
THE VOID OF NORMS IN LAW ENFORCEMENT AGAINST ILLEGAL E-BIKE RACING ON PUBLIC ROADS

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ABSTRACT

The phenomenon of illegal e-bike racing on public roads is growing as a form of technology-based deviant behavior that poses a high risk to traffic safety. This problem is significant because the rapid increase in the use of electric vehicles is not balanced with adequate legal certainty. The vacuum of norms in the regulation of electric vehicles results in law enforcement not having a clear juridical basis to classify or criminalize the practice of e-bike racing in public spaces. This research aims to formulate the appropriate construction of criminal law in overcoming the void of these norms and assess the effectiveness of the law enforcement mechanisms that are currently applied. By using the juridical-normative method combined with the statute approach, conceptual approach, case approach, this study found that e-bikes cannot be fully classified as a motor vehicle according to the LLAJ Law, so the application of existing criminal articles tends to be extensive and poses a risk of over-criminalization. On the other hand, law enforcement practices in the field have proven to be ineffective due to the limitations of norms, evidentiary instruments, and prevention approaches that are not yet comprehensive. This research finally proposes a more feasible regulatory model through the establishment of special norms on light electric vehicles, strengthening law enforcement authority, and implementing crime prevention strategies based on situational crime prevention. These findings affirm the importance of harmonizing regulations and improving policies so that the handling of illegal e-bike racing can be more effective, proportionate, and fair.

Keywords: norm vacuum, illegal e-bike racing, law enforcement, light electric vehicles, crime prevention.

1. Introduction

The practice of illegal e-bike racing on public roads raises very specific legal issues: there are no criminal norms or traffic rules that explicitly categorize e-bikes as vehicles that can be subject to criminal sanctions when used for road racing. Law Number 22 of 2009 concerning Road Traffic and Transportation (UU LLAJ) distinguishes vehicles into "motor vehicles" and "non-motorized vehicles", but electric bicycles do not expressly fall into these two categories, so the regulations become multi-interpreted (Sunaryo et al., 2020). This causes potential abuses, including illegal racing, to be criminally enforced because there is no clear article. This ambiguity raises legal uncertainty for law enforcement officials and actors in the field and has the potential to violate the principle of legality (*lex certa*) and the principle of legal certainty.

In practice, e-bikes have become increasingly popular among various circles: teenagers, delivery workers, and the modification community. As per the latest research on the responsibility of e-bike users in traffic accidents, the rapid increase in the use of e-bikes without clear regulations has led to an increased risk of accidents (Nugraha et al., 2025). In some areas, it was also reported that underage users and users with high-speed modifications often used e-bikes on public roads without safety equipment and violated traffic regulations (Nurfauziah & Krisnani, 2021).

This reality shows that the e-bike phenomenon is not just an alternative mode of transportation, but has turned into an arena of high-risk activities including illegal racing that has an impact on public safety. Theoretically, the criminal law and traffic law systems should ideally be able to anticipate any form of vehicle abuse that endangers public safety. The principle of legality and the principle of legal certainty demand that any criminal act must be clearly defined in the law. However, in practice in Indonesia, the development of light electric vehicle (e-bike) technology exceeds the existing positive legal capacity, resulting in a gap between ideal norms and reality (normative gap) (Aziz et al., 2020). The ideal law (*das sollen*) requires that every high-risk vehicle be loaded in a

regulatory category with strict sanctions; but reality (*das sein*) shows that e-bikes are not strictly regulated especially regarding aspects of speed, modification, and illegal racing.

Concrete examples based on recent normative juridical research show that e-bikes do not yet have a clear legal status. In a study that analyzed the legitimacy of e-bike riders on the highway, it was concluded that existing regulations are not enough to provide legal certainty, including the obligation to have a driver's license or technical standards for electric vehicles (Beritno, 2022).

In addition, in recent licensing research, it was found that existing regulations (for example, Regulation of the Minister of Transportation No. 45 of 2020) do not have a strong enforcement mechanism and are not translated into integrated national standards, so that the practice of using e-bikes on the highway remains prone to abuse (Putri & Malau, 2024).

Cases of violations, illegal modifications, and potential accidents due to the use of e-bikes are increasingly reported, indicating that this problem is not an academic hypothesis, but a real phenomenon that requires a legal response (Lesmana & Fithry, 2024).

This condition shows a great urgency to conduct more in-depth research related to the void of norms in terms of illegal e-bike racing. Although there have been several studies that have mapped the legality of e-bike use and its licensing aspects, there has been no comprehensive study that specifically discusses how to design the construction of criminal law to criminalize illegal e-bike racing and evaluate criminology-based law enforcement and crime prevention strategies (Azrania & Hasuri, 2024). Previous research has been largely normative, only reviewing regulations or licensing, without considering the criminalization aspect of illegal e-bike racing behavior. Thus, there is a significant research gap both in terms of normative and implementation which makes this topic very relevant and urgent to be researched (Rahardi, 2022).

One of the important research is by Febrina Gladys Elvira, Sri Sukmana Damayanti, Gavrilla Theodora, and Olga Nadina (2020) entitled "Analysis Of Electric Bicycles As A Vehicle In Indonesia: A Normative Legal Review" published in *Sharia: Journal of Law and Thought*. The study uses a juridical-normative approach and concludes that e-bikes are categorized into non-motorized vehicles, and emphasizes that the consequences of this classification are the lack of legal obligations for users and the lack of sanctions in the event of violations or accidents (Ramadhina & Najicha, 2022).

Another more contemporary study is by Ayu Sapitri, Rio Armanda Agustian, and a team from the University of Bangka Belitung (2025), entitled "Imposing Sanctions on Electric Bicycle Users as Perpetrators of Traffic Crimes on the Highway Based on Law Number 22 of 2009", published in *Jurisdictie*. They point out that because e-bikes are not clearly categorized, the imposition of criminal sanctions on violators is so weak that the authorities tend to rely on general articles (e.g. forgetfulness) so that many violations still escape strict sanctions (Estiyanto, 2024).

While both of the above studies are important for understanding the regulatory and liability aspects, they do not specifically address the practice of illegal e-bike racing and its criminalized construction especially in the context of speed, modification, and public risk. Thus, this study differs significantly: it focuses on the criminalization aspect of illegal racing practices and the integration of criminological logic and law enforcement, thus filling in the gaps in existing literature and regulations (Noviandi et al., 2025).

Based on the above description, this study will formulate two main research questions: (1) "What is the proper construction of criminal law to classify and criminalize the practice of illegal e-bike racing on public roads, given the vacuum of norms in the regulation of electric vehicles?" and (2) "How effective are law enforcement mechanisms and criminology-based crime prevention strategies in dealing with illegal e-bike racing, as well as what regulatory models are most feasible to apply in Indonesia?"

2. Methods

This study uses doctrinal legal research because its main focus is to examine the void of norms in the regulation and enforcement of the law against the practice of illegal e-bike racing on public roads. Normative law research is chosen to examine the positive rules that apply, identify structural weaknesses in the formulation of norms, and formulate the appropriate construction of criminal law to criminalize such behavior (Siregar et al., 2024). Given that the issues studied are closely related to the ambiguity of the classification of electric vehicles and their implications for the principle of legality, the normative approach is considered the most relevant to answer the research question comprehensively.

The research approaches used include:

1. Statute Approach, to examine relevant laws and regulations such as the LLAJ Law, the Criminal Code, derivative regulations regarding electric vehicles, and the principles of criminal law.
2. Conceptual Approach, to develop theoretical foundations regarding criminalization, legality principles, and law enforcement theory and criminology-based prevention.

3. The Case Approach, used in a limited way to analyze factual cases or legal events related to e-bike violations can provide an empirical picture of law enforcement problems.

The data sources in this study consist of primary legal materials, including the 1945 Constitution, laws, ministerial regulations, and relevant institutional decisions or policies. Secondary legal materials include criminal law textbooks, criminology literature, national and international journal articles, research reports, and publications of official institutions. Meanwhile, tertiary legal materials in the form of legal dictionaries, encyclopedias, and regulatory indexes are used to strengthen conceptual and terminological searches.

The analysis method applied is prescriptive qualitative analysis, by interpreting legal norms using a normative hermeneutic approach and content analysis of legal documents and academic literature. Comparative analysis is used to assess the relevance and feasibility of international regulatory models. This analytical approach was chosen to produce normative arguments that are systematic, rational, and academically accountable, while providing constructive recommendations for policymakers and law enforcement (Candra & Sinaga, 2023).

3. Results

The problem of illegal e-bike racing is rooted in the vacuum of norms in the regulation of electric vehicles in Indonesia, especially regarding the legal status of electric bicycles in the legal system. The LLAJ Law does not provide an explicit definition of electric bicycles, so it cannot be expressly included in the category of motor vehicles and non-motorized vehicles. Permenhub 45/2020, which is present to regulate the use of electric bicycles, only stipulates technical guidelines and safety standards, but does not stipulate the formulation of delicacies, criminal sanctions, or criminal rules. As a result, when the practice of e-bike racing occurs on public roads, there is no criminal legal basis that can be directly used by law enforcement officials (Marbun, 2014). The absence of this norm creates legal uncertainty, opens up space for excessive interpretation, and limits the repressive authority of the apparatus, so that law enforcement against illegal e-bike racing becomes ineffective.

Efforts to build a criminal law construction to crack down on e-bike racing must begin with the determination of a juridical classification regarding what an electric bicycle is. There are three approaches: first, positioning e-bikes as non-motorized vehicles; second, forcing it into the category of motor vehicles; and third, classifying it as a new category, namely "light electric vehicles" (Thowil Afif & Pratiwi, 2015). The first approach does not allow criminalization, because bicycles do not have a criminal law regime in the LLAJ Law. The second approach is contrary to the principle of legality because it imposes an extensive interpretation of the definition of a motor vehicle. Meanwhile, the third approach is considered the most appropriate because it provides a normative basis for establishing *lex specialis* rules that regulate electric bicycles as a separate category while opening up space to establish specific offenses regarding illegal racing, dangerous modifications, and uses that endanger public safety.

The formulation of the criminal offense against illegal e-bike racing must follow the principles of modern criminalization that are in line with constitutional principles. The principle of *ultima ratio* requires that a criminal penalty be used only if the administrative instrument is no longer able to answer the problem of public safety. The principle of legality (*lex scripta, lex certa, lex stricta*) requires criminalization to be clearly formulated in the law, not through analogy to the provisions of motor vehicles (Fitri et al., 2024). The principle of proportionality is also important so that the sanctions formulated are not excessive compared to the level of danger posed by electric bicycles, but are still able to provide a deterrent effect for violators. Thus, the formulation of the delicacy regarding e-bike racing must consider these restrictions so as not to violate the constitution while remaining effective in overcoming threats to public safety.

Once the principle foundation is established, the next step is to formulate a delik that specifically targets the practice of using deviant electric bicycles. The first alternative is to formulate the crime of "e-bike racing on public roads" specifically as a traffic crime that applies to the category of light electric vehicles. The second alternative is to formulate the delinquency of "endangering public safety through the use of e-bikes", which regulates not only races but also extreme behavior and dangerous maneuvers that threaten public safety. The third alternative is to formulate the "dangerous modification" delinquency, which is an act that changes the specifications of an e-bike so that its speed exceeds the technical limit and is used for racing or other harmful activities. These three models can be selected or combined according to the needs of national criminal policy (Nurfitriani & Sariroha, 2025).

The legal instruments currently used to handle e-bike racing have proven to be inadequate because they are not in accordance with the object of their delicacy. The illegal racing article in the LLAJ Law only applies to motor vehicles, so it cannot be applied to electric bicycles. The use of public order articles or unpleasant acts has the potential to create over-criminalization because they are too general. In addition, law enforcement becomes inconsistent between regions because the authorities use different legal bases. The existing legal regime also fails to target the root of the problem such as extreme modifications, misuse of street space, and lack of safety education. Therefore, current law enforcement is not only normatively weak, but also functionally ineffective in preventing high-risk behaviors such as e-bike racing.

The ideal criminal law construction model for e-bike racing should be built through five pillars. The first pillar is the establishment of normative definitions regarding e-bikes and light electric vehicles. The second pillar is the preparation of a criminal classification that distinguishes administrative offenses, traffic offenses, and crimes such as illegal racing. The third pillar is the preparation of a proportional tiered sanction system ranging from reprimands, fines, vehicle confiscation, to confinement for serious violations. The fourth pillar is the establishment of *lex specialis* regulations through the revision of the LLAJ Law or the establishment of a new law on light electric vehicles. The fifth pillar is the integration of criminal policies which includes education, supervision, spatial planning, and restrictions on areas of use. These five pillars ensure that the construction of criminal law is comprehensive and not solely repressive.

Based on all of the above analysis, it is clear that the construction of criminal law against illegal e-bike racing must be built through a conceptual, normative, and functional approach that complements each other. The absence of legal definitions, loopholes in classification, and weak regulations make the practice of e-bike racing in an empty space that is dangerous for public safety (Jalil, 2025). Therefore, the state needs to immediately establish *lex specialis* norms regarding light electric vehicles that provide a clear, proportionate, and legality basis for criminalization. Proper legal construction not only fills the void of norms, but also strengthens legal certainty, enforcement effectiveness, and protection of public safety. Thus, the establishment of regulations and special delicacies for e-bikes is a legal necessity that cannot be postponed.

The phenomenon of illegal e-bike racing in public street spaces presents a unique challenge to law enforcement systems as it emerges in legal "gray" areas that have not been adequately accommodated in electric vehicle regulation. Effective law enforcement essentially demands two main prerequisites, namely a clear normative foundation and a consistent implementation mechanism. However, when it comes to e-bike racing, both prerequisites are actually at a weak point. The void of norms leads to fundamental difficulties in determining whether e-bikes can be treated as a motor vehicle, a non-motorized vehicle, or a new entity that requires its own arrangement. This uncertainty affects all enforcement mechanisms, starting from proof, confiscation authority, to the types of sanctions that can be imposed (Yadi et al., 2024). In this context, an effectiveness analysis must begin with understanding that law enforcement officials work in conditions of normative deficits that directly reduce the coercion and legitimacy of their actions.

The emptiness of norms inherent in e-bikes forces law enforcement to use nonspecific articles in the Road Traffic and Transportation Law (LLAJ Law), or even public order articles in local regulations (Hafidh & Listiyani, 2022). This choice is not ideal, as neither traffic norms nor public order norms are designed to reach the practice of racing with high-speed electric vehicles but do not fall into the category of motor vehicles. The application of these norms also has the potential to open up space for over-criminalization, where behavior that is not explicitly regulated is instead forced into articles that are conceptually inappropriate. On the other hand, enforcement efforts that are not carried out due to the absence of norms have the potential to cause under-enforcement, so that e-bike racing activities take place without obstacles and are actually growing. Both create an imbalance that ultimately reduces the ability of the law to carry out preventive and repressive functions effectively.

In practice, the effectiveness of law enforcement against illegal e-bike racing is also hampered by a number of procedural problems. One of the biggest problems is the lack of a vehicle identification system such as registration, frame number, or owner database. Without this identification mechanism, the confiscation or data collection of perpetrators often cannot proceed to a further legal process. Officials also face difficulties in proving speed, improper use of lanes, or alleged endangerment of public safety because there is no normative instrument that orders the use of measuring instruments or certain inspection procedures for e-bikes (Nugroho & Ashari, 2021). These procedural obstacles weaken the reliability of the enforcement process and often make the actions of the authorities stop at reprimands or dispersal of crowds without judicial follow-up.

In addition, the limited resources of the apparatus are an additional limiting factor in the effectiveness of law enforcement. E-bike racing is generally carried out at night, on neighborhood roads, or on roads that are not always within the range of routine patrols (Prabowo & Santoso, 2024). Random, spontaneous, and often location-changing race patterns result in significant operational feasibility challenges. Authorities cannot predict the location, time, or intensity of these activities precisely, so the response given is often reactive and unplanned. Under conditions like this, the certainty of punishment as the main element in the theory of deterrence becomes very low. If the perpetrator feels that the chances of being caught are small, then the threat of any sanctions will lose its deterrent, even if the sanction is severe (Saputra & Indawati, 2024).

Understanding the limitations of repressive law enforcement, the criminology perspective offers a more comprehensive approach by looking at the causative factors that drive the emergence of e-bike racing behavior. Criminologically, this behavior can be understood as a form of thrill seeking by a group of teenagers who need space for expression and adventure, especially in dense urban environments. This behavior is in line with the sensation-seeking theory that adolescents have a strong urge to try risky activities as part of their psychosocial development. In addition, social learning theory places peer group influence as a central factor; adolescents who

are in groups that normalize race will be encouraged to follow such behaviors. Other factors such as the lack of safe public spaces for recreation, weak parental supervision, and the encouragement of digital media also play a significant role in creating an ecosystem that facilitates an increase in e-bike racing cases on public roads (Dewadi, 2021).

From this approach, it is clear that the effectiveness of law enforcement cannot depend solely on the penal approach. It is necessary to integrate a multidimensional crime prevention strategy. One of the key relevant concepts is situational crime prevention developed by Ronald Clarke. This approach views that criminal or risky behavior can be reduced by modifying the physical and social environment conditions so that the chances of committing offenses are smaller. In the context of e-bike racing, this strategy can be implemented through the arrangement of road spaces, the installation of physical barriers at points that are often used as race tracks, adequate street lighting, access restrictions at certain hours, as well as increased surveillance through CCTV or sensor-based technology (Simbolon et al., 2024). This situational approach has proven to be effective in a variety of street crime contexts, and is particularly prospective when applied to the case of e-bikes that are highly space-dependent in nature.

However, situational prevention is only one dimension of a broader crime prevention strategy. Primary prevention also needs to be optimized through public education about road safety, campaigns in schools, counseling to parents, and the provision of safe activity spaces for adolescents. Secondary prevention programs can be directed to areas with high incidence rates of e-bike racing through community approaches, focused patrols, and direct interventions to high-risk youth groups. Tertiary prevention can include coaching for identified perpetrators, including counseling, driving safety training, or administrative sanctions that have educational potential. The integration of these three levels of prevention creates a much more holistic and effective approach than simply relying on repressive measures (Rohman, 2016).

Effective law enforcement also requires synergy between the police, local governments, transportation agencies, educational institutions, and the community. Coordination models such as community policing can be a relevant alternative because they connect officers with the community to share information, conduct social surveillance, and identify vulnerable locations that could potentially be used as racing arenas (Sugiarto et al., 2023). Local governments have a strategic role in providing recreational facilities and infrastructure for teenagers, including the possibility of providing an official arena for electric bicycle activities so that these activities can be diverted from public street spaces to safe and controlled spaces. This kind of collaborative approach provides room for handling that not only suppresses but also distracts behavior.

Another crucial issue is the need to build a database and registration system that can be used to identify e-bikes that have the potential to be modified to exceed the safe speed limit. Registration does not have to be as complicated as motor vehicle registration, but at a minimum it must provide ownership identification to facilitate law enforcement. From the perspective of predictive policing, data regarding the location of the incident, the time of the incident, and the character of the perpetrators can be used to develop effective prediction patterns, so that law enforcement operations can be carried out more on target and efficiently.

Ultimately, to improve the effectiveness of law enforcement, the most feasible regulatory model is also needed to fill the norm gap. Several regulatory options can be considered, ranging from amending the LLAJ Law to include e-bikes as a separate vehicle category, issuing government regulations or presidential regulations that provide clear legal definitions and classifications, to the drafting of regional regulations that regulate the spatial layout of e-bike use and operational restrictions. The ideal regulatory model is the hybrid model, which is the existence of national norms that provide a strong legal basis and regional norms that govern the implementation of the use of public space in a more contextual manner. National regulations are needed to provide a criminal basis if the act of e-bike racing poses a real danger to public safety, while local regulations can regulate situational prevention quickly and adaptively (Handono & Sudiro, 2024).

Thus, the effectiveness of law enforcement mechanisms in dealing with illegal e-bike racing is highly dependent on three main elements: the certainty of norms, the capacity of the implementation of the apparatus, and an integrated crime prevention strategy (Herlina, 2024). Without these three, law enforcement will only be reactive, sporadic, and unable to have long-term effects. However, if the three can be synergized, then efforts to counter illegal e-bike racing can run more effectively, rationally, and in accordance with the principles of public safety.

4. Conclusion

This study shows that the vacuum of norms in the regulation of electric vehicles leads to unclear legal classifications of e-bikes and complicates the process of criminalizing the practice of illegal e-bike racing on public roads. To overcome this problem, a comprehensive construction of criminal law is needed through the establishment of a *lex specialis* that defines the technical characteristics of e-bikes, establishes categories and limits on their use, and formulates criminal provisions that expressly regulate prohibitions and sanctions against e-bike racing in public street spaces. A clear and definite legal construction not only provides a strong legal basis for law

enforcement officials, but also prevents overlapping rules and the risk of over-criminalization that can harm society.

From the perspective of law enforcement effectiveness and crime prevention, this study confirms that a repressive approach alone is not enough to tackle illegal e-bike racing. A more effective strategy should blend consistent law enforcement with a criminological approach that emphasizes primary, secondary, tertiary, and situational prevention. The most feasible regulatory model is a combination of the establishment of a national legal framework regarding light electric vehicles and technical arrangements at the regional level that are tailored to the social, geographical, and needs of the local community. The integration of normative and preventive approaches is the key to creating traffic safety and reducing the risk of crime arising from the misuse of e-bikes in public spaces.

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