

Abstract:

This paper examines the transformative impact of Artificial Intelligence (AI) in healthcare, delving into its potential and challenges. It analyses the integration of AI into medical practices, focusing on how it revolutionizes diagnostics, treatment planning, and patient care. AI deployment's ethical and legal implications in healthcare are critically assessed, highlighting the need for robust frameworks to safeguard patient privacy and data security. The paper advocates for interdisciplinary collaboration among healthcare professionals, ethicists, and legal experts to optimize AI's benefits while mitigating risks. It underscores the importance of continual education and policy development to adapt to the evolving landscape of AI in healthcare, aiming for improved patient outcomes and efficient healthcare delivery.

Introduction:

Although healthcare innovation is essential in achieving many patient care goals, it involves various complexities, which makes it difficult for many healthcare systems to maximize its benefits. Medical research and experiments, an essential part of the healthcare innovation process, are expensive and highly regulated by the healthcare sector (Huang et al., 2021). Regulation of medical research and experiments is necessary to foster credibility and informed decision-making regarding the usefulness of healthcare innovation processes and activities (Panch et al., 2019). However, medical research and experiments are expensive since they are undertaken by many healthcare professionals who must be well-trained and capable of collaborating (Mathews et al., 2019). Moreover, healthcare innovation is also complex since healthcare workers must constantly be willing to embrace its processes and activities (Mathews et al., 2019). There is a need for ethical scrutiny in healthcare innovation to minimize the chances of patient harm or adverse outcomes due to the implementation of innovative ideas and

developed medical technologies (Benis et al., 2021). Moreover, legal scrutiny is needed to reduce the chances of negligence and the development of unsound medical practices that can hinder the efficiency of care delivery to patients (Qadri et al., 2020). As a result, since healthcare innovation is essential for improving patient outcomes, care quality, and the delivery of healthcare services, medical professionals must adhere to ethical and legal requirements while undertaking their processes and activities.

Managing the Complexity of Healthcare Innovation

To manage healthcare innovation despite its financial implications, various strategies must be implemented by healthcare policymakers, administrators, and managers of medical facilities. One such strategy is frequently conducting research and experiments on various processes and systems within the healthcare system to determine the extent to which they contribute to the quality of care (Reddy et al., 2020). Another strategy is to promote an innovative culture among medical professionals and scientists by funding their training and fostering collaboration rather than showing contentment with the quality of care they currently provide (Mathews et al., 2019). Lastly, managing healthcare innovation mandates managing the associated change processes (Matheny et al., 2019). As a result, healthcare policymakers, hospital administrators, and managers should promote the acceptance of innovative ideas and technologies by healthcare workers and patients (Matheny et al., 2019). Nevertheless, the management of healthcare innovation is associated with various challenges that may hinder the effectiveness of such strategies (Yaqoob et al., 2021). They include conflicts among healthcare stakeholders that hinder collaboration, strict healthcare innovation regulation policies that are difficult to comply with, and a lack of interest among medical professionals and scientists to engage in healthcare innovation due to poor reimbursements (Yaqoob et al., 2021). By

addressing such challenges, it is possible to mitigate the complexity of healthcare innovation and improve its usefulness in enhancing patient outcomes.

Ethical and Regulatory Dimensions in Artificial Intelligence Adoption in Healthcare

While using artificial intelligence (AI) in healthcare has improved the management and dissemination of health data, healthcare stakeholders must adhere to various ethical considerations and regulatory dimensions to improve patient trust and public confidence. One ethical consideration of adopting AI in health data governance is obtaining informed consent for collecting and disseminating patient information (Morley et al., 2020). Another ethical consideration is undertaking human oversight during AI health data management to eliminate the risk of data manipulation that may lead to changes (Dash et al., 2019). By adhering to such ethical considerations, it is possible to ensure that clinical data results generated by AI technologies used in healthcare are accurate and credible for informed decision-making processes by medical practitioners (Dash et al., 2019). Promoting such ethical considerations makes it possible to achieve an informed clinical decision-making process that improves patient satisfaction with the care provided, thus boosting their trust and enhancing public confidence (Morley et al., 2019). A regulatory dimension associated with using AI in health data governance is the detection of risks that can lead to the loss of patients' data (Morley et al., 2020). It implies that healthcare facilities without sufficient capital resources to implement measures to protect patients' data, such as using a firewall and encryption, may lose patients' trust and public confidence (Morley et al., 2019). The need for data privacy is a regulatory dimension that mandates medical professionals to take caution on the use and sharing of patient's healthcare data during care delivery (Morley et al., 2019). Promoting patients' health data privacy when

using AI can enhance their satisfaction level, thus boosting their trust and public confidence in the care delivery process.

Inadequacies in Legal Frameworks for Data Privacy

Due to the high chances of data loss and breaches in the age of big data, various legal frameworks exist to safeguard the collection and management of healthcare data and enhance the efficiency of clinical operations. One is the patient data protection and management framework, which stipulates privacy laws that healthcare practitioners must adhere to while collecting and handling patient data (Yaqoob et al., 2021). For instance, medical practitioners should only collect patient data that is considered sufficient and relevant in making informed clinical decisions related to diagnosis and treatment plans (Yaqoob et al., 2021). However, the patient data protection and management framework has inadequacies, such as its discriminatory nature, since it applies to all healthcare organizations regardless of their size and the high cost of protecting big data (Dash et al., 2019). Another legal framework is transparency in the patient data collection and management process (Yaqoob et al., 2021). Such a framework requires medical professionals to collect only the necessary clinical information from patients and involve them in the healthcare decision-making processes using such information (Yaqoob et al., 2021). Nonetheless, the inadequacy associated with such a legal framework is that some required information for making accurate and informed clinical decisions may be missed by healthcare workers during patient assessment (Yaqoob et al., 2019). It may occur when patients fail to mention certain current and past health information that may contribute positively to their diagnosis and treatment plan (Yaqoob et al., 2019). Consequently, there may be an increase in the risk of medical and medication errors.

Integrated Discussion

The Interrelations between the Legal and Ethical Frameworks in Healthcare Innovation Technology

Innovative technologies in healthcare to improve care quality and safety rely on various legal and ethical frameworks that are positively related to each other. Cyber-attacks are arguably one of the most common legal factors associated with using modern healthcare technologies to improve patient outcomes (Dash et al., 2019). It is characterized by illegal access to sensitive patient information through healthcare organizations' electronic health records (EHRs) and telehealth databases (Dash et al., 2019). Cybercriminals may opt to destroy, change, or sell such information, making it difficult for healthcare workers to make informed and timely clinical decisions that can improve patient outcomes (Yaqoob et al., 2021). In this regard, cyberattacks result in a high risk of lack of data privacy, a significant ethical issue associated with healthcare innovation technologies (Yaqoob et al., 2019). Illegal access to patients' healthcare data jeopardizes the confidentiality of such data due to its disclosure through cybercriminal activities such as hacking and phishing, among others, without prior patient authorization (Dash et al., 2019). Therefore, managing the risk of cyberattacks can significantly increase data privacy associated with using healthcare innovation technology.

To improve the quality and safety of patient care, healthcare workers prioritize protecting patients' health data from breaches due to its effectiveness in improving clinical decision-making. Consequently, data protection is a legal framework associated with using innovative technologies to promote quality and safe patient care (Gerke et al., 2020). Despite various healthcare data protection laws, many medical facilities fail to comply with them, thus leading to data misuse or inability to secure it properly (Yaqoob et al., 2021). The lack of proper protection of patient data obtained through the use of modern medical technologies leads to stigmatization

and embarrassment, especially when it is accessed by an unauthorized third party, such as an employer or insurer (Yaqoob et al., 2021). On that account, the lack of proper protection of patient data by healthcare workers is a major cause of ethical concerns, such as social discrimination and harassment that some patients may experience due to their health status.

The Interrelations between Legal and Management Frameworks in Healthcare Innovation Technology

Healthcare innovation is influenced by some management issues, mainly caused by the inability of medical facilities to address some of the aforementioned legal concepts. While medical professionals play a major role in promoting innovation and the development of new healthcare technologies, they are expected to be liable for their inputs and outputs (Lee & Yoon, 2021). Nevertheless, the inevitable need for liability as a legal framework in healthcare innovation diminishes the sense of innovative culture among various clinicians in the healthcare system (Panch et al., 2019). This might be due to the unwillingness of many medical practitioners with the potential to contribute positively towards healthcare innovation because of the high chances of accountability and responsibility associated with it (Panch et al., 2019). The need for legal liability decreases the chances of promoting clinician buy-in as a management issue associated with healthcare innovation.

Although healthcare organizations should protect patients' data from unauthorized third-party access, such a legal mandate has a negative financial impact on their clinical operations. Firstly, they must acquire the necessary healthcare technology, such as computers and smartphones, to store clinical data properly rather than use printed health documents that may be easily lost (Huang et al., 2021). Secondly, they must adhere to data protection measures such as installing firewalls and antivirus software and using encryption and passwords (Dash et al.,

2019). Implementing such data protection measures, in most cases, mandates recruiting skilled computer professionals to decrease the chances of software and hardware faults associated with their use. Lastly, some healthcare organizations must train their medical professionals to be highly competent in storing patients' data using such technology (Dash et al., 2019). The recruitment of skilled computer professionals and training healthcare workers on data protection may be expensive to any healthcare organization regardless of its financial status (Huang et al., 2021). Consequently, implementing data protection as a legal framework in healthcare innovation positively contributes to the need for proper financial budgeting as a management issue in healthcare organizations.

The Interrelation between Management and Ethical Frameworks in Healthcare Innovation Technology

Management frameworks associated with using healthcare innovation and technology to improve the quality and safety of patient care also lead to various ethical issues. One such framework is the lack of well-stipulated training guidelines for healthcare providers on using various medical innovations and technologies (Benis et al., 2021). Whenever healthcare organizations fail to properly define how their medical practitioners should train to maximize the usefulness of medical innovations and technologies, there is a high risk of clinical mistakes during care delivery (Hermes et al., 2020). On that account, a healthcare organization may experience such ethical issues as a lack of patient safety (Morley et al., 2020). Furthermore, a lack of well-stipulated training guidelines on using various medical innovations and technologies may render healthcare providers incapable of providing sufficient clinical advice and information to patients whenever they use such innovations and technologies in care provision (Panch et al.,

2019). Therefore, such a management framework may cause a lack of patient autonomy in the clinical decision-making process and negatively impact their informed consent.

Conclusion and Recommendations

In conclusion, medical practitioners should adhere to the ethical and legal requirements of healthcare innovation processes and activities because they improve patient outcomes, care quality, and delivery. The complexity of healthcare innovation is attributed to the fact that medical research and experiments are highly regulated and may be financially detrimental to many healthcare organizations. Furthermore, healthcare innovation requires concerted collaboration efforts from well-trained medical stakeholders, who must cohesively embrace its processes and activities. To manage healthcare innovation complexities, medical stakeholders must conduct frequent research and experiments on clinical processes and systems and promote an innovative culture among medical personnel. Furthermore, they must effectively manage change processes resulting from healthcare innovation and foster compliance with AI adoption's ethical and regulatory dimensions among medical practitioners to earn patient trust and public confidence. While data privacy remains a big challenge associated with AI adoption in care provision, adherence to data protection and management and transparency frameworks can decrease the risk of loss of patients' data. Nevertheless, it is recommended that healthcare organizations implement strategies such as encryption and the use of firewalls to decrease the risk of cyberattacks, which can lead to the loss of sensitive patients' data. It is also recommended that healthcare workers be properly trained in using various innovative ideas and medical technology. Implementing such recommendations would prevent clinical mistakes, thus improving patients' safety.

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