduce road fatalities," *Eval. Program Plann.*, vol. 102, p. 102379, Feb. 2024, doi: 10.1016/j.evalprogplan.2023.102379.
- [25] K. Dimiyati, H. Nashir, E. Elviandri, A. Absori, K. Wardiono, and A. Budiono, "Indonesia as a legal welfare state: A prophetic-transcendental basis," *Heliyon*, vol. 7, no. 8, p. e07865, 2021, doi: 10.1016/j.heliyon.2021.e07865.
- [26] M. S. Aney and C. Ho, "Deadlier road accidents? Traffic safety regulations and heterogeneous motorists' behavior," *Reg. Sci. Urban Econ.*, vol. 77, pp. 155–171, Jul. 2019, doi: 10.1016/j.regsciurbeco.2019.04.003.
- [27] P. Bertoli and V. Grempi, "The political cycle of road traffic accidents," *J. Health Econ.*, vol. 76, p. 102435, Mar. 2021, doi: 10.1016/j.jhealeco.2021.102435.
- [28] S. Pinem et al., "Alternative dispute resolution in traffic accidents in North Sumatera highway," *IOP Conf. Ser. Earth Environ. Sci.*, vol. 452, no. 1, p. 012074, Apr. 2020, doi: 10.1088/1755-1315/452/1/012074.
- [29] W. Zhang, J. Shi, X. Wang, and H. Wynn, "AI-powered decision-making in facilitating insurance claim dispute resolution," *Ann. Oper. Res.*, Oct. 2023, doi: 10.1007/s10479-023-05631-9.
- [30] C. G. Calabrese, B. R. C. Molesworth, and J. Hatfield, "The effect of punishment and feedback on correcting erroneous behavior," *J. Safety Res.*, vol. 87, pp. 481–487, Dec. 2023, doi: 10.1016/j.jsr.2023.09.001.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

