

Enhancing Patients' Rights Criteria in Hospital Accreditation Standard by Using Artificial Intelligence (Case study: Selected Hospitals in Zahedan County)

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Received July 30, 2024; Accepted September 10, 2024; Online Published September 20, 2024

Abstract

Background: Human rights, which are very important for the health system and hospital accreditation requirements, include the issue of patient rights in hospitals. Artificial Intelligence (AI) is one of the advanced technologies in this industry, which aims to improve the standard of medical services for patients.

Objectives: This study was conducted with the aim of improving the enhancing patient's rights criteria in hospital accreditation standard by using AI (case study: selected hospitals in Zahedan county), which examines the factors affecting patient rights and the benefits of using AI.

Methods: According to the subject and purpose, the research approach is cross-sectional and descriptive, which was conducted in several hospitals in Zahedan in 2023. Experts in this field were given a questionnaire to complete as part of this study. Then the most important effects in this field were ranked.

Results: Experts ranked the factors of better disease diagnosis, prevention and prediction, advanced treatment methods, and easier access to medical data as the most important factors. The findings of this study indicate that if AI is used in selected hospitals of Zahedan, the rights of patients will be consistent with international validation criteria.

Conclusion: The factors covered in this study are necessary for the successful integration of AI in the health system, as well as following the guidelines that apply to any other intelligent system, including technical training and considering organizational, managerial and economic aspects. In order to intelligently adapt these systems, stakeholders in the health sector must use these components.

Keywords: Patient Rights, Artificial Intelligence, Hospital, Accreditation

1. Background

The hospital is regarded as a significant and potent source of technological information since it serves as a hub for the dissemination of medical expertise. It helps to maintain, restore, and improve people's physical, mental, psychological, and spiritual health by making use of its facilities, tools, and resources as well as offering specialized services. In the end, this plays a critical part in guaranteeing client pleasure.¹

Artificial Intelligence (AI) has attracted a lot of interest as a cutting-edge technology in recent decades. The use of AI technology has also been led by the healthcare sector.² In this regard, hospitals also use this technology to increase productivity and lower errors in a number of procedures. The employment market and personnel management are greatly impacted by digitalization and the emergence of sophisticated technologies like AI.³

Predicting patient requirements, streamlining departmental

workflows, identifying illnesses and treatment options, enhancing departmental communication, and other managerial tasks are a few of the ways AI is being used in hospitals.⁴ AI has the potential to increase hospital performance productivity, which can streamline procedures and save patient expenses.⁵

The word "rights" is universally understood across all languages as something fair and deserved. Consequently, patient rights refer to what is proper and warranted for the patient. These rights encompass the obligations and responsibilities that a healthcare institution.⁶

In healthcare facilities and hospitals, patient rights are ensured through adherence to accreditation standards. These standards not only safeguard patient rights but also play a significant role in improving the quality of healthcare services and enhancing patient satisfaction. To be effective, both principles must be applied concurrently and in alignment within healthcare and treatment systems.

1.1. Hospital Accreditation

Accreditation is a process through which an accrediting body or organization assigns credibility and official recognition to a facility based on established standards, allowing it to deliver specific services. This process involves assessing healthcare providers against criteria that focus on ongoing quality improvement, patient-centered care, and the promotion of safety for both patients and staff. Accreditors collect essential information from hospital administrators, staff, patients, and their companions through on-site visits, interviews, and detailed observation of facilities, equipment, workflows, amenities, and documentation. This information is then evaluated against accreditation standards. The decision to grant or deny the hospital an accreditation certificate is determined based on the extent to which the hospital's activities align with these standards.⁷

The global implementation of the accreditation system

has been founded on the standards established by the Joint Commission on Accreditation of Healthcare Organizations.⁸ Accreditation, recognized as one of the most effective oversight methods, has been mandatory in the country since 2012. This process is grounded in documented, predefined standards and the expertise of experienced specialists, ultimately resulting in the certification of operational competence. Its primary objective is to ensure that healthcare facilities deliver high-quality services while prioritizing the safety of individuals.⁹ Some of the accreditation standards related to patient rights are presented in Table 1.¹⁰

One significant and influential aspect of AI in hospitals is its impact on patient rights. Leveraging algorithms and AI systems to make intelligent decisions can enhance working conditions and promote the well-being of patients.¹¹ In Figure 1, some of the most important dimensions of patient rights in hospitals have been presented.

Table 1. Accreditation Standards Related to Patients' Rights

	Standards
Support for patients	Through a variety of channels (including social media, websites, SMS, etc.), the clinic offers the tools required for patient information exchange, appointment scheduling, information sharing, and visitor guidance.
	The access of disabled patients and veterans to different parts of the hospital and clinic is facilitated by ramps, elevators, etc.
	Doctors visit patients according to the set schedule.
	The clinic ensures that patients' privacy is respected.
	Necessary arrangements for dealing with complaints and suggestions are designed and acted upon in the clinic.

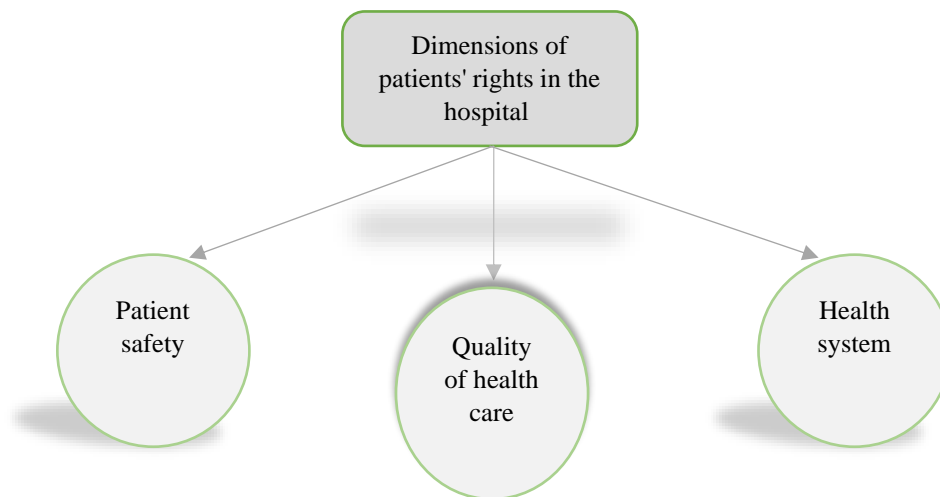


Figure 1. Dimensions of Patients' Rights in Hospitals.

According to the accreditation standard approved by the Ministry of Health, hospitals are required to implement the following requirements for patients' rights:

1.1.1. Patient Rights from the Perspective of Patient Safety

The World Health Organization (WHO) defines patient safety as minimizing or preventing the risk of harm and injuries associated with healthcare to the lowest acceptable

level. In essence, patient safety focuses on avoiding unnecessary or potential harm linked to healthcare services and preventing adverse outcomes or injuries caused by medical care processes.¹²

The patient safety unit in hospitals works to improve patient safety through several strategies, including ongoing training, strict compliance with protocols, and consistent monitoring and evaluation of departments and clinical staff. Moreover, by promoting voluntary error

reporting among staff, the unit seeks to enhance attitudes and foster a stronger culture of patient safety.¹³

In traditional hierarchical relationships, patients may hesitate to communicate openly with healthcare providers, while providers may withhold detailed information from those receiving care. This restricted communication can discourage patients from contributing to discussions about error prevention in healthcare, potentially impacting patient safety. Upholding patient rights fosters an environment that empowers and involves patients in the healthcare delivery process, promoting collaboration and safer care.¹⁴

Patient safety requirements are a key component of hospital accreditation related to patient rights. The Ministry of Health has outlined specific requirements in this area, including infection prevention measures, error identification and tracking, access to medical information and records, patient guidance and education, and effective emergency response management.¹⁵

1.1.2. Patient Rights from the Perspective of Quality of Healthcare

Safety, accessibility, patient-centeredness, equity, efficiency, and effectiveness are the six components of high-quality healthcare. For instance, as a concrete first step toward attaining people-centered care, academics have emphasized the necessity of upholding patient rights. The standard of healthcare also rises when patients are given access to a modern, safe treatment setting. Following health standards, regularly training healthcare staff, controlling errors, and putting evaluation and feedback into practice are some strategies that can improve the quality of healthcare.¹⁶

1.1.3. Patient Rights from the Perspective of Health Systems

From the standpoint of the health system, patient rights

include moral and legal considerations that guarantee patients are treated with dignity and get high-quality medical care. Each nation has its own set of laws and organizations that define and govern these rights. By fostering accountability through oversight systems, patient rights may encourage improvements at the level of the health system. Systems for managing complaints offer valuable insights for enhancing the health system's structure. The recommendations of patient rights and safety inspectors have the ability to sway top-level politicians, according to data from the UK, New Zealand, and Canada. Some aspects that can positively impact patient rights from a health perspective include the right to comprehensive and safe care, the right to choose and be informed, the right to privacy and confidentiality, the right to complain and receive justifications, and the right to participate in medical research. These rights are crucial for increasing trust and improving quality within the health and treatment system. Emphasizing respect for patient rights will enhance the quality of healthcare and promote patient satisfaction.¹⁷

1.2. The Concept of AI and its Application in Hospitals

Known as the father of AI, John McCarthy first used the term "artificial intelligence" in 1956 while attending Dartmouth College in London. AI has been defined in a variety of ways. According to one definition, the field of computer science that works with the automation of intelligent actions is associated with AI.¹⁸ The healthcare industry has experienced remarkable progress due to the adoption of digital tools. Medical and treatment institutions leverage intelligent technologies to manage expenses, boost efficiency, ensure patient safety, minimize medical errors, improve care quality, and adhere to regulatory standards and guidelines.¹⁹ Figure 2 illustrates the application of AI in hospitals.

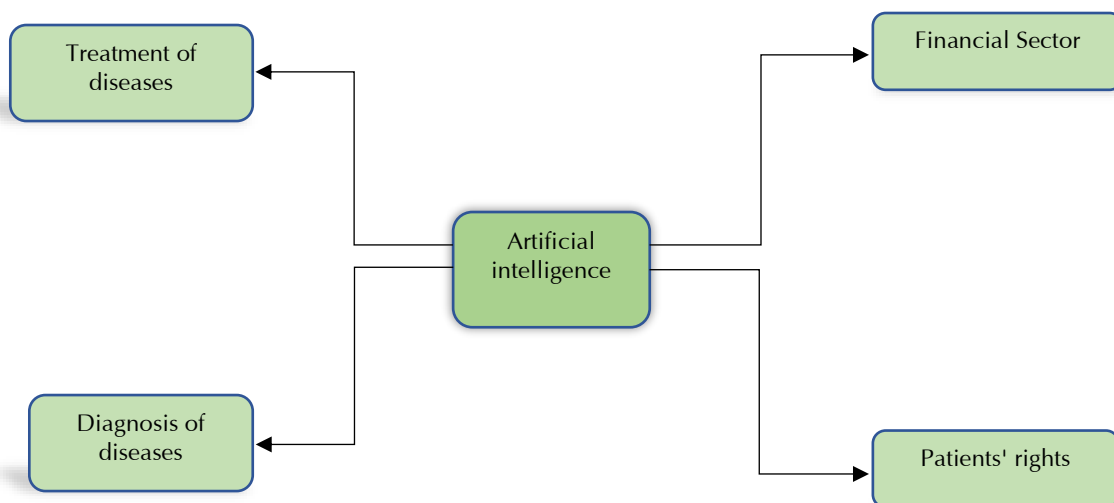


Figure 2. Application of AI in Hospitals.

1.3. AI and Patients

Vulnerable groups, such as patients, possess unique and well-defined rights. Addressing their physical, psychological, spiritual, social, and economic needs is both crucial and indispensable. Integrating AI into healthcare can significantly enhance various aspects, including disease diagnosis and treatment, online consultations, complication prediction, psychological support, streamlined access to medical information, and overall patient care. However, ensuring the privacy and security of patient data within these systems remains a critical priority.²⁰

1.4. AI and Financial Issues Related to Treatment

The use of AI in the financial field in treatment can improve and increase the quality of services and provide new potentials in healthcare services. These potentials include the following:

Treatment Plan Prediction: More precise treatment plans can be created and anticipated for patients by employing big data analysis and AI systems.

Cost and Financial Management: AI helps the healthcare industry control expenses and finances more precisely. Intelligent algorithms can forecast future financial requirements, increase financial efficiency, and optimize treatment costs.

Remote Assistance and Healthcare Services: Patients can benefit from improved capabilities through the application of AI in remote healthcare services and assistance. Intelligent technologies and software can enhance patient inquiries, track health, and promote therapeutic teamwork.

Financial decision-making and the enhancement of healthcare systems' performance can be greatly impacted by carrying out in-depth data analysis and utilizing clever algorithms.²¹

1.5. AI and Diagnosis of Diseases

Nowadays, the science of AI is crucial to disease diagnosis. We can work to identify, anticipate, and cure illnesses by utilizing AI methods and algorithms. An explanation of how AI is used in disease diagnosis is provided below:

Radiation Diagnosis: AI can act as helping physicians in analyzing radiation images. With deep learning algorithms and complex neural networks, diagnosed images and disease markers are discovered.

Diagnosis based on Symptoms and Diagnostic Science: AI can help analyze the clinical symptoms of patients and, for example, is used in the diagnosis of skin, eye, cardiovascular and infectious diseases. Using machine learning algorithms, prediction models can act on the patient's clinical symptoms and help diagnose the disease based on past data.

Diagnosis Based on Laboratory Data: Accurate and quick analysis of laboratory data can be achieved with the

help of AI. It can assist diagnose illnesses by recognizing intricate patterns in a variety of test data using intelligent algorithms.

Forecast and Prevention: Disease prediction and prevention can benefit greatly from the application of artificial intelligence. AI models can significantly improve early disease diagnosis and risk prediction by evaluating and processing disease data and individual markers. This will decrease the probability of diseases in the population and increase the effectiveness of preventative actions.

With its strong disease diagnosis skills, AI can help medical professionals and teams save time and improve diagnostic precision. The protection of patient privacy, ethical considerations, and the field's cultural and social effects must all be taken into consideration.²²

1.6. AI and the Treatment of Diseases

AI plays an important role in the treatment of diseases and can help improve the diagnosis, prediction and treatment of diseases. The following is a description of the use of AI in the treatment of diseases:

Drug Design and Improvement: AI can help in the creation of medications and other compounds that are used to treat illnesses. The development of novel drugs and the enhancement of current ones is made easier by the rapid and precise analysis of data and factors pertaining to the structure and activity of pharmaceuticals made possible by AI algorithms and models. This skill lowers the time and expenses involved in drug research and development while also helping to create more potent medications.

Personalized Treatment: AI also aids in personalizing treatment. By aggregating large datasets from patients and analyzing and processing them, AI can customize prevention and treatment models based on individual characteristics and conditions. This results in more consistent and effective treatment plans tailored to the needs of patients.²³

Healthcare services can be significantly improved and innovated through the use of AI in disease treatment. But it's important to understand that doctors and other healthcare professionals still play a critical role, and AI serves just as a tool to help and support doctors' decision-making.²⁴ Table 2 points to the effects of AI on therapeutic methods. According to previous studies, AI implementation in hospitals has faced challenges that have been mentioned in Table 3. Table 4 highlights the key points of several studies on AI technology in the field of health care in recent years.

2. Objectives

The goal of enhancing patients' rights criteria in hospital accreditation standards by using AI (case study: selected hospitals in zahedan county). In this context, we look at the advantages of applying AI as well as the variables

Table 2. The Effects of AI on Therapeutic Methods

Therapeutic process	The effect of artificial intelligence	Source
Disease Diagnosis	Using machine learning algorithms to detect faster	25
Treatment planning	Using large data to optimize therapeutic programs	
Patient Monitoring	Using artificial intelligence software to track the condition of patients	
Predicting complications	Forecast of possible complications using analytical algorithms	

Table 3. The Challenges of Implementing AI in Hospitals

Challenges	Description	Source
High costs	Initial costs for technology purchase and implementation	26
Employee training	Need for Staff Training in AI Systems	
Cultural Resistance	Resistance to changes caused by new technology	
Security Issues	Concerns about patient data security	

Table 4. Review of Previously Related Studies

Title	Researchers	Year	Key points	Source
The impact of artificial intelligence on the quality of health care	Alzghoul	2024	Increasing patient satisfaction and reducing waiting time	27
The future of moral artificial intelligence	Firmansyah et al	2024	The need for new data protection laws	28
Artificial Intelligence and Movement in Hospitals	Graili et al	2021	Reduction of traditional jobs and the need for new skills	29
Applications of Artificial Intelligence	Hasan et al	2023	Increasing the accuracy of diagnosis and treatment	30
Integration of artificial intelligence in hospital systems	Kwong et al	2024	Improving efficiency and reducing costs	31
Hospitals' accreditation method: A comparative study	Mossadegh Rad	2020	Improving the hospital accreditation method in Iran using complementary evaluation methods	32
Investigating Patients' Rights in Iranian Hospital Accreditation Standards	Ramezani	2009	Ensuring that the rights are respected, ensuring the safety of patients and continuous improvement of quality by using hospital accreditation	33
Patient Rights in Iranian Hospitals Credit System: Explaining the challenges	Solmaz Mousavi	2022	Explaining the challenges of patient rights with the two themes of content deficiencies and management challenges of the accreditation system	34

influencing patients' rights. The purpose of this study was to determine the most significant impacts of AI on hospital patients' rights. We anticipate that after reading this research, readers would have a better grasp of how AI might enhance hospital procedures, hence enhancing patient rights and wellbeing. Additionally, this study can assist hospital administrators and policymakers in this area in selecting and putting into practice the best practices for the application and generalization of AI in healthcare settings.

3. Methods

The research method, considering the nature of the

subject and the objective, was descriptive and cross-sectional, conducted in 2023 in several selected hospitals in Zahedan. In this study, a questionnaire was distributed to 50 individuals working in these hospitals, including the hospital director, physicians, nurses, and quality improvement specialists. The selected experts held at least a bachelor's degree and had the necessary knowledge regarding AI and patient rights. The questions in the questionnaire focused on identifying the most significant impacts of AI on patient rights in order of importance. The main and sub-dimensions affected by AI on patient rights in hospitals are presented in Table 5.

Table 5. Dimensions under the Influence of AI on the Rights of Patients in Hospitals

Main dimensions	Symbol	Subtype
Financial field	A ₁	Increase productivity and reduce costs
	A ₂	Management of expenses and financial matters
	A ₃	Remote medical support and services
Disease diagnosis	A ₄	Increase the accuracy of diagnosis
	A ₅	Easy access to patient information
	A ₆	Prediction and prevention
Treatment of disease	A ₇	Personalization of treatment
	A ₈	Improvement of treatment procedures
	A ₉	Impact on patient-physician communication
Hospital processes	A ₁₀	Protecting patients' privacy
	A ₁₁	Easier access to medical information
	A ₁₂	Optimization of the queue system
	A ₁₃	Improving the quality of health care

4. Results

Organizations are always seeking ways to improve the quality of their services. The goal of this study is to enhance the criteria for patient rights in the accreditation standards of hospitals through the use of AI (case study:

selected hospitals in Zahedan). In this context, a number of factors that are impacted by the application of AI systems to enhance hospital patient rights have been discovered. Table 6 presents the findings of the selection process used to rank the effects of AI on patient rights.

Table 6. Ranking the Effects of AI on the Rights of Patients in Hospitals

Main dimensions	Symbol	Subtype	Score	Rank
Financial field	A ₁	Increase productivity and reduce costs	7.1	4
	A ₂	Management of expenses and financial matters	6.1	
	A ₃	Remote medical support and services	6.4	
Disease diagnosis	A ₄	Increase the accuracy of diagnosis	8.9	1
	A ₅	Easy access to patient information	8.2	
	A ₆	Prediction and prevention	8.7	
Treatment of disease	A ₇	Personalization of treatment	7.8	2
	A ₈	Improvement of treatment procedures	8.5	
	A ₉	Impact on patient-physician communication	7.5	
Hospital processes	A ₁₀	Protecting patients' privacy	5.8	3
	A ₁₁	Easier access to medical information	8.4	
	A ₁₂	Optimization of the queue system	6.7	
	A ₁₃	Improving the quality of health care	6.8	

These participants ranked the dimensions of disease diagnosis and therapy as the most significant factors. Establishing the proper infrastructure for applying AI systems in the diagnostic domain is essential, since increasing diagnostic accuracy was the primary goal. This could entail supplying technical, hardware, and software resources; creating communications and network architectures; and putting management plans and policies into action. Prediction and prevention came in second, suggesting that AI can be a major factor in early disease prediction due to its capacity to handle vast amounts of data and carry out intricate analysis.

The enhancement of treatment stages, emphasizing the role of AI in precise disease diagnosis, treatment planning, treatment recommendations, side effect prevention, and ongoing medical information updating, was given the third rank. All of these factors work together to improve the effectiveness and quality of treatment. Furthermore, the fact that simpler access to medical information came in at number four emphasizes the need for greater attention to be paid to the efficient application of AI systems in this field. The growth of telemedicine, digitization, and a decrease in dependence on conventional methods are all included in this.

This priority can help hospitals concentrate more on important concerns pertaining to patient rights and the usage of AI technology. Hospitals can improve the quality of services by putting in place suitable oversight and funding.

The study's findings indicate that if AI is used to protect patient rights at the chosen Zahedan hospitals, these rights will mostly conform to international accreditation requirements.

5. Discussion

According to the results obtained from this study, the

impact of AI in hospitals can generally present both advantages and challenges for patient rights. On one hand, the use of AI can lead to significant improvements in service delivery to patients, enhance physician performance, and reduce medical errors, all in line with accreditation standards. The important point is that AI should be viewed as an assisting tool to improve the healthcare system in hospitals, rather than as a complete replacement for humans.

The findings of this article can contribute to the development and improvement of AI models to enhance the accuracy of disease diagnoses globally. This topic could be proposed as a new standard in medical literature. Given the ability of AI to process large data sets, these findings can enrich the existing literature on early disease prediction and prevention. This approach could be introduced as a new strategy in public health management. Additionally, the results indicate that AI can aid in improving treatment processes and providing therapeutic suggestions. This could add to the literature on personalized treatments and the optimization of treatment processes. The findings emphasize the necessity of digitalization and the use of telemedicine. This approach could be considered as a successful model for facilitating access to healthcare services in various countries. The results of this study can contribute to the development and enhancement of global standards for protecting patient rights. This topic could serve as a practical guide for hospitals and health systems worldwide. The need to provide appropriate infrastructure for the use of AI can assist policymakers and healthcare managers in various countries to make better planning decisions. The findings of this article not only help improve the quality of services in selected hospitals in Zahedan but can also be considered as a successful model for other countries and health systems globally. These results can promote the

development of innovative practices in using AI to enhance patient rights and the quality of healthcare services, enriching the existing literature in this field.

Smart healthcare systems have significant potential. However, the successful implementation of smart systems in healthcare requires, in addition to the principles required for any other smart system, such as organizational, managerial, economic factors, and technical training, the considerations raised in this study in order to be used by healthcare stakeholders to smarten these systems.

It is suggested that national working groups, while monitoring instances of patient rights affected by AI, take necessary actions to prepare guidelines or establish specific laws related to the rights of new technologies, especially AI, with consideration of general ethical and legal principles. Additionally, given the novelty of the issue of AI in Iran, it is recommended that researchers conduct further studies on various aspects of AI in the healthcare field, particularly concerning patients.

6. Conclusion

The findings demonstrated that improved treatment phases, prediction and prevention, and improved diagnostic accuracy are the three main ways AI affects hospital patient rights. As a result, it is advised that hospitals implement plans to make use of AI technology and set aside the required capital to enhance the medical care that patients get.

The integration of AI into hospital systems has profound and extensive effects on the quality of healthcare services, resource management, and patient experience. Below, we will examine these consequences:

1. Increased Efficiency and Reduced Costs

- **Process Optimization:** Automating administrative and managerial tasks, such as patient data entry and appointment management, can reduce time and costs.
- **Resource Management:** AI can help optimize the use of resources such as beds and medical equipment.

2. Improved Patient Experience

- **Personalized Services:** AI can provide personalized healthcare services by analyzing patient data.
- **Better Communication:** Chatbots and virtual assistants can help patients with their questions and needs, offering a better experience.

3. The Future of AI in Healthcare

- **Development of Laws and Regulations:** There is a need to formulate regulations and ethical standards for the use of AI in healthcare.
- **Training Personnel:** It is essential to train healthcare staff for the effective use of AI technologies.

The integration of AI into hospital systems can lead to improved service quality, increased efficiency, and enhanced patient experience. However, challenges and concerns related to privacy and discrimination must be addressed to fully leverage the positive potential of this

technology.

The findings of this study are consistent with a 2020 study by Raef Fouad and associates titled "Nurses' Compliance with Patient Rights and Its Relationship to Patient Satisfaction." According to their research, using AI technologies can greatly enhance patient rights. Nearly half of the patients (43.6%) expressed high levels of satisfaction, and it was discovered that over half of the nursing staff at Minia University Hospital had a strong awareness of patient rights. In order to improve patient satisfaction, the study suggested that nurses take part in patient rights education sessions. It also recommended that hospitals implement laws, rules, and practices that support patient rights.³⁵

Hosseini et al.'s 2021 study demonstrated that the use of contemporary technologies, such as AI systems and patient management software, can greatly enhance patient rights observance and raise patient satisfaction levels. According to this study, 52% of patients were satisfied with the caliber of care they received, and 67% of nurses in a subset of Tehrani hospitals were sufficiently knowledgeable of their rights. Accordingly, it was suggested that hospitals create efficient patient rights education programs for nurses and put in place suitable supportive policies to strengthen patient rights.³⁶

In 2022, a study by Chen et al. titled "The Role of Artificial Intelligence in Upholding Patient Rights" found that AI systems can assist in identifying patient rights violations and, by providing timely information to nurses, they improve service quality and increase patient satisfaction.³⁷

Additionally, in another study titled "Impact of Modern Technologies on Patient Rights and Service Quality" conducted in 2023, Ahmad et al. demonstrated that the implementation of modern technologies, including artificial intelligence software, can lead to improved attention to upholding patient rights and enhancing the quality of healthcare services. In this study, 68% of patients expressed satisfaction with the quality of the services provided.³⁸

Finally, the following measures can help prevent the negative impacts of AI on patient rights:

- Establishing and adhering to ethical guidelines for the use of AI.
- Utilizing transparent and explainable algorithms.
- Educating healthcare staff about the impacts of AI.
- Implementing robust security measures to protect patients' personal data.
- Creating monitoring systems to assess the impact of AI.
- Involving patients in decision-making processes.
- Designing and developing AI systems with social impact considerations.
- Establishing and updating regulations to oversee the use of AI.

- Conducting independent research to investigate the effects of AI.
- Fostering a culture that respects human values and patient rights.

Research Highlights

What Is Already Known?

AI systems have had a significant impact on patient rights, the secure storage of sensitive patient information, and compliance with hospital accreditation regulations.

What Does This Study Add?

This study determined that AI technology can be used to promote patient rights in various fields. We concluded that the use of this technology in the field of healthcare is effective and helps to perform medical procedures quickly and correctly, which ultimately has a positive impact on health in line with the accreditation system.

Author Contributions

Authors contributed equally to this work.

Conflict of Interest Disclosures

All authors declared that they have no conflict of interest.

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