

LEGAL RESPONSIBILITIES AND PROTECTION OF PATIENT PRIVACY IN THE USE OF VIRTUAL REALITY AS A NEW METHOD IN DRUG ABUSE REHABILITATION

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Article Info	Abstract
<p>Article History Received : 2025-04-01 Revised: 2025-04-16 Published: 2025-05-01</p> <p>Keywords: <i>Legal Liability; Patient Privacy; Virtual Reality Rehabilitation.</i></p>	<p><i>Virtual Reality (VR) technology has been rapidly developing and applied in various fields, including medicine. In the context of drug abuse rehabilitation, VR offers an innovative therapeutic approach that is effective in reducing the desire to use drugs. In Indonesia, drug abuse continues to increase, especially among adolescents, so an effective rehabilitation method is needed. Although VR shows great potential, its application poses legal challenges, especially related to legal liability and protection of patient privacy. This study analyzes the existing legal framework in Indonesia and highlights the need for stricter regulations to ensure patient safety and privacy in the use of VR. A comprehensive legal approach will support the development of VR as a safe and ethical rehabilitation method.</i></p>

I. INTRODUCTION

In recent years, Virtual Reality (VR) technology has experienced rapid development and has been applied in various fields, including medicine, education, and entertainment. In the medical context, VR has shown great potential in a variety of applications, ranging from physical therapy, pain management, to psychiatric rehabilitation (FDA, 2023). One promising area is the use of VR in drug abuse rehabilitation.

Drug abuse in Indonesia is increasing and becoming a complex problem. Various levels of society are affected, with children and adolescents as the main targets. The age of first trying drugs is generally between 12-15 years. Among students, 7.5% were reported to have used drugs, and 4.5% in the past year (Wibawa, Putri, & Kharismawati, 2024). Article 4 of the Narcotics Law shows that rehabilitation is one of the main objectives of this law. Regulations regarding rehabilitation are specifically regulated in Chapter IX, part two, namely from Article 54 to Article 59, which discusses rehabilitation for drug users, in addition to related provisions in several other articles (Widodo, et al., 2017).

VR offers an innovative new approach by creating a simulated environment that can be customized to meet individual therapeutic needs. VR technology can be an important tool in supporting this sobriety, though it is not the sole solution. VR has been shown to be effective in treating PTSD symptoms, helping to quit alcohol and tobacco use, and preventing obesity (Niznik

Behavioral Health, 2023). Researchers at the University of Houston Graduate College of Social Work (GGSW) are developing the use of VR as an aid in addiction therapy. They created a virtual "heroin cave" that allows users to practice recognizing and overcoming addiction triggers in a safe environment with a therapist. If proven effective, this therapy could be combined with behavioral therapy and medication to prevent relapse, with the hope that VR could offer a more realistic and effective therapeutic experience for patients (Loria, 2016).

Furthermore, research conducted by Siti Rahayu (2024) revealed that the use of VR technology in therapy and rehabilitation offers the potential for great progress in improving patient care and recovery outcomes. With an immersive and controlled simulation environment, VR allows practitioners to create experiences that are tailored to each individual's needs, thereby facilitating physical, cognitive, and emotional exercise more effectively.

The application of VR technology in drug abuse rehabilitation raises challenges related to legal liability and protection of patient privacy. In the context of health law, it is important to ensure that the use of VR does not violate patient rights and that their personal data is protected. Law Number 27 of 2022 concerning Personal Data Protection is the main legal basis, which regulates the rights of data subjects and the obligations of data controllers and processors to maintain the

security, accuracy, and suitability of data use according to the purpose of its collection.

Law Number 36 of 2009 concerning Health emphasizes the importance of quality of service and the responsibility of health workers to maintain the security and privacy of health data, which is supported by Law Number 44 of 2009 concerning Hospitals, which stipulates the obligation of hospitals to protect patient privacy. The Indonesian Code of Medical Ethics also emphasizes confidentiality, privacy, and informed consent in the use of new technologies such as VR. In addition, international principles such as GDPR are often used as a reference for the principles of lawfulness, fairness, and transparency. Law Number 29 of 2004 concerning Medical Practice regulates the patient's right to receive complete information about VR therapy and the right to consent. By following these regulations, VR rehabilitation service providers can ensure full patient data protection and legal compliance.

Legal responsibilities in the use of VR for drug abuse rehabilitation also include device security, which must be tested routinely, with trained staff and ongoing monitoring to ensure its safety and effectiveness. This study explores the application of Indonesian laws and regulations related to VR in drug rehabilitation, and identifies challenges and solutions to maximally protect patient privacy. It is hoped that this study can support the development of policies that enable the safe and effective use of VR in medical rehabilitation. Legal responsibilities and protection of patient privacy in the use of Virtual Reality (VR) for drug rehabilitation require a legal historical basis to form regulations that are adaptive to modern technology (Aspan, 2020). By understanding the legal history, regulations can be more sensitive to patient privacy and ensure accountability of services, while adhering to the principles of fairness and security.

II. RESEARCH METHODS

This study uses a normative legal method, which involves an analysis of relevant laws, legal doctrines, and court decisions. This type of research is normative legal, focusing on the study of legal documents and relevant literature. In the context of legal responsibility and protection of patient privacy in the use of Virtual Reality (VR) as a method of drug abuse rehabilitation, this study examines various applicable regulations and legal standards. This analysis includes laws

related to the protection of personal and health data and their application in medical practices that use VR technology. In addition, this study examines academic literature and case studies to understand the application of law in VR-based drug rehabilitation, with the aim of identifying the legal obligations of health care providers and assessing the effectiveness of existing regulations in protecting patient rights. The nature of this study is descriptive-analytical, with the aim of providing a complete picture and in-depth analysis of legal responsibility and privacy protection in the use of VR for drug rehabilitation.

This study describes various aspects related to the use of VR technology in rehabilitation, including legal regulations governing the obligations of health service providers, protection of patient personal data, and technology security standards. Through a legislative and conceptual approach, this study seeks to provide a comprehensive analysis of the application of the legal framework in the context of drug rehabilitation with VR. By exploring information from legal documents, academic literature, and case studies, this study aims to produce policy recommendations that can improve legal protection for patients and optimize the benefits of VR technology in rehabilitation.

III. RESULTS AND DISCUSSION

A. Legal Responsibilities of Healthcare Providers in the Use of Virtual Reality (VR) Technology for Drug Abuse Rehabilitation

In the context of drug abuse rehabilitation, VR technology offers significant potential to enhance the effectiveness of therapy. Research by Yuan, Huang, and Yan (Yuan, Huang, & Yan, 2019) showed that after VR treatment, the mean and standard deviation of patients' heart rates decreased significantly, providing strong evidence that patients' responses to drug stimuli were greatly reduced after VR treatment, thus virtual reality is indeed effective in assisting detoxification.

Research on the use of Virtual Reality (VR) as a method in drug abuse rehabilitation shows the effectiveness of VR in assessing and triggering cravings for various types of addictions, such as nicotine, cocaine, alcohol, marijuana, and gambling, as well as the potential for VR to reduce these urges (Segawa et al., 2020). However, the implementation of VR in rehabilitation also poses challenges related to legal liability and protection of patient privacy. Given that VR technology can

create a highly immersive and realistic experience (Azmi et al., 2024), patient personal data, including physiological and behavioral responses related to addiction, must be strictly protected to prevent misuse or data leakage. In addition, institutions providing VR therapy have a legal responsibility to ensure that the use of this technology is carried out safely, considering psychological risks such as cybersickness or side effects that can worsen the patient's condition. Specific standards and regulations need to be developed to ensure that VR is applied ethically, respects privacy, and protects patient rights within the framework of this modern rehabilitation.

The concept of responsibility is closely related to obligation, although not entirely identical. Obligation arises because of the existence of legal rules that require legal subjects to comply with them. If this obligation is ignored, the legal rule will impose sanctions as a coercive measure so that the obligation can be carried out. In Kelsen's view, legal subjects who receive these sanctions are considered legally "responsible" for the violations committed (Dyani, 2017).

The legal liability of healthcare providers in the use of Virtual Reality (VR) technology for drug abuse rehabilitation is an increasingly crucial issue along with the advancement of technology in the medical world. Legal liability in this context can be divided into several categories, including civil, criminal, administrative, and ethical liability, all of which have different implications related to the types of penalties or sanctions that may be applied.

Civil liability relates to the obligation to provide compensation to a party who is harmed by certain actions or omissions, such as in the case of malpractice claims in the health sector. Both data controllers and data processors can be held liable, which can result in sanctions (Samin, 2024). Criminal liability includes the imposition of penalties on perpetrators for actions that violate or create prohibited conditions, namely the process of transferring criminal penalties to the perpetrators. In this case, if VR technology is used illegally or in violation of existing regulations, health care providers may face criminal charges (Fadlian, 2020).

Administrative responsibility refers to the obligation to comply with regulations and standards set by authorized government agencies or institutions. Minister of Health Regulation No. 4 of 2020 concerning the Implementation of Mandatory Reporting Recipient Institutions

(IPWL) regulates standards for the implementation of medical rehabilitation, including the use of VR technology. Health service providers are required to comply with established service standards, conduct comprehensive assessments before implementing VR therapy, and protect patient rights through informed consent.

Ethical responsibilities relate to moral obligations recognized by the profession or society at large. In the context of health care, this includes the responsibility to act in the best interests of the patient, maintain the confidentiality of medical information, and provide fair and equitable care to all patients. Violations of ethical standards may result in sanctions from the professional body or organization that regulates the practice.

The Restorative Justice approach outlined in the study offers a recovery-based solution that emphasizes the responsibility and accountability of healthcare providers to protect patients from negative impacts and maintain the confidentiality of their medical data. In the context of VR use, sensitive patient data such as physiological and psychological responses must be managed with high privacy standards, similar to the Restorative Justice approach that demands comprehensive justice and relationship restoration (Siregar, 2023).

Law No. 17 of 2023 concerning Health provides a legal basis for health efforts in Indonesia, including the implementation of innovative technologies such as VR in health services. This law emphasizes the importance of quality, access, safety, quality, and patient privacy in the implementation of VR technology. In addition, this law stipulates that health service providers must ensure that the technology used, such as VR, meets strict government and ethical standards. In the context of rehabilitation with VR, service providers are required to provide adequate information to patients regarding the risks and benefits of therapy (informed consent). Failure to provide information or obtain patient consent can result in legal liability if there is a negative impact on the patient during or after therapy.

Patient data protection and privacy are critical in the use of VR for rehabilitation, especially since personal information is vulnerable to breaches in this digital age. Law No. 27 of 2022 requires healthcare providers to implement strict data security policies, ensure that patient data is used only for legitimate

purposes with patient consent, and protect their rights regarding personal data. Privacy breaches can have serious legal consequences and damage the reputation of the service provider. In addition to ensuring data security, service providers must educate patients about their rights and prevent misuse of the technology, so that transparency and protection of patient rights are guaranteed in VR therapy.

Thus, this legal responsibility covers the entire process from the implementation of the technology to data protection, all of which must be carried out in accordance with applicable regulations to ensure the safety and comfort of patients. The challenges faced in the context of privacy law also relate to the need to educate the public and patients about their rights regarding the protection of personal data and how VR technology is used in their therapy. Healthcare providers must take proactive steps to ensure that patients understand how their data will be used and protected. This includes transparency in the data collection process and assurance that the data will not be misused for purposes other than those for which the patient has consented.

B. Protection of Patient Privacy and Application of Medical Ethics Principles in the Use of VR as a Rehabilitation Method

Some relevant laws for the use of VR in health include Law No. 17 of 2023 concerning Health, Law No. 27 of 2022 concerning Protection of Personal Data, and regulations of the Ministry of Health and the National Narcotics Agency (BNN). The 2023 Health Law provides a legal basis for improving the quality and access to services, including innovative technologies such as VR, and emphasizes patient safety, quality, and privacy. This law guarantees the public's right to obtain promotive, preventive, curative, rehabilitative, and palliative health services, which are provided through primary and secondary health facilities (Widjaja, 2023).

In addition, Law No. 27 of 2022 concerning Protection of Personal Data is the main legal basis for protecting the personal data of patients involved in VR therapy. Protection of personal data is a human right that protects personal information as part of self-protection, based on legal provisions in the 1945 Constitution of the Republic of Indonesia (Mardiana & Meilan, 2023). Data collected during VR therapy sessions, such as physiological and psychological data, must be kept confidential and protected from

unauthorized access. Failure to protect patient personal data can result in serious violations of the law and damage patient trust in health services.

In addition to these laws, there are specific regulations such as Permenkes No. 4 of 2020 and BNN Regulations No. 7 of 2020 and No. 6 of 2022 which regulate medical rehabilitation standards, including the use of VR technology. Permenkes No. 4 of 2020 requires comprehensive assessment and adequate informed consent before VR therapy. Meanwhile, BNN regulations emphasize the importance of developing innovative rehabilitation methods, service integration, data security, and strict monitoring to ensure the effectiveness and safety of implementing VR in drug rehabilitation in accordance with the standards set by BNN.

Furthermore, Law No. 35 of 2009 concerning Narcotics is also relevant in this context, especially in terms of handling malpractice cases involving VR technology. Citing research from Cornet and Gelder (2021), well-developed research uses VR in the fields of mental health and other social sciences, and this technology is also used to study various important phenomena for criminologists, such as racial stereotypes and bias, disorderly behavior, obedience and authoritarianism, aggression, moral judgment, risk of becoming a victim of crime, and delinquency and criminality.

However, there are still some problems in the use of VR for drug rehabilitation. These problems include ethical problems that need to be considered, because VR's ability to collect large amounts of data with precision also has potential risks. For example, VR device manufacturers (such as HTC, Facebook) may collect data for commercial purposes and potentially share it with third parties, and users can be identified through their digital "fingerprints", which can trigger conflicts regarding data privacy (Cornet & Gelder, 2021).

Supervision of innovative technologies is also an area that requires further attention. BNN Regulation No. 7 of 2020 and BNN Regulation No. 6 of 2022 provide a framework for supervision in rehabilitation, but these regulations may not be fully developed to address the complexities of VR technology. The lack of adequate supervision may make it difficult to evaluate the effectiveness and safety of VR use. Finally, in terms of handling malpractice cases, Law No. 35 of 2009 concerning Narcotics regulates criminal offenses related to the use of narcotics, but specific jurisprudence

and legal guidelines for malpractice cases involving VR technology are still minimal. This may make it difficult for the courts to determine liability and determine damages.

To provide a clearer picture of the regulations required for the use of VR technology for drug rehabilitation, the following table summarizes the regulations, descriptions, and key implications of each relevant law and regulation.

This table outlines the key elements required to ensure that the use of VR in drug rehabilitation meets legal, privacy, security, and ethical standards.

Table. Regulation of Use of Virtual Reality (VR) Technology for Drug Abuse Rehabilitation

Aspect	Related Regulations	Description	Implications
Specific Standards for VR Technology in Rehabilitation	Law No. 17 of 2023 concerning Health	While there are general regulations, specific standards governing the use of VR in drug rehabilitation may be incomplete.	There is a lack of clarity regarding the safety and effectiveness standards that health care providers must meet.
Specific Data Protection Regulations for VR Technologies	Law No. 27 of 2022 concerning Protection of Personal Data	The Personal Data Protection Act may not yet specifically cover the management of data generated from VR technology.	Risk of patient data privacy and security breaches due to lack of specific guidelines for VR data management.
Specific Informed Consent Provisions for VR Technology	Minister of Health Regulation No. 4 of 2020 concerning the Implementation of Mandatory Reporting Receiving Institutions (IPWL)	Current informed consent may not fully cover the specific risks associated with the use of VR technology.	Patients may not fully understand the risks of VR therapy, which could raise legal issues if harm occurs.
Regulation on the Use and Supervision of Innovative Technologies	BNN Regulation No. 7 of 2020 concerning the Organization and Work Procedures of the BNN Technical Implementation Unit (UPT) and BNN Regulation No. 6 of 2022 concerning the Implementation of Continuous Rehabilitation	Oversight of the use of innovative technologies such as VR in rehabilitation may not yet be fully developed.	It is difficult to evaluate the effectiveness and safety of VR use and ensure the technology is used as needed.
Handling Malpractice Cases Specific to VR Technology	Law No. 35 of 2009 concerning Narcotics	Specific jurisprudence and legal guidelines for malpractice cases involving VR technology are still minimal.	Making it difficult for courts to determine liability and award damages in malpractice cases involving VR.

That based on the description in the table, it can be seen that the legal and regulatory aspects related to the use of VR technology in drug rehabilitation still need strengthening. Furthermore, to ensure safe and effective implementation, additional policies and the establishment of special SOPs by the authorities are needed. That to ensure the safe and effective use of Virtual Reality (VR) technology in drug rehabilitation, the government and regulatory bodies such as the BNN and the Ministry of Health need to develop specific policies, including special Standard Operating Procedures (SOPs). These SOPs must include technical guidelines regarding the use, monitoring, and evaluation of VR therapy, as well as procedures for health workers so that therapy is carried out safely. In addition, the establishment of a special monitoring unit by the BNN and the Ministry of Health is highly recommended to monitor the use of this

technology through periodic audits, ensure compliance with SOPs, and handle potential problems that arise quickly and appropriately.

Just as consumer protection in digital transactions (Aspan, 2021) requires strict regulations on data and transaction security issues, the use of VR in a medical context also requires specific regulations to ensure that patient data is protected from unauthorized access and misuse. Furthermore, just as Cyber Notary functions as a trusted third party in electronic transactions to ensure the validity and security of data, VR technology in a medical context requires a strong legal framework to protect sensitive patient data (Aspan, 2023). Electronic certification and verification carried out by a third party can inspire similar applications in VR rehabilitation, where patient data, including physiological and psychological data, can be managed and protected with strict privacy and security standards. This approach

ensures the responsibility of VR service providers, strengthens patient trust, and ensures compliance with legal regulations that guarantee the privacy and security of patient medical information.

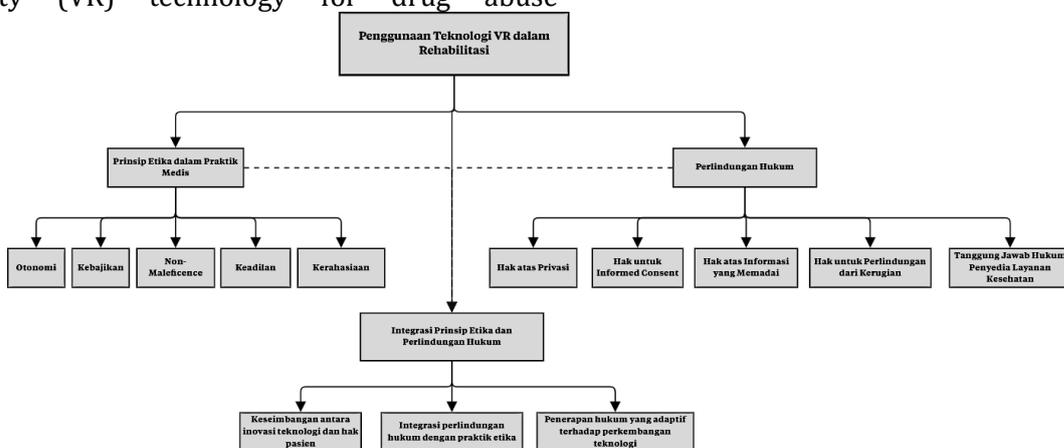
The government needs to formulate specific regulations related to data management from the use of VR technology, which include data security, encryption, access rights, and the obligation of service providers to maintain the confidentiality of patient data. Given the sensitivity of VR data, strict regulations are needed to protect patient privacy and prevent data misuse. In addition, service providers must receive special training on the legal and ethical aspects of VR use, while public education programs need to be developed to increase public understanding of the benefits and risks of VR in rehabilitation therapy. These steps are expected to close the legal gap and ensure the responsible use of VR in drug rehabilitation.

The concept of justice and truth plays an important role in shaping legal responsibility and protecting patient privacy in the use of Virtual Reality (VR) technology for drug abuse

rehabilitation. A just and correct legal system is not only a set of normative rules, but must also reflect moral values that protect human rights, including patient privacy (Fitrianto, Zarzani, & Simanjuntak, 2021). In the context of VR, which collects in-depth physiological data and patient behavioral responses, it is important to have strict regulations to protect data from misuse and ensure patient privacy. The legal responsibility of service providers in this context must be based on justice and ethics, with attention to patient autonomy and the security of sensitive data.

That in order to clarify the integration between legal regulations and medical ethics principles in the use of VR technology in drug abuse rehabilitation, the following is a chart that illustrates the concept of legal protection and ethical responsibilities that must be borne by service providers.

Chart. Concept of Integration of Legal Protection and Medical Ethics Principles in the Use of VR Technology in the Rehabilitation of Drug Abusers.



Privacy protection and the application of medical ethics principles in the use of Virtual Reality (VR) technology are important elements from both a medical practice and legal perspective. As the Internet era develops and the use of the Internet of Things (IoT) increases, challenges to patient privacy are increasing. VR allows for the collection of more detailed patient personal data than traditional face-to-face therapy, such as eye movements, behavioral response patterns, and motor responses that form the patient's "kinematic fingerprint". The addition of IoT and social VR technologies raises concerns about data recording and sharing, threatening the privacy of patients' information, physical, and associative identities. Therefore, regulations such

as the Health Insurance Portability and Accountability Act (HIPAA) and ethical guidelines from the American Psychological Association serve as references for practitioners to protect patient information through strict encryption and protection (Parsons, 2021). Thus, the application of these regulations is not only to fulfill legal aspects but also to maintain the principles of beneficence, non-maleficence, and patient autonomy in medical ethics.

The theory of legal protection in health law includes several main principles that must be understood and applied by health care providers. The first is the right to privacy. Privacy is a fundamental issue for every individual, including patients. Scholars emphasize that privacy is at the heart of a person's integrity and personality. In the context of health, the patient's right to privacy

is essential because it protects sensitive medical information. Gutwirth calls privacy the “cornerstone of society” that affects self-determination and autonomy in relationships. The patient's right to privacy also maintains trust, autonomy in medical decisions, and peace of mind. The ability to control personal information is an important part of the patient's well-being and dignity during treatment (Yusifova, 2020).

Furthermore, the right to provide informed consent is another important aspect in the theory of legal protection. Informed consent is a process in which patients are given complete, honest, and understandable information about the medical procedure to be undergone, including its risks and benefits (Sitohang, 2017). The right to patient privacy must be guaranteed, especially since medical information in Virtual Reality (VR) is sensitive. Healthcare providers must strictly protect patient data to maintain their trust and integrity. VR procedures require transparent informed consent, providing patients with a thorough understanding of the benefits, risks, and psychological impacts of VR therapy. Thus, legal protection in the use of VR in the health sector includes privacy, informed consent, adequate information, and protection against harm, which ensures the use of VR is safe, effective, and in accordance with medical ethics.

IV. CONCLUSIONS AND RECOMMENDATIONS

In conclusion, legal responsibilities in the use of Virtual Reality (VR) technology for drug abuse rehabilitation include various aspects that protect patient rights and privacy. Healthcare providers are required to ensure that patient medical data is well protected, given the high risks associated with digital data misuse. In addition, the obligation to obtain informed consent from patients is crucial, where patients must be given complete information about the benefits, risks, and psychological impacts of VR therapy in order to make the right decision. This legal protection not only aims to protect patients legally but also strengthen patient trust and comfort in receiving therapy.

Furthermore, regulations such as Law No. 17 of 2023 concerning Health and Law No. 27 of 2022 concerning Personal Data Protection provide a clear legal basis for the use of VR technology in health services. The implementation of these regulations is accompanied by strict supervision from related agencies, such as the BNN and the Ministry of

Health, so that medical safety and ethical standards are maintained. Challenges related to VR technology, such as the potential for privacy violations through precise data collection, require detailed procedures, including specific SOPs to ensure safe and effective therapy. With a strong and comprehensive legal framework, the use of VR in drug rehabilitation is expected to be carried out responsibly, effectively, and in accordance with the principles of medical ethics.

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