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The Implementation of the Strict Liability Principle in Legal Liability of Artificial Intelligence in Indonesia's Healthcare Sector

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ABSTRACT

The rapid advancement of Artificial Intelligence (AI) has the potential to give rise to significant legal issues, particularly concerning AI legal liability. However, Indonesia has yet to enact specific regulations governing AI. This study aims to examine how legal liability is determined when AI is involved in legal disputes within the healthcare sector and to identify the application of the strict liability principle as a basis for legal liability for the impacts caused by AI in the healthcare field in Indonesia. This research employs a normative juridical method, utilizing statutory regulations as primary legal materials, and books, journals, research findings, as well as legal expert opinions as secondary legal materials. The findings indicate that AI is not yet specifically regulated in Indonesia; currently, legal liability can be pursued through Article 1367 of the Indonesian Civil Code. However, this provision does not fully guarantee the realization of legal justice in the context of AI-related liability. Therefore, it is imperative for Indonesia to promptly establish regulations concerning AI, and the adoption of the strict liability principle could be considered as one of the regulatory approaches.

KEYWORDS Artificial Intelligence, Strict Liability, Legal Liability, Healthcare.

INTRODUCTION

The term Artificial Intelligence (AI) has developed rapidly since it was introduced by John McCarthy at the Dartmouth Conference in the 1950s. The Dartmouth Conference was organized by McCarthy to advance research based on the paper titled "Computing Machinery and Intelligence" written by Alan Turing. The professor from Dartmouth College sought to find solutions to human life problems by using machines capable of improving their own capabilities (Lawrence Livermore National Laboratory, 2021). AI is a simulation of human intelligence processes enhanced into computer or machine systems (Gladius, 2021). The existence of AI is intended to: 1) create software or robots to assist human daily life; 2) enhance the capabilities or sophistication of machines; and 3) solve problems that arise in human life and provide appropriate solutions (Hakim, 2022). Essentially, the existence of AI is to develop programs that can live in a human-like manner, starting from thinking, behaving, working, and beyond.

Eric Jobiliong (2023), in a Media Gathering, explained that jobs involving technologies such as AI will be in high demand. However, in exchange, jobs that rely primarily on human labor will decrease, with only 57% still required, while the remainder will be taken over. According to The Future of Jobs Report 2023 published by the World Economic Forum, the demand for human labor will be significantly affected over the next five (5) years. Human labor is expected to decline due to the presence of AI. Based on survey data conducted by the World Economic Forum, 81% of companies intend to adopt AI as part of their workforce within the next five (5) years. The ongoing industrial revolution has led to an abundance of machine production. "14% of workers have experienced job displacement to robots." This statement indicates that 14% of surveyed workers have had their roles replaced by robots. In addition, the former President of the Republic of Indonesia, Joko Widodo, expressed a contrasting opinion, stating that this industrial revolution will replace lost jobs with even more new

employment opportunities. He emphasized that society must be capable of preparing, planning, and anticipating these changes in advance. Therefore, in the context of the Industrial Revolution 4.0, the Indonesian government is supporting this shift by implementing robotics and AI-based technologies (Humas, 2018).

In addition to the efficiency it offers, AI also has the potential to give rise to legal issues. Indonesia itself does not yet have specific regulations governing AI. Cases involving AI have prompted the need for a legal framework through strong and relevant legislation that reflects current conditions. The urgency for legal liability in the utilization of AI technology is increasing in line with the advancement and widespread adoption of the technology. The various potential risks and adverse impacts caused by AI require a legal liability platform. The urgency for AI legal liability is supported by the following factors (Budhijanto, 2024).

1. Social and moral impact, AI is designed to facilitate and simultaneously transform human daily life. It assists humans in various sectors, including healthcare, finance, education, and others. This presence inevitably influences the principles, values, and norms that prevail within society.
2. Errors and accidents: In practice, AI systems have the potential to make mistakes or cause accidents and other negative impacts that may result in material and/or immaterial losses for certain parties. This forms the basis for pursuing legal liability against AI.
3. Privacy and data security: Users' personal data is often required to access more advanced technology platforms. Therefore, the protection of such personal data is crucial to prevent data breaches and misuse by irresponsible parties.

Based on the factors mentioned above, questions have arisen from parties who feel affected or harmed by AI regarding their right to seek compensation. As a result, these parties will seek to ensure that there is a clearly identifiable entity that can be held accountable and sued under the law.

The use of AI is becoming increasingly widespread across various sectors. In the medical field, AI is now utilized to analyze and diagnose diseases, as well as to assist in surgeries through mechanical arms operated by surgeons to perform complex surgical procedures (Tegal, 2023). Furthermore, AI is also becoming dominant in the entertainment industry, particularly in personalizing and recommending content to users based on their individual usage history, as curated by media and entertainment companies. For instance, a media and entertainment application "X" displays homepage content based on the types of shows frequently watched or searched by its users. Similar applications often provide "recommended content for you" to their users. This feature enhances user comfort and increases customer satisfaction with the application. A similar approach is used for targeting users with advertisements for products or services within the application (Syaftahan, 2024). Typically, these applications will prompt users with a message such as: "Allow this application to track your activity across other companies' apps and websites? Your data will be used to deliver personalized ads to track," offering the options "Ask App Not to Track" or "Allow" (Apple, 2025). Human life is becoming increasingly inseparable from AI. Undeniably, AI has become highly useful for information retrieval—from personal websites to specialized platforms used to access journals, scholarly articles, and published research findings. Recently, the ChatGPT platform has gained significant popularity among students. This application, available in mobile form, is commonly used by students to assist with completing assignments. It has become widely used due to its ability to provide quick answers to virtually any question posed by its users, enabling tasks to be completed without the need for independent research. In fact, many students rely on this platform to help in composing their assignments.

Healthcare, as one of the sectors utilizing AI, has undergone significant transformation—from processing medical history data and diagnosing diseases to developing treatments in a more time- and cost-efficient manner (Barth, 2025). According to the 2023 Annual Survey by

the American Heart Association (AHA), 65% of hospitals in the United States use AI in patient care (McDill, 2025). However, the use of AI has resulted in an 18% misdiagnosis rate among 559 patients who participated in the study (Hautz et al., 2025). While the use of AI in healthcare offers numerous conveniences, it also carries certain risks that cannot be overlooked. One example occurred in 2021, when a patient named Sandra Sultzer died due to complications caused by AI during a colon cancer surgery. The AI system used to assist in the operation was a robot named "da Vinci," developed by the company Intuitive Surgical. The robot allegedly experienced an electrical leak that burned Sultzer's internal organs, resulting in injury to her small intestine. According to the investigation, Intuitive Surgical sold the robot to hospitals regardless of their level of experience in using such equipment—just as occurred in Sultzer's case—and failed to ensure that the doctors in those hospitals received proper training (Bendix, 2024). Similar incidents have led to 2,000 injuries and 274 deaths over the past ten years (Bryce, 2024). Ironically, there is still no highly specific regulation regarding AI, including in Indonesia. This lack of legal certainty makes it difficult for victims to obtain justice.

One of the relevant concepts to be analyzed and proposed in this context is strict liability. This principle allows a person to be held liable without the need to prove fault, as long as it can be demonstrated that the action (in this case, the technology created) resulted in harm. Although strict liability has been applied in a limited manner in Indonesia, such as in the field of environmental law, its application to AI technology has not yet been explicitly regulated. Therefore, the author conducted a study entitled "Penerapan Asas Strict Liability dalam Pertanggungjawaban Hukum AI pada Bidang Kesehatan di Indonesia." This research is closely related to several previous studies that discuss the legal aspects of AI liability within Indonesia's positive legal framework and aims to fill the gap left by those studies by examining the relevance of strict liability as a legal basis for civil liability in AI-related cases in Indonesia. The first study is by Shofika Hardiyanti, et al. (2024), titled "Kedudukan dan Konsep Pertanggungjawaban Artificial Intelligence dalam Hukum Positif Indonesia," which concludes that AI is not a legal subject and therefore cannot be held responsible for damages it causes. However, if AI were to be considered a legal subject, it could be subject to Article 1365 of the Indonesian Civil Code as an unlawful act. This study ends at the conclusion that AI is not a legal subject, resulting in a legal vacuum regarding who should be held accountable. Next, the study "Liabilitas Produk AI dalam Sistem Hukum Indonesia: Implikasi bagi Pengembang, Pengguna, dan Penyedia Layanan" by Dewi Asri Puannandini, et al. (2025), asserts that AI developers, users, and service providers are the parties that may be held legally responsible. However, the lack of specific regulations leads to ambiguity in enforcement. While this study identifies potential responsible parties, it does not definitively establish which legal provisions should serve as the basis for AI liability. Furthermore, the study "Strict Liability of Artificial Intelligence: Liability of AI Regulators or the Burden of Liability on AI Itself?" by Ini Made Yordha, suggests that strict liability in a criminal context may be imposed on the creators and users of AI as legal subjects who bear responsibility for AI's activities. The research questions addressed in this study are: How is AI held accountable under Indonesian law? And how can the strict liability principle be applied in the context of AI legal liability in the healthcare sector in Indonesia? Based on these questions, the objectives of this research are to determine the form of AI liability when it causes harm to affected parties and to identify the application of the strict liability principle as the legal basis for AI liability in Indonesia's healthcare sector.

RESEARCH METHOD

This research employs a normative juridical method, focusing on the analysis of legal principles and legislation related to strict liability and AI liability in Indonesia. The primary legal sources used include Indonesian statutory regulations such as the Indonesian Civil Code (Kitab Undang-Undang Hukum Perdata), the Environmental Management Act and its

amendments, and the Electronic Information and Transactions Law (Undang-Undang Informasi dan Transaksi Elektronik). Meanwhile, the secondary legal sources consist of scholarly articles, books, and expert opinions.

This study adopts both a statutory approach and a conceptual approach. Through the statutory approach, the researcher examines laws and regulations relevant to strict liability and AI to analyze the coherence and alignment between the legal norms studied. The conceptual approach is employed due to the absence of specific regulations governing AI, prompting the researcher to explore the application of strict liability based on its legal definition and underlying principles, and to assess its relevance to AI legal liability.

Findings in the field indicate that, under current Indonesian law, AI is not recognized as a legal subject; liability typically falls on creators, owners, or users, drawing analogies to provisions such as Article 1367 of the Indonesian Civil Code. The principle of strict liability—which allows for accountability without the need to prove fault—has been applied in limited contexts, such as environmental law, but has not yet been explicitly regulated for AI. The urgency to address this regulatory gap is recognized, as the application of strict liability is seen as a normative need to ensure legal certainty and accountability in the rapidly evolving field of AI.

RESULT AND DISCUSSION

Forms of Legal Liability for Damages Caused by AI in Indonesia's Positive Law

AI has become a significant focus of technological development to this day (Martinez, 2019). AI can perform tasks automatically, thereby increasing operational efficiency and productivity, while also enhancing customer service (Wirtz et al., 2019). The development of AI involves a learning process. Similar to humans, AI learns—but through different methods (Abonamah et al., 2021). First, machine learning, in which AI learns through data input to detect certain patterns. Second, deep learning, where AI thinks independently without human assistance. Third, reinforcement learning, where AI learns from its own direct experiences. Based on its type, AI is divided into two categories: AGI (Artificial General Intelligence) and ANI (Artificial Narrow Intelligence) (Abonamah et al., 2021). ANI is the most used type of AI today. This type of AI can perform only specific tasks it has been programmed to do. Products resulting from ANI are already widely present in everyday life—for example, self-driving cars, cleaning robots, and voice assistant devices. Meanwhile, AGI remains the focus of research, as it is expected to become the type of AI capable of imitating any human activity. However, to date, no product has been officially recognized as possessing AGI-level sophistication. AGI enables the development of extraordinary products. For instance, a self-driving car that was initially only programmed to operate the vehicle and park automatically may evolve into a car that can avoid traffic congestion by choosing alternative routes instead of following its usual path (Mucci & Stryker, 2024). Rex Martinez, in his work titled "Artificial Intelligence: Distinguishing Between Types & Definitions", explains the concepts of Strong AI and Weak AI. Weak AI performs tasks as specified in its programming, whereas Strong AI represents capabilities beyond what it was originally programmed to do. These two fundamental distinctions mark the difference between AI with ordinary capabilities and those with extraordinary abilities. A simple example is a two-player game against a computer. Typically, the computer simply performs its role or plays randomly, rather than playing with actual "thought" (Murphy, 2015).

AI does not possess common sense like humans. Therefore, can AI still be held accountable for its actions? Or should the owner of the AI be the one responsible? To answer this, it is first necessary to understand the legal status of AI in the context of Indonesia's positive law. Is AI considered a legal subject? A legal subject is an entity that bears rights and obligations. According to civil law, there are two types of legal subjects: natural persons and

legal entities. Every person is recognized as a legal subject from the moment of birth until death (Rudi, 2024). Legal entities, on the other hand, do not have the capacity to perform legal acts independently and must therefore be represented by individuals who act on their behalf (Putra, 2022). Similarly, in criminal law, legal subjects consist of individuals and legal entities (corporations). According to Nada et al., in their work "Gagasan Pengaturan Artificial Intelligence Sebagai Subjek Hukum di Indonesia" (Conceptualizing the Regulation of Artificial Intelligence as a Legal Subject in Indonesia), AI is more appropriately categorized as a legal entity subject. This is based on the fact that AI, unlike humans, is not born but created by humans, and lacks a key human attribute: emotional awareness. As we know, AI merely follows the systems programmed into it and operates to fulfill human intentions, much like a corporation. In legal matters, a corporation acts through its directors. Similarly, AI's actions are governed by its users. Although Indonesia does not yet have specific regulations governing AI, technology in general is regulated under the Electronic Information and Transactions Law (UU ITE), which has undergone several amendments. While the term "AI" is not explicitly defined, Article 1 point 8 of the ITE Law defines an electronic agent as a component of an electronic system that is created to perform a specific act upon certain electronic information automatically and on behalf of a person. When equated with AI, it becomes clear that AI is essentially a system performing certain actions under the control of a human operator (Haris & Tantimin, 2022). Based on this understanding, AI is clearly a legal object, operated and controlled by a legal subject—namely, a person.

In terms of its utility, AI is designed to assist human tasks, meaning it functions as a helper, while its owner acts as the master or employer. Therefore, AI can be analogized as a worker who follows the instructions of its superior. When this concept is aligned with various statutory regulations in Indonesia, it can be analogized through a provision in the Indonesian Civil Code (KUH Perdata). Article 1367 paragraph (3) of the Civil Code states: "Employers and those who appoint others to represent their affairs are responsible for the losses caused by their servants or subordinates in the course of performing the work assigned to them." In the context of AI, this article suggests that if harm is caused by AI owned by someone, then that person is the one responsible for all resulting damages (Nada et al., 2024). What, then, about the creators or developers of the AI? This can be seen through Article 1367 paragraph (4) of the Civil Code, which reads: "School teachers or supervisors of craftsmen are responsible for the losses caused by their students or craftsmen while under their supervision." This article implies that when a student is entrusted by their parents to be under the care of a school, any incident that occurs within the school environment becomes the teacher's responsibility. Therefore, a legal relationship arises between the teacher and student within the school domain. Applying this to AI, it is argued that the AI developer should no longer be held accountable because responsibility has shifted from the creator to the owner of the AI (Nada et al., 2024). However, the author disagrees with the conclusions of that study. The reasoning lies in the fact that both articles analogize artificial intelligence as a "person", when in reality AI is clearly not a person, and from a scientific perspective, AI cannot be categorized as a human being. Therefore, such analogies are not equivalent (not apple-to-apple) and cannot be used as a solid legal basis for AI liability.

Essentially, the author tends to support the view that AI cannot yet be categorized as a legal subject, but rather as a legal object. Therefore, in cases where errors or damages are caused by AI, the burden of responsibility still falls on humans, such as the creators or operators of the AI (Ramli, 2024). According to Siregar, both the developer and the owner of the AI—who function as the AI's supervisors—are the parties who should be held legally accountable for any resulting harm. Article 1367 paragraph (1) of the Indonesian Civil Code provides a relevant legal basis for damage claims caused by AI. It states: "A person is not only responsible for losses caused by their own actions, but also for losses caused by the actions of those under

their supervision, or by objects under their control." In this context, artificial intelligence can be analogized as an "object under supervision," making this article still applicable as a legal basis for AI liability. However, the author argues that this provision still does not ensure legal fairness, particularly due to the nature of civil law's burden of proof in Indonesia, which generally requires the injured party to prove the element of fault. Because of this, the author proposes the application of the strict liability principle, especially in the healthcare sector, as a more appropriate legal foundation for holding parties accountable for harm caused by AI.

The Application of the Strict Liability Principle as a Legal Basis for AI Liability in the Healthcare Sector in Indonesia

Strict liability is a concept of legal responsibility that can be applied when one party causes harm to another without the need to prove elements of negligence, intent, or fault (Epstein, 1973). In this case, the damage caused by the defendant is considered a violation of the plaintiff's rights (Wongkar, 2024). This concept differs from liability based on fault or negligence-based liability, which requires proof of fault on the part of the liable party (Siregar, 2024). The principle of strict liability is closely related to the concept of unlawful acts as regulated in Article 1365 of the Indonesian Civil Code. In practice, the application of strict liability in the field of environmental law requires three essential elements in the process of proving a legal dispute (Wongkar, 2024). First, the activity or business carried out by the defendant is inherently dangerous, which can be assessed based on the level of risk that cannot be mitigated through ordinary efforts, the difficulty of preventing the danger, the extent to which preventive measures have been maximized, and the extent to which the profits from the activity outweigh the cost of prevention. Second, the plaintiff has suffered harm or loss. Third, there is a causal link between the harm experienced by the plaintiff and the activity or business carried out by the defendant.

In Indonesia, strict liability was first applied in the field of environmental law. The initial regulation of strict liability was found in Law Number 4 of 1982 concerning Basic Provisions on Environmental Management, specifically Article 21: "in certain activities involving specific types of resources, absolute liability arises for the polluter or environmental destroyer at the time the environmental damage and/or pollution occurs, as regulated by the relevant legislation." This regulation was later revoked and replaced by Law Number 23 of 1997 concerning Environmental Management ("UUPLH"). Article 35 paragraph (1) of the said law states, "the person in charge of a business and/or activity that has significant and substantial environmental impacts, uses hazardous and toxic substances, and/or produces hazardous and toxic waste, shall be held strictly liable for the damages caused, with the obligation to pay compensation directly and immediately at the time of the pollution and/or environmental damage." The elucidation of this article defines strict liability as "an element of fault that does not need to be proven by the plaintiff as the basis for compensation." Indonesia's environmental regulations continued to evolve, with UUPLH subsequently being repealed and replaced by Law Number 32 of 2009 concerning Environmental Protection and Management ("UUPPLH"), which also reaffirms the principle of strict liability in Article 88. This article states, "any person whose actions, business, and/or activities involve the use of hazardous and toxic substances (B3), the production and/or management of B3 waste, and/or cause serious threats to the environment, shall be held strictly liable for the resulting damages without the need to prove fault." According to Etheldreda E. L. T. Wongkar (2024), UUPPLH represents an advancement over previous environmental regulations, marked by clearer provisions regarding economic instruments, one of which includes an emergency response fund.

The principle of strict liability is a form of legal responsibility that only requires proof of an act, without the necessity of establishing fault (Siregar, 2024). This principle adheres to the notion that a perpetrator can be held directly liable for losses suffered by the victim, even if

preventive measures were taken or the incident occurred unintentionally (Rachma & Triwibowo, 2023). In Indonesian law, this principle has been applied in the field of environmental protection. Generally, the Indonesian legal system still adheres to a fault-based liability framework (Bawole, 2018). However, under strict liability, a person may still be held accountable if an act—whether negligent or intentional—causes harm to another party. The application of the strict liability principle is proven by the following elements: (1) the activity or business conducted by the defendant is hazardous; (2) the plaintiff has suffered a loss; and (3) there is a causal relationship between the plaintiff's loss and the activity or business undertaken by the defendant (Wongkar, 2024).

Various increasingly sophisticated AI-generated products pose a high potential risk to their users—ranging from voice changers and videos that can imitate someone's likeness, to robots that may accidentally cause death. The absence of specific legal provisions on AI in Indonesia has resulted in a lack of legal clarity regarding liability for damages caused by AI. This is especially critical for AI systems that utilize deep learning, which allows them to adapt and learn from their environment. Such AI can perform tasks by observing the user's situation and conditions. Therefore, it is crucial for AI operators, such as doctors, nurses, and other medical professionals on duty, to closely monitor AI systems. Moreover, the burden of proof in Indonesia's legal system generally lies with the plaintiff, whereas strict liability shifts that burden to the defendant. The plaintiff does not need to prove the fault of the defendant; rather, it is the defendant who must demonstrate that the damage suffered by the plaintiff was not due to their wrongdoing (Rhiti, 2017). The conventional civil evidentiary system can be rigid and may fail to address the complexity of AI-related cases—particularly in the healthcare sector, where AI errors may lead to fatal outcomes.

The purpose of applying the strict liability principle to the impact caused by AI in the healthcare sector is to provide legal assurance for the consequences of AI usage that may result in harm to patients. This regulation is expected to ensure legal certainty and protect victims. The deployment of various AI systems cannot guarantee complete safety in their use. Therefore, the burden of proving damages involving AI should not be placed on the victim. Medical personnel who are responsible for both monitoring AI and accompanying patients simultaneously must ensure that the AI is safe to use and functions according to instructions during medical procedures. This is where the relevance of strict liability lies—what must be proven is the causal link between the damage and the defendant's conduct, without requiring evidence of fault. The application of strict liability is expected to serve as a reminder for AI operators to be cautious and accountable in ensuring that AI operates safely and as intended in patient care. The presence of such regulation serves as a preventive effort so that AI controllers consistently perform feasibility tests and thorough program evaluations to manage technological risks. Thus, the implementation of strict liability in the context of AI liability is not merely a legal policy option but a normative necessity that urgently needs to be adopted to fill the current legal vacuum. Without a clear liability mechanism, Indonesia risks falling behind in addressing the rapid advancements in technology. Therefore, strict liability should be seriously considered for implementation in cases of damages caused by AI in the healthcare sector.

CONCLUSION

Currently, legal liability for harm caused by AI is attributed to a human entity—specifically, the individual supervising the AI—since AI is not yet recognized as a legal subject but rather as a legal object under Indonesian law. Article 1367 of the Indonesian Civil Code serves as the legal basis for seeking compensation, positioning the supervisor as the responsible party; however, this approach does not adequately ensure legal justice, particularly for patients harmed by AI in healthcare, as the burden of proof remains with the plaintiff. The adoption of

the strict liability principle could address these shortcomings by shifting the burden of proof and providing stronger protection and compensation guarantees for victims, while also incentivizing AI controllers—such as doctors and medical personnel—to exercise greater caution in supervising AI systems. This regulatory development is essential for Indonesia to keep pace with technological advancements and to establish clear legal guidelines for the responsible use of AI. Future research should explore the practical implementation and potential challenges of applying strict liability to AI in various sectors, particularly in healthcare, to inform more effective and equitable legal frameworks.

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