

Artificial Intelligence in Healthcare: An Interdisciplinary Analysis of Uses and Difficulties

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Abstract:

Artificial intelligence (AI) has proven to be a revolutionary technology in healthcare, providing major improvements in disease diagnosis, medical imaging, personalized medicine, drug discovery, healthcare administration, and remote patient monitoring. This review presents a multidisciplinary analysis of major applications, issues, and future opportunities for AI in contemporary healthcare. This study considers the use of AI to improve clinical decision-making, enhance diagnosis, optimize treatment planning, and improve healthcare delivery. In addition, this study provides an analysis of the contribution made by medicine, computer science, data science, biomedical engineering, ethics, law, and public health in implementing AI in the field of healthcare. In conclusion, the review underscores that while AI offers great potential to improve patient health and the efficiency of healthcare delivery, its successful use depends on algorithmic transparency, multidisciplinary cooperation, governance, and ongoing human oversight. Ultimately, new areas of research like explainable AI, federated learning, multimodal data integration, digital twins, and privacy-preserving AI have been suggested as critical aspects in advancing intelligent, ethical, and safe healthcare. In summary, this review underscores the importance of responsible AI use in achieving intelligent, efficient, and sustainable healthcare systems.

Keywords: Artificial Intelligence (AI); Healthcare; Clinical Diagnosis; Personalized Medicine; Medical Imaging; Remote Patient Monitoring; Explainable AI; Digital Health.

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1. INTRODUCTION

The artificial intelligence (AI) technology has turned out to be among the most groundbreaking innovations in the field of modern healthcare, which has dramatically altered the process of diagnosis, treatment and management of diseases¹. The fast development of electronic health record (EHR) technology, medical imaging, wearable devices, genomic sequencing and other digital health innovations has produced vast amounts of health information, which surpass the analytic capacity of traditional healthcare organizations². Thanks to machine learning, deep learning, natural language processing, computer vision and prediction analytics, AI technology allows healthcare practitioners to gain valuable insights into complicated datasets and deliver efficient care to patients.

AI application in the healthcare sector encompasses all stages of medical practice ranging from disease prevention to treatment via precision medicine, drug discovery, robotic surgery, hospital management, and patient monitoring from afar. The application of AI technology demands the involvement of many fields of study like medicine, computing, biomedical engineering, health informatics, ethics, and law in order to guarantee clinical reliability, ethical soundness, and social acceptability of these intelligent systems³. Such an interdisciplinary process is becoming ever more critical for healthcare providers striving to find the right balance between technological innovation and patient safety, transparency, and access to healthcare.

1.1 Background and Context

The increasing complexity of healthcare delivery and the rising demand for quality healthcare services have led to an increase in the utilization of artificial intelligence within healthcare organizations around the world. AI technologies can now utilize various types of clinical data such as imaging data, laboratory results, electronic health records, genomic data, and physiological data in real time to aid in disease diagnosis, treatment planning, and healthcare delivery⁴. AI has been useful in improving diagnosis, clinical workflows, and developing personalized treatment plans while cutting down healthcare expenses and operational inefficiencies. It is because healthcare choices have a direct effect on patients' lives that the use of AI is not only dependent on how well the technology works but also on clinical validation, governance, regulation, and collaborations among others⁵.

1.2 Objectives of the Review

The main aims of this review are:

- To explore the wide range of applications of artificial intelligence in clinical diagnosis, medical imaging, personalized medicine, drug discovery, healthcare administration, and patient monitoring.

- To investigate the multidisciplinary contributions made by medicine, computer science, data science, ethics, law, and public health to enhance AI-driven healthcare.
- To critically assess the technical, clinical, ethical, legal, and regulatory issues concerning the integration of artificial intelligence in healthcare.
- To review the gaps in existing research and highlight the future directions for research into AI technology.

1.3 Importance of the Topic

Artificial intelligence is increasingly impacting the delivery of healthcare services through the development of better diagnosis, personalizing treatment, increased efficiency, and evidence-based decisions. In light of the continuous health issues being encountered in healthcare systems, including growing burden of diseases, aging populations, workforce shortage, and growing costs of healthcare, there are many benefits associated with the integration of AI within healthcare⁶. However, the responsible implementation of AI involves addressing ethical challenges, including those related to data privacy, algorithmic bias, explainability, cyber security, and regulatory compliance. Thus, an interdisciplinary knowledge of AI opportunities and challenges is important in order to implement intelligent healthcare technology effectively and responsibly⁷.

2. AI APPLICATIONS IN MODERN HEALTHCARE

AI is one of the most revolutionary technologies in modern healthcare as it ensures evidence-based decision making, enhances diagnostics, promotes personalized treatment and improves management of healthcare services. Unlike conventional approaches to healthcare that rely largely on human judgment and experience, AI uses machine learning, deep learning, natural language processing, computer vision and predictive analytics to analyze huge volumes of structured and unstructured medical data. These technologies are helpful for practitioners throughout all stages of healthcare delivery from prevention to early detection, treatment, remote monitoring and management decision-making⁸. The integration of AI in the process of healthcare service delivery has also accelerated the transition to precision medicine through provision of personalized treatment based on clinical, genetic, imaging and lifestyle data. There are still many things to do before the successful application of AI in healthcare but it should not be overlooked. This section examines major applications of AI in healthcare in terms of diagnostics, treatment and management of healthcare services.

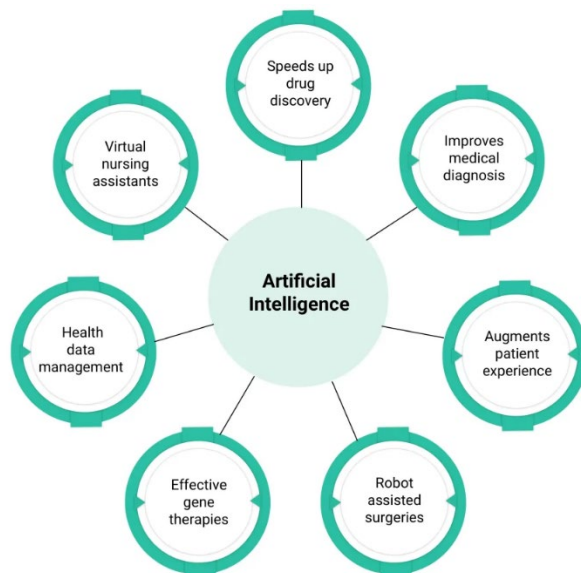


Figure 1. Major applications of artificial intelligence in modern healthcare.

2.1 AI in Clinical Diagnosis and Medical Imaging

Clinical Diagnosis is among the early adopters of AI in medical practice and is still widely employed due to its success in providing accurate solutions to various clinical problems. Contemporary AI models can detect complicated patterns within large volumes of clinical data that are often hard to detect manually by humans⁹. The use of machine learning technology involves analyzing patient characteristics, lab results, physiological measurements, electronic health records, and patient history to determine the probability of disease development and predict risk factors. With the increase in the volume and complexity of healthcare data, AI gives an opportunity to analyze this data fast and efficiently.

Medical imaging has undergone some of the most substantial developments thanks to the implementation of deep learning and computer vision. Convolutional neural networks have proven to be very successful in analyzing various types of medical images including X-ray, computed tomography (CT), magnetic resonance imaging (MRI), ultrasonography, mammography, retina images, and histopathology images¹⁰. Artificial Intelligence-based analysis of images allows for automatic detection of tumors, bone fractures, respiratory system diseases, neurological illnesses, cardiovascular problems, diabetic retinopathy, and many other medical conditions with the same accuracy as highly skilled medical specialists in specific clinical environments.

In addition to image interpretation, AI plays a role in providing integrated decision support for diagnostics through integration of imaging data, lab tests, genomics, and patient history. This multidisciplinary approach allows for better disease classification and helps healthcare providers distinguish between diseases with similar symptoms. Predictive modeling is used for early disease

detection even before symptoms manifest themselves, allowing for preventive health care. However, despite all the advantages of such an approach, AI-based diagnostic tools still need high quality datasets and constant clinical supervision to function reliably¹¹.

2.2 AI in Treatment Planning, Personalized Medicine, and Drug Discovery

AI technology has greatly affected decision-making in therapy through individualizing treatment approaches and expediting drug development processes. Traditional approaches to treatment use clinical protocols that fail to take into consideration variations in patients' biological characteristics. AI technology resolves this problem by combining various data, including clinical, radiological, genomics, proteomic, life style, and treatment data to provide individualized treatment suggestions based on patients' personal characteristics.

In precision medicine, machine learning technologies help to detect subgroups of diseases, forecast the reaction to the chosen therapy, assess the progression of the disease, and assess the risk of adverse reactions to drugs¹². This technology enables physicians to choose the most effective treatment options and avoid redundant procedures and risks of adverse reactions to drugs. AI is also used in radiotherapy, surgery, intensive care unit management, and chronic disease management.

One of the other emerging fields where AI has been applied is drug discovery. Traditional drug discovery has long timelines, huge costs, and substantial failures at the clinical trial stage. AI fast-tracks this process through the identification of possible therapeutic targets, screening of millions of chemicals, prediction of molecular reactions, optimization of drug designs, and even calculating the toxicity profile before even going to the lab¹³. Deep learning models are able to assess protein structure, drug target interaction, pharmacokinetic properties, and efficacy of the compounds in a short time, thus decreasing the experimental burden. Drug repurposing has also been greatly aided by the application of AI, especially during the COVID-19 pandemic.

Even with all these benefits, however, AI-based treatment recommendations should not supersede clinical knowledge. Treatment planning is informed by many different aspects, some of which cannot always be incorporated in any mathematical algorithm, such as patient preferences, presence of other diseases, socio-economic conditions, and ethics among others. It therefore makes sense to continue working together across all disciplines in order to use AI effectively¹⁴.

Table 1. Major Applications of Artificial Intelligence in Personalized Medicine and Therapeutic Decision-Making

Application Area	AI Role	Clinical Benefits	Key Challenges
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Precision Medicine	Analyzes clinical and genomic data to personalize therapies	Improved treatment effectiveness and reduced adverse effects	Limited availability of integrated patient data
Treatment Planning	Predicts treatment response and supports clinical decisions	Optimized therapy selection and better patient outcomes	Need for continuous clinical validation
Drug Discovery	Identifies drug targets and predicts molecular interactions	Faster drug development and reduced research costs	Experimental verification and regulatory approval
Drug Repurposing	Identifies new uses for existing medicines	Shorter development time and lower costs	Clinical efficacy must be confirmed through trials
Genomic Analysis	Detects biomarkers and disease subtypes	Supports personalized diagnosis and targeted therapy	Complex integration of multi-omics data
Radiotherapy Planning	Assists dose optimization and image-guided treatment	Greater treatment precision and reduced toxicity	Dependence on high-quality imaging data
Chronic Disease Management	Predicts disease progression and monitors patient health	Early intervention and improved long-term care	Data privacy and continuous monitoring requirements

2.3 AI in Healthcare Management and Remote Patient Monitoring

Other than providing clinical care to patients, artificial intelligence has been instrumental in enhancing health care management and patient engagement. In health care institutions, there is a huge amount of data collected from administrative, financial, and clinical sources that need to be analyzed¹⁵. AI helps in the management of hospitals in areas such as scheduling patients, allocating resources, staffing, inventory management, functioning of the emergency departments, and automation of clinical processes. Predictive analytics has helped the health care administrators in predicting admission of patients, high-risk groups, and health care resource utilization.

The Electronic Health Record (EHR) has emerged as an important source of health care data that can be used in AI technologies¹⁶. The natural language processing algorithms help to identify useful data from physician notes, discharge summaries, lab reports, and other medical records; thus, minimizing the burden of documentation and improving its quality. Additionally, AI-enabled

clinical decision support systems automatically provide warnings about the drug interactions, unusual lab results, disease progression, and preventive care guidelines.

Remote patient monitoring is among the most rapidly growing applications of AI within the digital health sector. Wearable devices, IoT gadgets, intelligent medical devices, and mobile health apps constantly track physiological parameters such as heart rate, blood pressure, blood glucose levels, oxygen saturation, respiratory rate, physical activity, and sleep quality¹⁷. With the help of machine learning, abnormalities in physiological parameters can be detected, potential exacerbations of the disease can be predicted, and warnings generated for both patients and health care professionals. This method has shown significant benefits in the treatment of chronic diseases such as diabetes, cardiovascular disease, hypertension, chronic respiratory diseases, and neurological diseases by decreasing unnecessary hospitalization and increasing patient compliance¹⁸.

Telemedicine software applications have augmented the delivery of healthcare based on AI through the combination of virtual consultations, automated symptom evaluation, conversational AI, appointments booking, and personalized health education. The implementation of such technologies is aimed at enhancing access to healthcare services, especially for rural communities, elderly people, and those who lack access to specialized medical care services. Nevertheless, their implementation presupposes the existence of adequate security, privacy, reliable infrastructure, interoperability, and regulation¹⁹.

3. INTERDISCIPLINARY PERSPECTIVES ON AI IN HEALTHCARE

The application of artificial intelligence in healthcare is not only about technological progress, which demands joint efforts of several branches in order to guarantee the safety and effectiveness of its use. In this case, the successful introduction of AI into healthcare is possible not only due to advances in computer science but also due to the contribution of medicine, public health, ethics, law, biomedical engineering, health informatics, and data science. Healthcare is an area where the decision-making process is complicated by numerous factors, including clinical reasoning, values of patients, compliance with the relevant regulations, and changing medical evidence base²⁰. For this reason, the development and evaluation of AI technologies have to be done within the framework of the interdisciplinary approach that ensures the balance between technical possibilities and other requirements.

3.1 Medical and Clinical Perspectives

The medical and clinical viewpoint constitutes the basis for applying AI in the field of healthcare since caring for patients is the main goal for any technology. AI algorithms are gradually used within clinical practice for disease diagnostics, prognostics, treatment planning, risk assessment, and patient surveillance. Instead of eliminating clinicians from the work process, AI is an additional tool that assists with diagnosing diseases more precisely, helps relieve the workload, and makes

evidence-based decisions possible²¹. Physicians, radiologists, pathologists, pharmacists, and nurses provide invaluable clinical knowledge in AI algorithms development and assessment.

AI also helps to provide personalized medicine by incorporating various sources of data about each patient, such as their medical history, results of laboratory tests, images, genetic makeup, and lifestyles. This approach allows for providing care tailored to the needs of individual patients rather than following standard clinical protocols²². Besides, AI contributes to preventive medicine as it helps identify patients who are prone to the further development of a disease and provides suggestions for early intervention before complications arise. Nevertheless, the effective implementation of AI in clinics presupposes careful validation of the system using multistage studies and performance monitoring.

3.2 Ethical, Legal, and Social Perspectives

The increasing application of AI in the healthcare industry comes with a number of ethical, legal, and social implications that go beyond technical performance. Artificial Intelligence systems in the healthcare industry deal with extremely sensitive information about patients; hence data protection, confidentiality, and cybersecurity become mandatory. Compliance with the law on data protection at national and international levels, as well as data sharing, becomes a must in order to build trust in AI healthcare systems.

Algorithmic bias is yet another issue that comes up. Algorithms that are based on biased datasets can generate incorrect results in some demographic populations and thus can lead to health care disparities²³. To be sure of fairness, it is vital to have a diverse dataset and a thorough audit of algorithms. Moreover, the explainability of an algorithm becomes crucial since both doctors and patients need to comprehend the logic of recommendations.

From the legal perspective, issues of accountability and liability have not been sorted out where decisions made by means of AI systems have led to unfavorable health results. Clearly formulated regulations are needed for defining the roles and responsibilities of all parties involved, including software producers, healthcare organizations, regulators, and medical specialists. Social acceptance is also an important aspect since patients feel more confident with using AI technologies in healthcare when such systems are not seen as replacement of human expertise but rather as a helpful addition²⁴.

3.3 Technological and Data Science Perspectives

The technological and data science viewpoint offers the necessary computational framework that ensures artificial intelligence works well in healthcare settings. Artificial intelligence technology utilizes sophisticated machine learning algorithms, deep learning algorithms, natural language processing, computer vision, and predictive modeling to convert complex healthcare datasets into medically relevant information. This is made possible through the use of image analysis, disease

prediction, risk stratification, clinical text analysis, and intelligent decision support systems in healthcare scenarios²⁵.

Availability of high-quality data is a key aspect influencing AI's success. EHR, images, sensors, lab reports, genomic data, and real-time physiologic monitoring produce high volume of diverse data, which must be preprocessed, integrated and validated in terms of its quality. Data scientists are needed for feature engineering, model building and evaluation to ensure success of AI application in medicine.

Modern advances in technology have also enhanced the power of AI using cloud computing, IoT technologies, federated learning, digital twin approach, and explainable AI models²⁶. Federated learning helps in achieving collaborative learning without violating the privacy of the patients as organizations can collaborate using the parameters of the models and not the actual clinical data. The use of explainable AI is more helpful for the interpretable predictions. However, some major challenges exist in the form of interoperability issues, data standardization, computational requirements, cybersecurity problems, and external validation. Solving such issues demands collaboration between healthcare professionals and engineers.

Table 2. Major Contributions of Different Disciplines to AI-Based Healthcare

Discipline	Primary Contribution	Healthcare Impact
Medicine & Clinical Sciences	Diagnosis, treatment planning, clinical validation	Improved patient care and clinical decision-making
Computer Science	AI algorithms, machine learning, software development	Intelligent diagnostic and predictive systems
Data Science & Health Informatics	Data integration, analytics, model development	Reliable insights from healthcare data
Biomedical Engineering	Medical devices, sensors, wearable technologies	Continuous patient monitoring and smart healthcare
Ethics & Law	Privacy, fairness, accountability, regulatory compliance	Responsible and trustworthy AI implementation
Public Health	Population health analysis and disease surveillance	Better healthcare planning and policy development

4. CHALLENGES, IMPLEMENTATION ISSUES, AND FUTURE DIRECTIONS

Despite clear potential of artificial intelligence to enhance healthcare delivery, many issues hampering its broad use remain in this area. In order to implement AI successfully into clinical

practice, it is necessary not only to build effective predictive models but also to have robust data architecture, transparency of algorithms used, regulatory framework, clinicians' readiness, and ongoing assessment in real-life healthcare settings²⁷. Variability in terms of healthcare systems, patients, workflows, data quality adds to the complexity of implementing AI on a large scale. Therefore, resolving these issues requires collaborative efforts of healthcare professionals, computer scientists, policy-makers, regulators, and representatives of industry. This section addresses these obstacles and sets research agenda for the future.

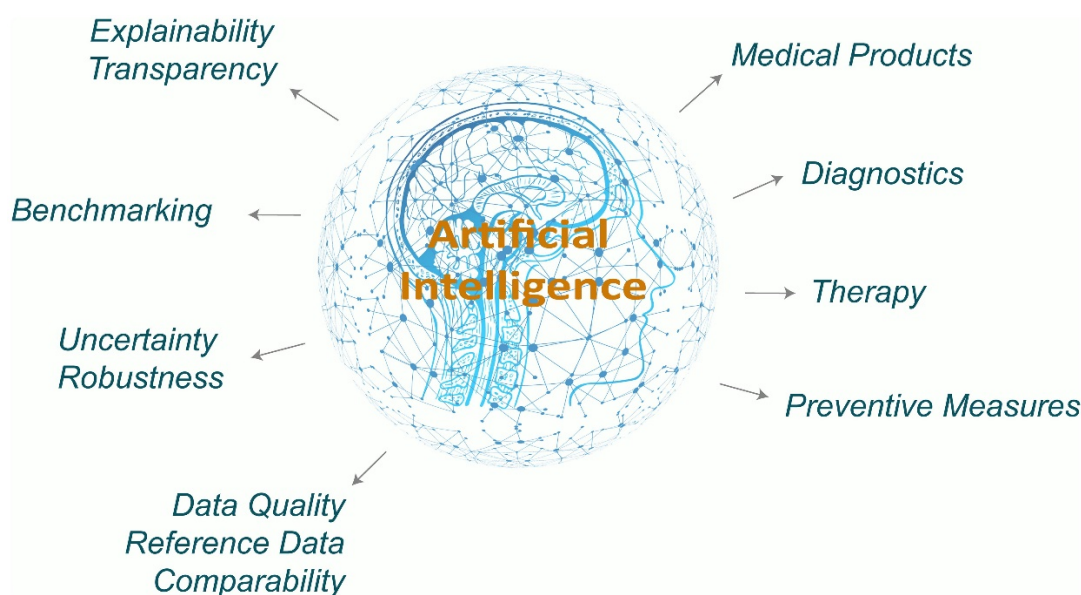


Figure 2. Major applications and implementation challenges of artificial intelligence in healthcare

4.1 Technical, Clinical, and Regulatory Challenges

Effective implementation of AI technology in healthcare requires access to good quality, representative, and interoperable healthcare data. But clinical data are often collected from different hospitals, different EHR systems, diagnostic labs, and different imaging modalities in an inconsistent format, causing the absence of some information, data imbalance, and differences in clinical practice which negatively influence the algorithm's performance and limit its generalizability in various healthcare environments.

Clinical validation is the other significant obstacle. Many AI models show excellent results during research but lack such good results in real-life practice with real patients. Different factors like variation in the frequency of a certain disease or imaging protocols lead to low accuracy of the model after its introduction in clinical practice²⁸. Therefore, clinical validation and constant monitoring are required prior to using AI algorithms in practice.

Continued advancement in laws and regulations accompanies the fast technological evolution. Clinical applications of AI have to satisfy a number of stringent criteria related to patient safety, security of health data, security of the system itself, software performance, and clinical efficacy before receiving approval from regulatory bodies. In addition, the problem of legal liability has not been solved yet, especially in the case of mistakes in AI-assisted diagnostic procedures. Thus, unified international regulations and monitoring will be crucial²⁹.

4.2 Human-Centered AI Adoption and Explainability

The future use of AI in healthcare is not only based on the technical aspects, but also on the acceptance of these technologies by healthcare providers and patients. Human-centered AI is a collaboration between physicians and intelligent algorithms and not about substituting human knowledge. Doctors will be in charge of translating the recommendations made by artificial intelligence into clinical practice, taking into account the medical history of the patient, clinical signs, ethical issues, and personal preferences.

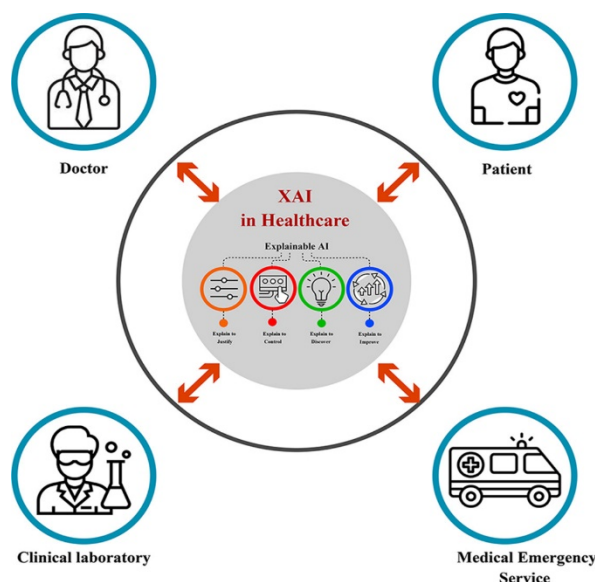


Figure 3. Human-centered explainable AI framework for healthcare applications

One of the major challenges in the process of integration of AI technology is the "black box" issue, when highly accurate predictions do not have enough clinical acceptance due to the lack of transparency of the algorithm's decision process³⁰. Explainable Artificial Intelligence (XAI) tries to solve this problem through generating interpretable results, identifying clinically significant variables, evaluating prediction uncertainties, and promoting the transparent decision-making process in healthcare.

The use of artificial intelligence technology also needs appropriate education and workforce training. Healthcare providers need to have enough knowledge about the ability, limitations, and

interpretation of artificial intelligence to effectively use the technology in their practice³¹. At the same time, the people developing the artificial intelligence technology need to be knowledgeable about the workflow process and health policies to make the artificial intelligence compatible with the health care industry.

Table 3. Comparative Analysis of Selected Studies on Artificial Intelligence in Healthcare

Author(s) & Year	Study Focus	Major Findings	Research Gap / Limitation
Shaik et al. (2023) ³²	AI-enabled remote patient monitoring	Demonstrated that AI improves continuous health monitoring, early disease detection, and chronic disease management through wearable devices and predictive analytics.	Challenges remain regarding data privacy, interoperability, and large-scale clinical implementation.
Shaw et al. (2019) ³³	Implementation of AI in healthcare	Highlighted that successful AI adoption depends on organizational readiness, clinician engagement, and workflow integration rather than algorithmic performance alone.	Limited discussion on emerging AI technologies such as generative AI and explainable AI.
Sun & Medaglia (2019) ³⁴	AI adoption in public healthcare	Identified technical, organizational, ethical, and governance barriers affecting AI implementation in public healthcare systems.	Primarily focused on public-sector healthcare and provided limited evidence from clinical practice.
Tulli (2023) ³⁵	Opportunities and obstacles of AI in healthcare	Discussed AI applications in diagnosis, treatment, healthcare management, and decision support while emphasizing ethical and legal concerns.	Largely conceptual with limited empirical evidence and comparative evaluation of AI applications.
Warraich et al. (2025) ³⁶	Regulatory perspectives on AI in healthcare	Emphasized the importance of risk-based regulation, transparency, clinical	Focused mainly on regulatory frameworks without addressing

		validation, and continuous monitoring for safe AI deployment.	interdisciplinary implementation challenges across healthcare systems.
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5. DISCUSSION

In modern healthcare, artificial intelligence has become an essential part of healthcare by increasing accuracy of diagnostics, personalized medicine, management in healthcare, and evidence-based clinical decision-making. As evident from the review of the literature conducted in this study, AI technologies have moved far ahead from their experimental use and are now incorporated in everyday healthcare, such as medical imaging, therapy planning, development of new drugs, patient remote monitoring, and hospital management³⁷. Nevertheless, the effective implementation of AI requires an interdisciplinary approach where computer science advances are complemented by clinical practice, ethical considerations, regulations, and health policy. Despite some significant advancements, there are still many issues that affect the use of AI in healthcare today³⁸.

5.1 Interpretation and Analysis of Findings

Based on the results obtained in this literature review, it can be stated that the development of artificial intelligence has contributed greatly to healthcare as it allowed for the faster diagnosis of diseases, improved predictions of illnesses, personalized treatment, and efficient allocation of healthcare resources³⁹. With the help of such techniques as machine learning, deep learning, natural language processing, and predictive analytics, the quality of clinical decision support was improved, which also led to the decrease in variability of diagnoses and better health outcomes for patients. Nevertheless, it should be noted that artificial intelligence needs to serve as an assistant to humans and not make decisions independently.

5.2 Implications and Significance

The increasing use of AI carries significant implications for healthcare professionals, researchers, healthcare organizations, policy makers, and AI developers. First of all, it offers opportunities for making the healthcare industry more accessible, efficient, cost effective, and also facilitates precision medicine through personalized care⁴⁰. Besides, it is critical for researchers in medicine, computer science, biomedical engineering, health informatics, ethics, and law to work together in order to build trustworthy AI systems. All of this suggests that AI can have a key role in creating sustainable healthcare systems.

5.3 Research Gaps and Limitations

Even with the impressive advancements achieved, there are still numerous knowledge gaps that limit the appropriate application of artificial intelligence in health care. The current studies focus on algorithm design and prediction performance but provide little information about their clinical

utility, validation, interoperability, and implementation in varied settings in the health-care sector. Issues such as data quality, bias, explainability, cybersecurity, regulatory compliance, and evaluation frameworks are not sufficiently addressed. This study is restricted to peer-reviewed articles and thus might overlook recent industrial advances in AI technologies and their clinical applications.

5.4 Future Research Directions

Future research should focus on the creation of clinically validated and explainable AI tools that could help the medical profession in different healthcare environments. The focus should be more on federated learning, multimodal data, digital twin, generative AI, and privacy-preserving machine learning to increase accuracy in the diagnosis process without compromising the privacy of patients. Multicenter validation trials, consistent reporting methods, interoperable healthcare infrastructure, and international regulatory framework would be very important to promote responsible AI use. Besides, future research should further encourage collaboration between different fields to make sure technological advancements meet clinical, ethical, and health care delivery needs.

6. CONCLUSION

Artificial Intelligence has become an innovation technology which changes current healthcare owing to the significant advancements in diagnosing diseases, providing personal medicine, creating treatment plans, managing healthcare, and remotely monitoring patients. The current literature review shows that the success of implementing AI requires not only the advancement of computation techniques but also efficient collaboration of medicine, computer science, biomedical engineering, ethics, law, and public health. Though AI creates great possibilities for improving quality of healthcare, its efficiency, and results, there are several challenges associated with the quality of data, algorithm transparency, clinical validation, privacy protection, cyber security, and regulation that have to be overcome. Further developments will require creating explainable, trustworthy, and human-centric AI which needs standardization of clinical evaluation, interdisciplinary studies, and regulation. Balancing technological innovations with ethical and clinical aspects, artificial intelligence can become a sustainable part of future healthcare systems.

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