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The Role of Artificial Intelligence in Handling Discrimination of BPJS Patients in Health Services

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ABSTRACT: Health services must be oriented towards meeting consumer demands and expectations, which are closely related to service quality. However, there are still problems in its implementation, such as discrimination against BPJS patients, who often get different treatment compared to non-BPJS patients, both in service quality and access to health facilities. According to Article 28H Paragraph (1) of the 1945 Constitution, everyone has the right to a prosperous life and decent health services. The objective of this study is to identify the role of artificial intelligence in reducing and preventing discrimination against BPJS patients in Health services, and to analyse how legal regulations can support the application of AI to ensure the creation of fair and non-discriminatory health services. [Methods] The research method used is normative juridical, using a statutory approach and an analytical approach. The results show that AI has significant potential in detecting and preventing discrimination, for example through algorithms that monitor the treatment of patients in real-time. However, the application of AI must be supported by a clear legal framework to ensure that the use of this technology does not exacerbate inequality, but rather supports equitable access to health services. The conclusion of this study is that artificial intelligence can be an effective solution in addressing discrimination of BPJS patients, as long as it is integrated with policies and regulations that protect the rights of patients, as well as ensuring oversight and accountability on the part of healthcare providers.

Keywords: discrimination, healthcare, BPJS, Artificial Intelligence

INTRODUCTION

Health is part of human rights. The right to health is part of the basic rights of every human being and is a basic need of every human being that cannot be reduced under any circumstances. So valuable is this right to health that the right to health is guaranteed as a human right in several national and international instruments. As an effort to obtain health rights, the community will receive a health service.

Health services are a service product that has a special nature and is different from other types of services. Patients as parties who use health services are generally in a state of pain, concern, panic, and tension in uncertainty. To form a comprehensive health insurance and be able to reach the entire population of Indonesia, the government in this case makes a national social security system program that aims to provide certainty of protection and social welfare for all Indonesian people. In line with this, the Social Security Organizing Agency was formed, hereinafter abbreviated as BPJS, with the principles of mutual cooperation, non-profit, openness, prudence, accountability, probability, compulsory participation, trust funds, and the

results of managing social security funds entirely for program development and for the greatest benefit of participants (Jabbar, 2020).

Based on Article 1 Point 3 of Law Number 40 of 2004 concerning the National Social Security System, social insurance is a mandatory fund collection mechanism derived from contributions to provide protection for socio-economic risks that befall participants and / or their family members (Andika, 2017).

BPJS Healthcare is part of the national social security system that aims to provide certainty of protection and social welfare for all Indonesian people as mandated in Article 28 H paragraph (1), paragraph (2), and paragraph (3) as well as Article 34 paragraph (1) and paragraph (2) of the 1945 Constitution of the Republic of Indonesia (Christiawan, 2017). Furthermore, it is reaffirmed in Article 34 paragraph (3) of the 1945 Constitution of the Republic of Indonesia that the State is responsible for the provision of health care facilities and proper public service facilities. Every activity carried out in order to improve public health welfare needs to be carried out professionally without discrimination (Daming, 2020).

The Hospital serves as one of the health service facilities. Hospitals are part of the health resources that are very important in supporting the implementation of health efforts (Basuki U, 2020). However, many complaints from BPJS users who get services that are not in accordance with hospital service standards make the problem more complex. As time goes by, the complaints experienced by BPJS users are increasing, in this case the problems are related to the relationship between BPJS user patients and hospitals. Although the program makes it easier for people to access health services, until now there are still many BPJS users who have difficulty getting health services at the hospital (Amin, Badaru, & Djanggih, 2022).

BPJS Health collaborates with various health care facilities, such as hospitals, health centres, clinics, and other health facilities, to provide health services for BPJS participants. BPJS Health participants can access health services at these facilities by paying affordable premium contributions according to their level of membership. Thus, BPJS Health bridges the community with needed health services, and ensures that every citizen has equal access to quality health services. Good governance is closely related to the quality of health services received by the community (Sukardi, Shafinaz, Fadilla, Al Amin, & Falaq, 2024).

BPJS users have to move from one hospital to another just to get a place for hospitalization. Such cases show that hospitals and BPJS health have not fully improved the performance of the best service for the community. To make matters worse, there are several cases such as BPJS Health user patients getting rejected by hospitals for various reasons until finally there were casualties (Amin et al., 2022). Such discriminatory behaviour undermines the health care system in Indonesia, and indirectly does not support reform in the health sector.

Artificial intelligence (AI) has developed rapidly in recent decades and has had a significant impact in various sectors, including the healthcare sector. In Indonesia, the existence of the Health Social Security Organizing Agency (BPJS) as a health service provider for the community is one of the important milestones in ensuring equitable access to health services. However, in its implementation, BPJS Health is often faced with various challenges, one of which is the problem of discrimination in the provision of health services to patients who utilize social security (Romero, Sri Ratna Suminar, & Zakiran, 2023). This discrimination can occur in the form of differences in services between BPJS patients and general patients, such as the length of waiting time, priority in medical actions, and access to better health facilities (Muchsin, Habiba, Slamet, Sari, & Suryanto, 2019)

As the need for fair and equitable healthcare increases, AI is expected to play an important role in addressing this discrimination issue. AI has the potential to improve

efficiency, accuracy, and fairness in healthcare delivery by utilizing data and algorithms that are able to objectively identify patterns of discrimination (Isdayani, Thamrin, & Milani, 2024). AI-based systems can assist in conducting fair automated triage, monitoring the performance of medical personnel in real-time, and providing data-driven recommendations that can be used by hospital management to improve service quality regardless of the patient's health insurance status (Thaariq, Baskara, Chaniago, Christin, & Ernawati, 2024).

Despite the promising potential of AI in addressing discrimination of BPJS patients, the implementation of this technology still faces various challenges, including infrastructure readiness, patient data privacy, and the adaptability of medical personnel to new technologies. The objective of this study is to examine the role of AI in reducing discrimination of BPJS patients in health services, identify potential obstacles, and propose solutions to ensure that the application of AI can provide optimal benefits in improving justice and the quality of health services.

Discrimination is a pervasive phenomenon in healthcare settings, particularly in the general service sector. It is often driven by factors such as economic background, educational background, and even fiscal considerations. The presence of discriminatory practices in healthcare is unacceptable, as they directly impact the fundamental human right to life and health (Wuryanto, 2024).

Discrimination against BPJS Helath participants occurs because there is a gap for unscrupulous health facilities to take advantage of the community (Hartati, 2017). One of the gaps is the difference in classes in BPJS Health, where there are differences even though the facilities provided are not much different, but the difference is in the inpatient facilities provided. Seeing the discrimination in each class of BPJS Health, BPJS Health created a program called the Standard Inpatient Class which aims to equalize all classes. However, in its application the program only focuses on infrastructure not on health services so that some BPJS Health participants feel disadvantaged and also the program removes the main principle of BPJS Health, namely mutual cooperation. (Retraningsih, 2018).

Previous studies have highlighted significant issues related to the discrimination faced by BPJS patients in healthcare services. Research by Romero, Suminar, and Zakiran (2023) discussed the challenges in fulfilling BPJS patient rights, particularly concerning fair and anti-discriminatory healthcare services. Similarly, Muchsin et al. (2019) identified disparities in the quality and accessibility of healthcare services for BPJS participants compared to non-BPJS patients, emphasizing the role of systemic issues in perpetuating such inequities. However, despite these insights, limited research has explored the integration of artificial intelligence (AI) as a potential solution to address these discriminatory practices within the Indonesian healthcare system.

The increasing number of complaints from BPJS patients and the persistence of discriminatory practices in healthcare services pose significant threats to the realization of equitable healthcare in Indonesia. Addressing these inequities is critical not only to protect the fundamental right to health guaranteed by the Constitution but also to restore public trust in the healthcare system. The urgent need for fair treatment, coupled with advancements in AI, underscores the importance of leveraging technology to create transparent, efficient, and equitable healthcare services.

While studies have identified issues of discrimination against BPJS patients, there is a notable gap in actionable solutions utilizing AI technologies. Most existing research focuses on systemic flaws without proposing innovative mechanisms like AI for real-time monitoring, triage optimization, or performance evaluation of medical personnel. This study addresses this

gap by exploring AI's potential to reduce healthcare disparities and ensure non-discriminatory practices.

This research introduces AI as a transformative tool to address discrimination against BPJS patients in healthcare services. Unlike previous studies, it emphasizes AI's ability to manage patient data, optimize workflows, and promote fairness in service delivery through objective, data-driven decision-making. The study uniquely combines legal frameworks and technological applications to propose an integrated solution for equitable healthcare.

The primary objective of this study is to analyze how AI can reduce and prevent discrimination against BPJS patients in healthcare services. It also aims to examine the role of legal regulations in supporting the ethical and equitable implementation of AI within the Indonesian healthcare system.

This research offers dual benefits: it provides policymakers with insights into how AI can transform healthcare practices to be more equitable, and it empowers healthcare providers with practical tools to improve service quality. Moreover, it contributes to reducing systemic discrimination, fostering a more inclusive healthcare environment for all patients.

The findings of this study have significant implications for healthcare reform, technological integration, and legal development. By demonstrating AI's role in fostering equity, the research supports the modernization of Indonesia's healthcare system while ensuring adherence to ethical and legal standards. This not only enhances public trust but also sets a precedent for using technology to address social disparities in other sectors.

RESEARCH METHODOLOGY

The approach method used is normative juridical research. The normative juridical research method is library legal research conducted by examining library materials or mere secondary data (Sedarmayanti & Hidayat, 2011). Normative juridical research is a process of finding legal rules, legal principles, and legal doctrines in order to answer the legal problems at hand (Marzuki, 2006).

The instrumentation in this research consists of literature review and legal document analysis (Soekanto & Mamudji, 2015). The main tools used are primary legal materials, namely Law No. 17 of 2023 concerning Health, the 1945 Constitution of the Republic of Indonesia, and Law No. 40 of 2004 concerning the National Social Security System while secondary legal materials are legal doctrines, academic literature, and scientific articles. All of these documents are used to explore and analyse the legal issues under study. This research process begins with the identification of relevant regulations and legal documents, followed by the collection and analysis of legal materials. The data obtained is then analysed through a qualitative analysis approach, that is, by observing the data obtained and relating each data obtained to the regulations and legal principles related to the problem under study (Lexy, 2002).

The data collection technique used is to conduct legal research studies in the form of library research, namely by collecting and studying and analysing statutory provisions relating to health law. In this study, the scope of this research will be carried out by drawing legal principles, which are carried out on written and unwritten positive law (Soekanto, 1996).

RESULT AND DISCUSSION

The Role of Artificial Intelligence in Reducing and Preventing Discrimination Against BPJS Patients in Health Services

Artificial intelligence (AI) has great potential in overcoming discrimination that often occurs in health services, especially for BPJS patients (Jeremia, 2023). Discrimination in healthcare services against BPJS patients can take the form of unequal services, differences in access to facilities, and quality of medical care compared to non-BPJS patients. AI can play a role in creating a more fair and equitable process through various data-driven automated mechanisms.

a. Patient Data Management for Discrimination Detection and Prevention

In reality, there are still health facilities that do not apply the quality of health services to the fullest. For example, there are cases where hospitals put patients of BPJS Health participants second. This case occurred in several hospitals in Bandar Lampung City which still provided different services to patients participating in the BPJS Health program (Handoko, 2020).

One of the key strengths of AI is its ability to manage and analyse large amounts of data quickly and efficiently (Mambu et al., 2023). In the context of healthcare, AI can be used to monitor and evaluate healthcare data, such as patient waiting times, frequency and quality of interactions with medical personnel, and utilization of healthcare facilities. Through machine learning algorithms, AI can detect discriminatory patterns, both intentional and unintentional, and provide early warning to hospital management to immediately improve the condition (Oktavianus, Naibaho, & Rantung, 2023). With this data-driven analysis, discrimination against BPJS patients can be identified and prevented before it has further consequences.

For example, AI can identify if there are significant differences in waiting times between BPJS and non-BPJS patients for certain medical procedures. The system can provide recommendations to health facility managers to adjust the flow of services to be more balanced and fair, so that all patients get the service time that suits their needs, not based on their health insurance status (Trisnantoro, 2021).

b. Optimization of Automated Triage

AI can also be used to perform automated triage based on a patient's medical condition, rather than their health insurance type (Suherlan, Suryadi, Purnama, Studi Ilmu Keperawatan, & Tinggi Ilmu Kesehatan Indonesia Maju, 2024). Currently, one of the main challenges is the possibility of service delays for BPJS patients compared to non-BPJS patients. With AI, the triage process can be done automatically and objectively, so that the priority of medical services is given based on the level of urgency and clinical condition of the patient (Patimah, 2022), not on their BPJS or non-BPJS status.

With the implementation of AI-based automated triage, medical decisions become more objective and free from human bias (Nawawi, Sufyana, & Gunawan, 2024). The AI system can analyse the patient's symptoms, medical history, and the results of the initial examination, then decide the priority level of service fairly and precisely (Riyanto, Marlina, Subagyo, Triasih, & Yaman, 2023). This will go a long way in reducing disparities in medical services between BPJS and non-BPJS patients, so that health services can be provided more fairly and effectively.

c. Performance Monitoring of Medical Personnel

In addition, AI can help monitor and evaluate the performance of medical personnel in real-time (Komalasari, 2022). In some cases, discrimination against BPJS patients occurs

due to differences in the behaviour of medical personnel who unconsciously provide different treatment between BPJS patients and non-BPJS patients (Hartono & Untari, 2023). Using AI, the behaviour and performance of medical personnel can be monitored through analysis of their interactions with patients, including the duration of consultations, the number of recommended medical actions, and the quality of communication (Mahendra, Ohyver, Umar, Judijanto, & ..., 2024).

AI can also be used to provide feedback to medical personnel on whether they are unconsciously treating BPJS patients differently. With objective data, medical personnel can self-reflect and improve the quality of their services to be more equitable and non-discriminatory. This also helps create a transparent and evidence-based evaluation system.

d. Health Facility Needs Analysis

Another important role of AI in reducing discrimination against BPJS patients is through analysing health facility needs. AI can be used to predict facility needs based on demographic data, disease trends (Carla, 2023), and the level of utilization of health services by BPJS patients. With this analysis, hospital management or health service providers can plan a more appropriate and fair allocation of resources, so that the health facilities provided can meet the needs of all patients, both BPJS and non-BPJS (Lasao, Abbas, & Nur, 2024).

AI can help hospitals determine the allocation of beds or medical equipment such as dialysis machines based on the most urgent needs. With data-driven predictive analytics, healthcare providers can prevent overcapacity or lack of facilities on the one hand, and avoid inequality in service distribution between BPJS and non-BPJS patients on the other.

e. Improving BPJS Patient Experience

AI can play a role in improving the overall BPJS patient experience. Through AI-based chatbot technology, BPJS patients can be provided with relevant health information, including guidance on available services and treatment procedures that suit their needs (Setiaji, 2024).

Additionally, AI can facilitate patient registration, appointment scheduling, and preliminary medical counsel before direct consultation with a physician, thereby fostering a sense of value and support throughout the healthcare journey.

With AI capable of delivering services in an automated and consistent manner, the BPJS patient experience will improve as they receive expedient and efficient services without concern for discrimination or unfairness in the service process.

Legal Regulation of Artificial Intelligence Application to Ensure Fair and Non-Discriminatory Healthcare

The application of artificial intelligence (AI) in the healthcare system offers a great opportunity to create fairer, more efficient, and discrimination-free services (Mulisi, 2018). However, to ensure the use of AI in accordance with the principles of justice, ethics, and human rights, comprehensive legal regulation is necessary. Legal regulation is important because AI technology has the potential to affect various aspects of healthcare, including patient access, treatment, and data security, especially for vulnerable groups such as BPJS patients. Therefore, legal regulations must ensure that AI is applied in an ethical, transparent, and non-discriminatory manner. In addition, strict regulations should be implemented to prevent discrimination and human rights violations in the use of AI. This includes protecting patients' personal data and ensuring that decisions made by AI systems are justified. With an effective regulatory approach, we can harness the potential of AI to improve public health outcomes

without compromising fairness or ethics. This will enable the development of more inclusive solutions, reduce inequalities in healthcare access, and ensure that technology works for all.

Specific legal regulations for the application of AI in healthcare are needed to ensure that the use of this technology does not raise issues of discrimination or injustice. In Indonesia, AI-related regulations are still in the early stages of development. However, the application of AI in healthcare requires special attention as it involves sensitive aspects, such as patient rights, data privacy, and medical decision-making that affects a person's life and well-being.

Currently, regulations governing the use of information technology and data protection in Indonesia, such as Law No. 11 of 2008 on Electronic Information and Transactions (ITE Law) and Minister of Health Regulation No. 24 of 2022 on Medical Records, have not specifically addressed the use of AI in healthcare. It is thus imperative that specific regulations be established governing the use of AI to reduce discrimination and ensure that all patients, including those covered by BPJS, receive fair services.

A crucial element of AI regulation in healthcare is the safeguarding of patients' personal data. AI operates by gathering and examining vast data sets from numerous sources, including medical records, medical history, and patient demographic information. The utilisation of such data necessitates rigorous oversight to guarantee the preservation of patient privacy, particularly in light of mounting concerns surrounding data leakage and the misuse of personal data (Trenggono & Bachtiar, 2023).

Indonesia has passed Law No. 27 of 2022 on Personal Data Protection (PDP Law) which regulates how personal data should be managed, including health data. However, specific regulations on how this data is used by AI systems in the context of healthcare need to be more detailed. There needs to be rules regarding patients' rights to know how their data is used by AI, who has access to the data, as well as how the algorithms used by AI can influence medical decisions. In addition, rules regarding algorithm transparency are essential. Patients and medical personnel should know how AI systems make decisions in the healthcare process, such as triage prioritization or treatment recommendations. Regulations governing this transparency will ensure that the use of AI is not only fair, but also accountable.

The regulation of AI application in healthcare should also include clear ethical standards. The use of AI should adhere to the principles of medical ethics, such as the principles of fairness, harmlessness, duty of care, and respect for patient autonomy. AI should not be used to discriminate against patients based on their health insurance status, socio-economic status, or other factors irrelevant to their medical condition. In addition, regulations should ensure that the algorithms used by AI do not contain biases that could exacerbate discrimination. Biased algorithms can occur when the data used to train AI reflects existing social inequalities. Therefore, regulations should set standards regarding the development and testing of AI algorithms to ensure that they are free from bias and can be used fairly for all patient groups, including BPJS patients.

In the context of AI applications in healthcare, it is imperative to establish a strong ethical framework, which involves close supervision from an independent institution. This institution will be tasked with monitoring and evaluating the use of AI technology on an ongoing basis to ensure that its application always complies with established ethical standards. The oversight conducted by this independent institution should cover various aspects, ranging from privacy protection, data security, to prevention of discrimination and human rights violations (Naik et al., 2022).

One of the main functions of this institution is to mitigate potential risks that arise from the use of AI that is not properly supervised. For example, AI algorithms in healthcare could

potentially result in bias or discrimination if they are not programmed with representative data (Nazer et al., 2023). It can audit and oversee the algorithm creation process to ensure that the data used is inclusive and does not create inequities in access to healthcare. If it is found that AI is producing biased results, the agency is authorized to recommend improvements or even suspend the use of the technology until the problem is resolved.

In addition, this independent body will also play a role in maintaining accountability. When an error occurs in AI-enabled diagnosis or treatment, the institute should be able to trace and ascertain which party is responsible for the error, be it the developer, the healthcare provider, or the user of the AI technology (Walsh, 2024). This is important to prevent human rights violations, especially in cases where patients are harmed due to inaccurate or non-transparent decisions made by AI systems.

The implementation of AI regulations in healthcare requires close cooperation between various sectors, including the government, healthcare providers, technology developers, and civil society. The government needs to initiate clear and firm regulations, while healthcare providers must ensure that AI technologies are applied in a way that supports fairness and transparency in service delivery. Justice comes from the word "*adil*", according to the Indonesian Dictionary, fair is not arbitrary, impartial, not one-sided. Fairness primarily means that decisions and actions are based on objective norms. Fairness starts with a mutually agreed upon top choice (Amelia & Budi, 2021).

Developers of AI technologies not only have the responsibility of creating cutting-edge innovations, but also play a critical role in ensuring that the products they develop comply with applicable legal and ethical standards in various fields, including healthcare. In this context, cooperation with regulators is crucial to ensure that AI systems not only function properly, but also adhere to the principles of privacy, transparency, and accountability. AI systems in healthcare should be designed in a way that protects patients' personal data, provides a clear explanation of how AI decisions are made, and ensures that those responsible for errors or malfunctions can be easily identified (Bouderhem, 2024).

On the other hand, civil society, including patient organizations, advocacy groups, and non-governmental organizations, play a strategic role in the regulatory development process of AI (Bhan, Singh, Upshur, Singer, & Daar, 2007). The voice of the patient, who is a key stakeholder in healthcare, should be an integral part of discussions regarding the implementation of AI technologies. This is important so that patients' needs, concerns and rights are protected (Ayers, Desai, & Smith, 2024). These organizations facilitate the provision of a user perspective on healthcare, thereby assisting regulators and technology developers in comprehending the broader impact of AI applications on public welfare.

Furthermore, their involvement will facilitate the creation of balanced regulations that not only support technological innovation but also protect the interests of society at large. For instance, regulations pertaining to the access and utilization of health data should guarantee that AI technology developers do not misuse the data and that patients retain control over their personal data. Ultimately, collaboration between technology developers, regulators, and civil society will contribute to a more ethical, safe, and beneficial application of AI.

CONCLUSION

The role of artificial intelligence (AI) in reducing and preventing discrimination against patients with BPJS insurance in healthcare services is of great significance. Artificial intelligence (AI) is capable of leveraging accurate data to inform decision-making processes, enabling real-time monitoring of medical professionals' performance, and optimizing workflow in healthcare. This approach enables AI to assist in reducing disparities in access and quality of care, thereby creating a more equitable, inclusive, and objective medical system that is free from social and economic bias and meets the objective medical needs of patients. However, in order to fully realize the benefits of AI implementation, several challenges must be addressed. The readiness of healthcare facilities' infrastructure, the adequacy of medical personnel training in adapting to new technologies, and the strict protection of patient data are crucial issues that require serious attention. The resolution of these challenges is essential for the successful and sustainable implementation of AI technology. In this context, the establishment of clear and comprehensive legal regulations is of paramount importance to ensure that the implementation of AI is conducted in accordance with the principles of justice and without discrimination, particularly for vulnerable patient groups such as those enrolled in the BPJS program. It is imperative that regulations encompass rigorous protection of patient data, transparency in the utilization of AI algorithms, accountability in decision-making processes involving such technology, and ethical standards that prioritize justice and humanity. The effective implementation of AI in the healthcare sector is contingent upon the establishment of a robust legal framework and the provision of multisector support. When these conditions are met, AI has the potential to become an effective tool for enhancing the quality, efficiency, and fairness of healthcare services. It is this author's hope that all patients, regardless of their insurance status, will be able to access services that are adequate, of good quality, and equitable.

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