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The Urgency of Special Legislation Regarding the Legal Responsibility of Artificial Intelligence in Telemedicine Services in Indonesia

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Abstract:

The rapid development of Artificial Intelligence (AI) technology in telemedicine services in Indonesia offers various opportunities to enhance the efficiency, accuracy, and accessibility of healthcare, while simultaneously presenting significant legal challenges. This study aims to evaluate the urgency of drafting specific legislation—one that is adaptive to the dynamics of AI in telemedicine—as a response to legal issues emerging in the era of healthcare digitalization. A literature review methodology with a qualitative descriptive approach was employed, analyzing scientific studies, national and international regulations, and literature concerning ethics and data protection in the context of AI utilization. The findings indicate that primary challenges include ambiguity regarding legal liability in instances of misdiagnosis or flawed medical recommendations generated by AI systems, inadequate protection of patients' personal data, and ethical concerns such as transparency, accountability, and informed consent. Regulatory disharmony and existing "regulatory gaps" create legal risks for medical professionals, service providers, and technology developers, while also undermining public trust in AI-driven telemedicine. Consequently, responsive and flexible legislation is essential to clarify lines of responsibility, ensure data security and privacy, and guarantee that AI-based telemedicine practices are conducted ethically, safely, and accountably. With comprehensive regulation, the application of AI in healthcare can deliver optimal benefits to the Indonesian population, while safeguarding patient rights and fostering the sustainability of digital innovation within the health sector.

Keywords: artificial intelligence; healthcare services; legal liability; specific legislation; telemedicine.

INTRODUCTION

Telemedicine has emerged as a significant innovation in Indonesia's healthcare system, especially after the COVID-19 pandemic accelerated the use of digital technology in medical practice. Through this service, patients can receive consultations, health assessments, and medical management without physically attending a healthcare facility. This remote service mechanism offers convenience, especially for people living in remote areas or in areas that are difficult for healthcare professionals to reach. Indonesia's archipelagic geography makes access to healthcare services uneven, making telemedicine an alternative solution to reduce distance and time barriers (Sasongko et al., 2025). In addition to facilitating

communication between patients and doctors, telemedicine also supports service efficiency, expedites the referral process, and assists with ongoing monitoring of patients' health conditions. The use of this technology offers opportunities to improve the quality and affordability of healthcare services, provided it is accompanied by adequate regulations, clear service standards, and strong patient data protection. Thus, telemedicine not only brings about changes in the healthcare service model but also opens up opportunities for transforming the national healthcare system toward more inclusive and responsive services to community needs (Jumiran & Bonsapia, 2025).

Advances in Artificial Intelligence (AI) technology have brought about major transformations in various fields, including the healthcare sector, particularly through telemedicine. Telemedicine services allow patients to receive remote medical consultations and treatment, supported by advanced technology that facilitates interaction between medical personnel and patients. In this context, AI plays a crucial role, from assisting the diagnostic process, supporting clinical decision-making, to providing more personalized treatment recommendations tailored to the patient's condition (Yulianto & Cahyono, 2025). The use of AI not only improves the efficiency and accuracy of services but also expands the reach of healthcare services, allowing people in remote areas or those with limited mobility to still access medical services. However, the use of AI in telemedicine also poses challenges, particularly related to legal, ethical, and patient data security aspects, which require serious attention from regulators and service providers. Thus, the integration of AI in telemedicine presents a significant opportunity to improve the quality of healthcare services while simultaneously requiring the development of a regulatory framework capable of accommodating technological innovation without compromising patient rights and safety (Erwin & Paputungan, 2025).

In recent developments, several telemedicine platforms in Indonesia have begun integrating artificial intelligence technology into their various service features. The use of AI is evident in health chatbots that can provide initial responses to patient complaints, automated triage systems that direct patients to the appropriate level of urgency or type of service, and the use of algorithms to assess medical images such as skin photos, simple radiology results, or other clinical documentation. This integration helps increase response times, reduce the workload of medical personnel, and improve initial accuracy in identifying health problems (Kushariyadi et al., 2024). However, the use of AI in telemedicine still requires clinical oversight and a strong ethical foundation to ensure that recommendations remain safe, comply with professional standards, and do not replace the role of doctors as primary medical decision-makers (Atmojo et al., 2024). For example, Halodoc and Alodokter utilize AI to help screen patient complaints before consulting a doctor, while globally, AI is used to detect diseases from radiology results, EKGs, and electronic medical records (Abdillah, 2024). The application of AI shows that this technology is no longer just a discourse, but has begun to be implemented in everyday healthcare services.

The use of AI, or artificial intelligence, in healthcare continues to grow globally (Hassan et al., 2024). In Indonesia, the application of this technology is gaining ground as an effort to bridge the gap in access to healthcare services, which remains a problem in various regions. The vast geographical conditions, uneven distribution of medical personnel, and the increasing burden of disease make the need for service innovation increasingly urgent. With a population of approximately 270 million, the variety of emerging health problems is increasingly diverse and requires efficient treatment. Digital technologies, including telemedicine, artificial intelligence, and health information systems, are beginning to be utilized to facilitate public consultations, initial diagnoses, and medical follow-up without the need for in-person visits to healthcare facilities. The use of this technology is expected to reduce geographical barriers, accelerate service flows, and increase equitable access. However, this adoption also requires regulatory readiness, personal data protection, and increased digital literacy for both healthcare workers and the public to ensure effective implementation and maintain the quality of healthcare services (Herman et al., 2022). This condition is exacerbated by Indonesia's geographical location, which consists of thousands of islands, so that health infrastructure development is not evenly distributed and makes it difficult to access adequate services for the entire community (Ekalia et al., 2024).

Artificial intelligence-based telemedicine opens up significant opportunities for automated diagnosis and medical decision-making without the physical presence of the patient or doctor. While offering efficiency and speed, the use of AI in this process presents complex legal challenges. When a misdiagnosis, incorrect therapy recommendation, or system failure impacting patient safety occurs, questions arise about who should be held responsible. Complexity increases because medical decisions

rely not only on doctors but also on autonomous algorithms (Putra, 2024). This situation creates uncertainty regarding the limits of professional liability, technology manufacturers, algorithm developers, and telemedicine service providers. Therefore, a clear regulatory framework is needed to ensure accountability and legal protection for patients and healthcare professionals in telemedicine practices involving AI (Lamem et al., 2025). Regulations regarding the use of artificial intelligence in telemedicine services in Indonesia are currently at a very general level. Existing regulations do not provide clear boundaries regarding how legal responsibility is imposed when errors occur due to the use of AI, whether in the diagnosis process, therapy recommendations, or medical data processing. This regulatory vacuum creates uncertainty for doctors, technology developers, platform providers, and patients as service recipients. Without specific regulations defining the legal relationship between the parties and their accountability mechanisms, the potential for disputes could increase, particularly if harm results from AI system decisions. This situation highlights the need to formulate more comprehensive and specific norms to ensure adequate legal certainty for AI integration in telemedicine, while ensuring the safety and protection of patient rights (Sebastian, 2024).

Uncertainty about who is responsible when AI systems in telemedicine fail has serious consequences for patient protection and public trust in digital healthcare services. Without clear rules about the flow of responsibility, whether it falls on the doctor, the platform provider, the AI developer, or the healthcare institution, patients are at risk of not receiving justice when a diagnosis or medical recommendation is incorrect. This situation can also erode public trust in the use of AI-based healthcare technology, as there is no guarantee of legal redress in the event of a loss (Hardisman, 2025). Therefore, clarity regarding the division of responsibility is crucial for ensuring patient safety, minimizing potential disputes, and maintaining the legitimacy and sustainability of AI-based telemedicine services (Mutiah et al., 2025). This regulatory gap highlights the urgent need for specific legislation governing legal liability for the use of AI in telemedicine, which not only guarantees patient safety and rights but also provides legal certainty for service providers and technology developers.

The legal challenges in this study encompass several crucial issues. One of the most prominent is the lack of specific regulations defining who should bear responsibility for misdiagnosis or erroneous medical decisions involving AI systems. This ambiguity has given rise to debate over whether the burden of responsibility rests with doctors as the parties using the technology, with telemedicine service providers operating the platforms, or with AI developers who design the algorithms and supporting systems. First, without normative clarity, the potential for disputes between patients and service providers increases, while legal protection for telemedicine users is not yet fully guaranteed (Damayanti et al., 2025); This is further reinforced by the finding that legal uncertainty still surrounds the use of AI in medical diagnosis in Indonesia. Second, the risk of patient data protection violations is a significant issue as the use of AI requires large-scale medical data processing. Although Indonesia has enacted Law No. 27 of 2022 concerning Personal Data Protection, the challenges of ensuring data security, confidentiality, and integrity in digital healthcare remain significant. Weaknesses in security systems, non-compliance by service providers, and the lack of clear technical standards increase the potential for data leaks or misuse. This situation not only poses risks to patients but can also undermine public trust in digital transformation in the healthcare sector (Rayga & Siregar, 2025). Therefore, the need for additional measures, such as robust encryption mechanisms, informed consent procedures, and effective regulatory oversight, is crucial to ensure that the use of AI in telemedicine is safe, ethical, and compliant with personal data protection principles (Tombokan, 2024). Third, the potential for inequitable access arises because not everyone has the ability to use AI-based telemedicine services, reflecting the digital divide and disparities in access to digital healthcare services (Abdillah, 2024).

Data protection is one of the most crucial aspects of telemedicine, given that sensitive health information is transmitted, stored, and managed through digital systems. The 2022 Personal Data Protection Law (PDP Law) provides the legal basis for the security and confidentiality of personal data, including highly sensitive health data. Within this law, health data must be processed with strict protection standards to prevent misuse, leakage, or unauthorized access (Huda et al., 2024). Article 16 of the PDP Law stipulates that any processing of personal data may only occur with the data owner's explicit consent, unless other provisions permit exceptions under statutory regulations. This provision requires telemedicine providers to ensure that the consent mechanism, management, and storage of patient data are carried out transparently

and accountably. Therefore, data protection is a key foundation for maintaining patient trust and ensuring legal compliance in technology-based healthcare services (Hassan et al., 2024).

In telemedicine practice, existing regulations require service providers to maintain the security of patient data and ensure it is used only for legitimate medical purposes. Although Law No. 27 of 2022 concerning Personal Data Protection (PDP Law) provides a legal framework, its integration with health regulations, such as Minister of Health Regulation No. 20 of 2019 concerning the Implementation of Telemedicine, still requires further harmonization. The main challenge lies in establishing technical standards for data security on telemedicine platforms, including encryption, limited access, and effective audit mechanisms (Meirianna & Prayuti, 2025). Gaps or inconsistencies in regulations have the potential to pose serious risks, such as data leaks, misuse of patient information, and privacy violations. The impact of these conditions can reduce public trust in digital health services, especially those based on telemedicine. Therefore, regulatory harmonization is an urgent need, accompanied by strengthening oversight mechanisms to ensure that technology implementation remains within legal and ethical boundaries. Harmonizing regulations will ensure that innovative telemedicine services are not only efficient and sophisticated, but also guarantee data security and respect patient privacy rights. Thus, AI technology can be optimally utilized to improve the quality of healthcare services, expand access to services, and facilitate interactions between patients and medical personnel. These steps are crucial to ensure that digital advancements do not compromise the protection of individual rights, allowing the public to continue to benefit from healthcare innovations with a sense of security and confidence (Jumiran & Bonsapia, 2025).

Artificial Intelligence (AI) plays a significant role in supporting healthcare services in Indonesia, including detecting rifampicin resistance in tuberculosis patients. With the ability to quickly and accurately analyze laboratory data and medical images, AI enables earlier identification of drug resistance, which is crucial for determining appropriate therapy. The application of this technology has the potential to increase treatment effectiveness, reduce the risk of therapy failure, and accelerate medical decision-making. Furthermore, AI can assist medical personnel in remote areas with limited access to sophisticated laboratories, thereby expanding the reach of healthcare services. However, AI implementation also requires attention to data validity, patient information security, and integration with applicable medical practice standards to ensure the technology's benefits are optimally achieved and safe for patients (Herman et al., 2022).

The use of artificial intelligence (AI) technology to process health data requires strict adherence to legal principles regarding privacy, information security, and patient consent. This need has become even more pressing since the enactment of Law Number 17 of 2023 concerning Health, which affirms the direction of digital transformation in the healthcare sector. This regulation places data protection and respect for patient rights as key pillars in the provision of technology-based healthcare services, including the use of AI in the diagnosis, monitoring, and management of clinical data (Varma, 2024). The law provides a normative framework to ensure that personal data, particularly highly sensitive health data, is managed with adequate security standards. Healthcare facilities utilizing AI technology are required to apply the principles of transparency, accountability, and non-discrimination in processing patient data. Furthermore, the implementation of robust cybersecurity mechanisms is imperative to prevent the risk of data leakage, manipulation, or misuse. Therefore, healthcare providers are required to ensure ethical and legally compliant data management so that the use of AI continues to provide benefits without compromising basic patient rights (Ekalia et al., 2024).

Previous research has emphasized the importance of strengthening the legal framework for the use of AI in telemedicine services. In a global context, Won Bok Lee highlighted that regulations regarding the use of artificial intelligence in healthcare in South Korea still harbor a number of uncertainties, particularly regarding determining who bears legal responsibility in the event of system errors. This ambiguity also relates to the division of roles between regulatory authorities, such as the Personal Information Protection Commission and the Ministry of Health, particularly when AI technology is categorized as a medical device. These findings suggest that even countries with advanced digital infrastructure still face similar regulatory challenges, reinforcing the urgency of more comprehensive regulations to ensure accountability, patient protection, and clarity of the oversight body's role in the use of AI in healthcare (Lee, 2024). In Indonesia, Mutiah et al. (2025) emphasized that despite the existence of several regulations, such as Law No. 17 of 2023 and recent government regulations, regulatory uncertainty, particularly regarding patient responsibility

and protection in telemedicine technology, remains a major obstacle to its implementation. These two studies emphasize the need for a more explicit and adaptive legal framework in the context of AI-based telemedicine in Indonesia.

The growth of telemedicine services driven by the use of Artificial Intelligence (AI) presents a combination of opportunities and challenges in healthcare delivery. On the one hand, AI technology can help improve diagnostic accuracy and expedite the delivery of medical services. However, at the same time, its presence also brings with it complex legal issues. One of the most crucial issues is the lack of clarity regarding responsibility for errors in diagnosis or medical recommendations derived from AI systems. To date, regulations have not clearly defined which party should be held responsible: the physician as the user, the telemedicine platform provider, the healthcare facility, or the technology developer. Complexity is further compounded by the black box problem, which is the difficulty in understanding the internal mechanisms of AI in making decisions, making the source of errors difficult to trace. This situation creates legal uncertainty for patients, healthcare workers, and telemedicine service operators, while also potentially weakening public trust in the use of digital technology in healthcare (Alam et al., 2025).

In addition to legal liability issues, patient data protection is a major challenge in the implementation of AI-based telemedicine. This technology requires processing vast amounts of data, including sensitive health data that poses a high risk of leakage, misuse, and unauthorized access. Although Indonesia already has Law No. 27 of 2022 concerning Personal Data Protection (PDP Law) and Law No. 17 of 2023 concerning Health, harmonization between these two laws and Minister of Health Regulation No. 20 of 2019 concerning the Implementation of Telemedicine has not been fully implemented. This situation creates regulatory gaps in terms of technology security standards, patient consent procedures (informed consent), and compliance monitoring and audit mechanisms. This lack of synchronization can weaken the protection of patient rights, particularly regarding privacy and data confidentiality, while also hampering the safe, responsible, and ethical use of AI in telemedicine practices in Indonesia. Given these weaknesses, the need for a specific legal framework that is responsive to the dynamics of artificial intelligence technology becomes increasingly clear. This literature emphasizes the importance of comprehensive and adaptive regulations so that the use of AI in telemedicine not only improves the quality of healthcare services but also ensures data security, legal certainty, and patient protection amidst the accelerated digital transformation of the healthcare sector (Primasatya, 2024).

The literature search revealed seven scientific articles that met the inclusion criteria, in line with the research focus on the legal liability of the use of Artificial Intelligence in telemedicine services in Indonesia. Most of these studies employed a qualitative descriptive research design, with an emphasis on various legal and ethical dimensions. Furthermore, these studies also addressed the crucial aspect of patient data protection in the application of AI in digital healthcare. The findings from this literature provide an overview of regulatory challenges, accountability issues, and relevant oversight mechanisms in the context of intelligent technology-based telemedicine. Therefore, this literature review serves as a basis for analyzing the urgency of specific regulations and helping formulate policy recommendations regarding the legal liability of AI in the healthcare sector. The study emphasized the importance of developing responsive AI regulations, grounded in philosophical, legal, and sociological principles, as there are currently no specific regulations governing AI (Sari & Jannani, 2023). They concluded that regulations must be established immediately to provide legal certainty and protection for the public (Mahwati, 2024). They examined AI as a tool for personal data protection and found that existing regulations are scattered and incomprehensive. He emphasized the need for specific regulations and a data oversight body to strengthen patient information security and minimize human error (Disemadi, 2021).

Research assesses the effectiveness of AI in healthcare services, including radiology, ECG, and disease classification, with accuracy rates reaching 87%. While AI has been shown to improve diagnostic performance, the study highlights significant challenges related to patient protection. Currently, there are no specific regulations governing the use of AI in medical diagnostics, necessitating policies that ensure system validation, transparency, and professional and technical accountability in the application of this technology (Rayyan & Simarmata, 2025). They highlight the legal and ethical issues of AI, including the black box problem, informed consent, transparency, and data ownership, as well as the limitations of existing regulations. They emphasize the need for adaptive regulation to ensure safety, accountability, and harmonization with global standards (Sari & Jannani, 2023). AI is considered an electronic agent in the context of the ITE Law, with responsibility remaining with the user or provider through the principle of

vicarious liability. They conclude that clear regulations are needed to strengthen legal accountability for the use of AI (Ritonga et al., 2025). In the context of AI use in online businesses during the COVID-19 pandemic, this technology has proven capable of improving operational efficiency through the use of chatbots, GPS systems, and rapid data analysis. However, AI also carries the risk of data misuse due to its lack of ethical understanding or consideration of human emotions. This situation highlights the need for specific regulations governing the use of AI, so that the technology can provide optimal benefits without causing harm to consumers. With a clear legal framework, the use of AI can occur safely, ethically, and responsibly, while maintaining public trust in digital innovation in online businesses (Priowirjanto, 2022).

Artificial intelligence (AI) plays a role as an assistive tool in providing legal services for people with disabilities, with the ability to improve efficiency, affordability, and quality of service. However, the application of AI also poses various challenges, both ethically and legally, and technologically. This study emphasizes the importance of clear regulations governing the use of AI, protecting users' personal data, and ensuring equal access for all people with disabilities. Furthermore, collaboration with law enforcement and relevant stakeholders is considered crucial for the safe, responsible, and equitable use of AI. These findings indicate that while AI has significant potential to expand access to justice for vulnerable groups, its successful implementation depends heavily on a supportive legal, ethical, and technology governance framework (Sudirman et al., 2023).

Based on a literature review, the application of Artificial Intelligence (AI) in the healthcare sector, particularly in telemedicine services in Indonesia, has shown significant progress while simultaneously raising complex legal challenges. AI technology has been shown to improve operational efficiency, accelerate the diagnostic process, and expand access to healthcare services for communities in various regions. However, this progress also raises issues related to legal responsibility, accountability, and patient data protection. While AI's potential to improve the quality of healthcare services is significant, its implementation must be accompanied by a clear regulatory framework to mitigate legal risks, maintain data security, and ensure the technology's ethical and responsible use. These findings emphasize the need to develop specific regulations and oversight mechanisms that adapt to the dynamics of AI-based telemedicine (Rayyan & Simarmata, 2025). However, this utilization also raises serious legal questions, particularly because the existing regulatory framework still relies on the 2009 Health Law, the 2004 Medical Practice Law, and Minister of Health Regulation No. 20 of 2019, which do not specifically regulate AI. As a result, a regulatory gap has emerged, which has implications for legal uncertainty, both in terms of medical responsibility and patient data protection (Rayyan & Simarmata, 2025).

METHOD

This research employs a literature review design with a qualitative descriptive approach. The study process was conducted through searching, critically reviewing, and analyzing various scientific journal articles relevant to the research topic. This method was chosen because it allows researchers to gain a comprehensive understanding of the legal issues arising from the use of Artificial Intelligence in telemedicine services in Indonesia. By reviewing existing literature, the research is able to explore various perspectives, regulations, and best practices related to the legal responsibility of AI in the digital health sector. Furthermore, this approach supports the systematic and evidence-based compilation of the analysis results, so that the findings obtained are not only descriptive but also provide a strong argumentative basis. The literature review also allows for the identification of regulatory gaps, ethical challenges, and legal implications of AI implementation, which can then serve as references for policy recommendations and further research. Thus, this method is considered effective in presenting a comprehensive picture of the legal complexities of AI-based telemedicine in Indonesia (Mahwati, 2024).

In addition to using a library approach, this research is also categorized as legal research using a normative juridical method. The data sources utilized are entirely secondary, including primary legal materials such as laws and regulations governing telemedicine, personal data protection, and regulations related to artificial intelligence. Furthermore, this research also examines secondary legal materials in the form of legal journal articles, both national and international, relevant to the research topic. This research is descriptive and analytical in nature, first describing the applicable positive legal provisions, then linking them to findings from scientific literature and relevant legal theories. This approach aims to identify and

analyze regulatory gaps, challenges, and legal implications arising from the use of Artificial Intelligence in telemedicine services. In this way, the research can emphasize the urgency of the need to develop specific legislation that adapts to the dynamics of technology, particularly regarding legal liability in the event of AI errors or malfunctions (Benuf & Azhar, 2020). The findings from this analysis are expected to provide a structured argumentative basis, supporting both policy development and subsequent research. With this clear foundation, the implementation of AI in telemedicine services can be carried out safely, ethically, and in compliance with the applicable legal framework in Indonesia. This is crucial so that health technology innovation not only improves the efficiency and quality of services but also safeguards patient rights and public trust. Overall, the results of this study play a role in ensuring that the integration of AI into telemedicine systems is carried out according to the principles of good governance, clear legality, and high professional ethics, so that the benefits of the technology can be maximized without incurring legal or social risks.

RESULTS AND DISCUSSION

Unclear Legal Responsibility for AI Use (IM1)

One of the key issues that arises is determining who is responsible when an AI system produces an incorrect diagnosis or medical recommendation. Current regulations, including the 2004 Medical Practice Law and the 2023 Health Law, tend to emphasize responsibility on medical personnel using the technology, without providing specific provisions regarding the accountability of the AI system itself. Yet, AI operates based on complex, often black-box algorithms, making its internal mechanisms opaque and difficult to trace the cause of errors (Sorisa et al., 2024). This situation creates legal uncertainty for doctors, telemedicine service providers, and technology developers, as the boundaries of responsibility are not clearly defined. Consequently, if an incorrect diagnosis or recommendation occurs that harms a patient, the risk of legal disputes increases, and legal protection for all parties becomes less certain. This issue emphasizes the need for specific and adaptive legal regulations for the use of AI in healthcare, including accountability mechanisms, algorithm audit procedures, and system validation standards, so that the technology can be used safely, ethically, and responsibly, while providing legal certainty for patients and medical personnel (Ekalia et al., 2024).

Similar phenomena are occurring in various other countries. For example, in South Korea, regulations governing the use of AI in medical services continue to emphasize responsibility on healthcare professionals, even when AI systems are used as diagnostic aids. This demonstrates that while AI technology can support medical decision-making, legal accountability still rests with the medical professionals who utilize it. This situation raises similar challenges related to transparency, legal certainty, and the division of responsibility between humans and intelligent systems, and emphasizes the need for legal arrangements that are more adaptive to developments in medical technology at the national and international levels (Lee, 2024). In the European Union, the EU AI Act has begun to define risk categories for AI systems and stipulates that legal responsibility rests with the manufacturer or provider of the system if it is proven to be negligent in meeting established safety standards. This approach provides clear legal certainty regarding who is responsible if an AI system fails or causes harm, while also emphasizing the importance of adherence to safety and ethical standards in technology development. This comparison highlights that Indonesia still lags behind in defining the limits of legal liability for the use of AI, particularly in the context of telemedicine services. Indonesian regulations do not yet explicitly define who should be held responsible if AI results in misdiagnosis or breaches of patient data. This situation underscores the need for the development of specific, responsive, adaptive, and comprehensive regulations to provide legal certainty for service providers and technology developers, as well as optimal protection for patients (Puannandini et al., 2025). Therefore, Indonesia needs to learn from international practices to reduce regulatory gaps and improve the safety, accountability, and public trust in AI technology in healthcare.

Based on the Vicarious Liability theory, legal responsibility for errors arising from the use of AI can be transferred to the party operating or providing the service, such as a hospital or telemedicine platform provider. In this context, AI is viewed as an electronic agent under the provisions of the ITE Law. Therefore, even if the AI system makes decisions, legal accountability remains with the human or legal entity controlling or utilizing the technology. This approach emphasizes that the use of AI does not eliminate professional obligations or institutional responsibility, while also providing a legal basis for enforcing accountability when misdiagnosis or medical recommendations occur that harm patients.

Thus, this theory helps bridge the legal gap arising from the complexity of black-box AI algorithms, ensuring that legal certainty can still be upheld in intelligent technology-based telemedicine services (Haris & Tantimin, 2022).

To strengthen the analysis, Nonet and Selznick's Responsive Law theory is relevant because it emphasizes that law must be able to adapt to technological dynamics and innovation. The concept of responsive law encourages the creation of flexible and contextual regulations, thus accommodating the rapid developments in the field of artificial intelligence, including in telemedicine services (Maduratna et al., 2025). One practical implementation is through the establishment of a regulatory sandbox, a limited testing space where AI systems can be operated and evaluated in a controlled manner before widespread implementation. This approach allows for strict oversight of potential legal, ethical, and technical risks, while also providing an opportunity to identify issues that may arise in the use of AI. Thus, responsive law functions not only as a control instrument but also as an adaptation mechanism that supports innovation while protecting patient rights. The application of this principle is crucial for the safe, responsible, and legal implementation of AI in telemedicine, while also providing legal certainty for medical personnel, technology developers, and healthcare providers (Nonet et al., 2017).

With this approach, the lines of responsibility become clearer: AI manufacturers are responsible for the security and reliability of the system, service providers are responsible for proper implementation, and healthcare professionals are responsible for the final clinical decisions made. This division of responsibilities not only strengthens legal certainty but also increases public trust in the use of AI in telemedicine services. With clear roles for each party, legal risks can be minimized, accountability maintained, and technological innovation can proceed ethically and safely, maximizing the benefits of AI in improving the quality and access to healthcare services without compromising patient rights (Sastria et al., 2024).

The development of specific legislation is crucial to define the boundaries of legal responsibility, thereby reducing uncertainty for both patients and service providers. Clear regulations will ensure that all parties, including AI manufacturers, service providers, and healthcare professionals, understand their roles and obligations, while protecting patient rights. A firm legal framework can minimize the potential for legal disputes, maintain accountability, and increase public trust in AI-based telemedicine services. Such legislation also allows technological innovation to develop safely, ethically, and responsibly, allowing the benefits of AI to be maximized without harming any party (Ritonga et al., 2025). Data breaches in digital healthcare services in Indonesia are still common, particularly those related to the use of telemedicine applications that do not implement adequate data security standards. These information leaks not only directly impact individual patients but also have the potential to undermine public trust in the digital transformation of the healthcare sector. The high risks to data privacy and confidentiality emphasize the need for strengthened regulations, the implementation of strict cybersecurity protocols, and effective oversight mechanisms. This effort is important so that telemedicine services can run safely and reliably, while also encouraging public participation in utilizing digital technology for broader and more efficient access to health (Nadiroh & Wiraguna, 2025).

One significant challenge in implementing AI-based telemedicine is weak encryption systems and poor compliance by service providers with regulations governing data security. This situation increases the risk of leaking or misuse of patient health information, which can undermine public trust in digital healthcare services. Data insecurity not only has legal implications but also hinders the effective use of AI as a tool to improve the accessibility and quality of medical services (Rachmad et al., 2024). Therefore, implementing strict data security standards and improving service provider compliance with regulations is crucial. These measures include strengthening encryption, strict access controls, regular audits, and effective oversight mechanisms. Consistent enforcement of standards and regulations can ensure patient security, privacy, and trust, while supporting the optimal use of AI in telemedicine. This enables AI technology not only to improve the efficiency and accuracy of services but also to maintain the integrity of patient data, build public trust, and encourage sustainable innovation in digital healthcare services in Indonesia (Rimbun et al., 2024).

Patient Data Protection and Regulatory Gaps (IM2)

Telemedicine services utilizing AI require processing large amounts of medical data to train algorithms and provide accurate diagnoses. Without clear management and security standards, the risk of leaks, misuse, or unauthorized access to patient data is extremely high. Currently, the legal framework for

personal data protection in Indonesia is regulated by Law No. 27 of 2022 concerning Personal Data Protection (PDP Law) and Law No. 17 of 2023 concerning Health. However, these regulations are not fully aligned or synchronized with Minister of Health Regulation No. 20 of 2019 concerning the Implementation of Telemedicine (Nyoman & Purnama, 2024). This lack of synchronization creates legal loopholes that can complicate data protection oversight and enforcement, and create uncertainty for service providers and patients. Therefore, comprehensive regulatory harmonization is needed, including technical standards for data security, patient consent procedures (informed consent), and clear audit or oversight mechanisms. These efforts are important to ensure that the use of AI in telemedicine can be carried out safely, ethically, and accountably, while increasing public trust in digital health services (Ekalia et al., 2024).

As an international comparison, the European Union has implemented the General Data Protection Regulation (GDPR), which clearly protects patients' rights to personal data, including the right to an explanation regarding the use of AI in medical decision-making. Meanwhile, in the United States, the Health Insurance Portability and Accountability Act (HIPAA) establishes strict standards for the confidentiality and security of electronic health data, including access control mechanisms, audits, and sanctions for violations. Both regulations provide systematic protection for patients and legal certainty for healthcare providers in the use of digital technology. In Indonesia, despite the enactment of Law No. 27 of 2022 concerning Personal Data Protection and Law No. 17 of 2023 concerning Health, there are no regulations with the same scope and depth as the GDPR or HIPAA. This poses a significant risk of potential leaks, misuse, or illegal access to patient data in AI-based telemedicine services. The absence of comprehensive data management standards, standardized patient consent procedures, and consistent oversight mechanisms leaves the security and confidentiality of medical information vulnerable (Akbar et al., 2024). Therefore, it is crucial for Indonesia to develop more comprehensive and adaptive regulations to technological developments to ensure patient data protection, increase public trust in digital services, and ensure the safe, ethical, and accountable implementation of AI in telemedicine.

Based on Satjipto Rahardjo's Legal Protection Theory, the primary function of law is to guarantee certainty, uphold justice, and provide tangible benefits to society. In this context, law serves not only as a regulatory instrument but also as a protective mechanism that ensures the protection of citizens' rights. Effective legal practices should create conditions in which society can experience concrete protection, obtain justice in every social and institutional interaction, and experience the practical benefits of implementing legal norms. This approach emphasizes the importance of harmonizing legal norms, enforcement, and prioritizing the public interest as the basis for building a responsive and beneficial legal system (Rahardjo, 2017).

The lack of synchronization between regulations results in less than optimal protection of patient rights, particularly regarding informed consent, medical information security, and the patient's right to understand how their data is processed by AI systems. This lack of harmonization indicates that current regulations are still primarily normative and do not fully guarantee implementation in the field. Therefore, it is necessary to establish or strengthen a data oversight body with the authority to effectively oversee the implementation of regulations. The presence of a strong oversight body can ensure that the principles of transparency, accountability, and data security are consistently implemented by AI-based telemedicine service providers (Mannas & Elvandari, 2023). With a firm oversight mechanism, regulations will not only serve as formal guidelines but can also be implemented in practice, ensuring that patient rights are fully protected. This effort is crucial for building public trust in digital healthcare services, encouraging the ethical and safe use of AI, and ensuring that technological innovation in telemedicine remains aligned with the principles of patient rights protection (Disemadi, 2021). The issue of patient privacy in Indonesia's electronic healthcare system relates not only to technical aspects but also to legal aspects, as protection of medical data remains partial and incomplete. This situation underscores the importance of formulating regulations that are more assertive, consistent, and adaptive to developments in digital technology, so that patient rights and privacy can be effectively protected. Comprehensive regulations are needed to ensure data security, prevent misuse, and provide legal certainty for both patients and healthcare providers. With a strong legal framework, the digital healthcare ecosystem can develop safely, ethically, and reliably, while also increasing public trust in the digital transformation of the healthcare sector (Putri Purnama, 2025).

From the previous description, it is clear that the use of AI in telemedicine services presents two main challenges: unclear legal responsibilities (IM1) and suboptimal patient data protection (IM2). These two issues are interrelated, as they both reflect regulatory gaps in the Indonesian legal system. The complexity of AI algorithms, or the "black box problem," emphasizes the importance of a clear legal mechanism for determining lines of accountability, while regulatory inconsistencies indicate the need for harmonization between Law No. 27 of 2022 concerning Personal Data Protection, Law No. 17 of 2023 concerning Health, and Minister of Health Regulation No. 20 of 2019 concerning the Implementation of Telemedicine. Thus, the urgency of drafting specific legislation governing AI in telemedicine is increasingly pressing. Responsive regulations will serve as a pillar of legal certainty, protecting patient rights, and ensuring accountability for service providers and technology developers. At the same time, adaptive regulations allow room for technological innovation to develop without compromising patient safety and rights (Manurung et al., 2024). With a comprehensive and flexible legal framework, the application of AI in telemedicine can take place safely, ethically, and responsibly, while maximizing its benefits for the Indonesian people, improving the quality of healthcare services, and strengthening public trust in the digital transformation of the healthcare sector.

CONCLUSION

The use of Artificial Intelligence (AI) in telemedicine services in Indonesia offers significant opportunities to improve the efficiency, speed, accuracy, and reach of healthcare services, particularly for people living in remote areas. AI can support faster, data-driven diagnosis, patient monitoring, and medical decision-making. However, these technological advances also pose complex legal challenges. One key issue is the lack of clarity regarding legal liability in the event of an incorrect diagnosis or medical recommendation resulting from an AI system. Currently, Indonesian regulations still place primary responsibility on medical personnel, while AI operates through often opaque algorithms (a black box problem), making it difficult to determine who should be held accountable. Furthermore, patient data protection is a crucial issue. AI-based telemedicine services require the processing of large amounts of medical data, which is prone to leakage, misuse, or illegal access. Although Law No. 27 of 2022 concerning Personal Data Protection, Law No. 17 of 2023 concerning Health, and Minister of Health Regulation No. 20 of 2019 provide a legal framework, the synchronization between these regulations is not optimal, resulting in gaps that could threaten patient privacy. Therefore, the urgency of developing specific, responsive and adaptive regulations is crucial. These regulations must clarify legal responsibilities, guarantee data security and confidentiality, ensure transparency in the use of AI, and uphold the principle of informed consent. With a comprehensive, flexible, and adaptive legal framework, AI in telemedicine can develop safely, ethically, and accountably. Ultimately, these regulations will provide maximum benefits to society, improve the quality of healthcare services, strengthen public trust, and ensure the full protection of patient rights.

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