

THE SYSTEMIC LITERATURE REVIEW OF ARTIFICIAL INTELLIGENCE IN HEALTH CARE SECTOR

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ABSTRACT

Artificial Intelligence (AI) is changing healthcare. It offers new ways to improve how doctors diagnose and treat patients. AI also helps with patient monitoring and managing healthcare systems. This study looks at how AI tools like machine learning, deep learning, and natural language processing make diagnoses more accurate. They also help create personal medical plans and make hospital tasks smoother. The paper also discusses the ethical, legal, and privacy issues that come with using AI in healthcare. The paper also describes future ideas and changes for AI in healthcare. The results stress the need for a careful approach. This approach considers new technology along with ethical, legal, and infrastructure readiness. In order to understand all these aspects together researchers referred 100 research papers related to artificial intelligence in different areas. Out of which ,20 research papers related to artificial intelligence in healthcare are studied by researchers and based on that, it further categorized into 8 themes, which offers a holistic examination of artificial intelligence in healthcare sector.

Keywords: Artificial Intelligence (AI), Healthcare Technology, Personalized Medicine, Ethical and Legal Challenges, Clinical Decision Support Systems

1. INTRODUCTION

Artificial Intelligence (AI) has significantly changed healthcare by transforming medical practices and reshapes patient care, diagnosis, and disease management. Various AI tools like machine learning, natural language processing, and neural networks help improve clinical decisions, personalize treatments, and make healthcare delivery better. AI can process large amounts of medical data quickly and accurately which offers great potential to solve difficult problems in modern healthcare. Abdallah et al. (2023) showed how AI helps make diagnoses and treatment plans better for rare genetic disorders. According to study showed that AI tools help doctors create accurate, personal care plans for complex genetic conditions. Conventional methods often do not work as well. Abidi et al. (2024) also offered a complete plan and it showed how AI applications can improve hospital service quality, operations, patient satisfaction, and overall service in healthcare.

AI Healthcare



Fig 1. AI in healthcare

Source: <https://slidebazaar.com/items/ai-healthcare-powerpoint-template/>

AI's part in ongoing health monitoring and disease management is a big step forward in digital health. As Ahmadi (2024) stressed that AI systems help monitor patients in real-time that allows for early detection and actions which helps to develop personal disease management plans that were not possible before. Study conducted by Alrefaei et al. (2022) also highlighted AI's importance in personal medicine as they looked at genetic data sharing in the Saudi Human Genome Program. Their study found that AI tools help read and use genetic data which leads to treatments made for each person's genetic makeup. AI combined with Internet of Things (IoT) technologies has also created new ways to care for patients outside of hospitals. As per survey conducted by Alshamrani (2022) which showed that AI-driven IoT systems are used more and more for remote health monitoring. They offer continuous health tracking and timely alerts for patients and healthcare providers.

Even with these steps forward, putting AI into healthcare still has problems. These include ethics, data privacy, and limits in infrastructure. But, AI's ability to improve healthcare access, speed, and patient results is clear. It needs more study and development to fully use its benefits in different healthcare settings.

1.1 Conceptual Framework of Artificial Intelligence

Artificial Intelligence (AI) is a wide field of computer science. It focuses on making systems that do tasks normally done by people. In healthcare, AI covers many technologies. These include machine learning, deep learning, natural language processing (NLP), and robotics. Each one helps change how healthcare is given. Thinking about AI in healthcare involves technology, ethics, operations, and legal matters. Dwivedi et al. (2021) state that AI's ideas go past just new technology. They include many areas like new problems, chances, and policy ideas. Their study shows that AI systems are not just tools for automation. They can also change healthcare processes, make decisions better, and create new ways to help patients. The ideas they present stress the need to balance new technology with ethical and legal rules. This helps make sure AI is used responsibly in healthcare.

Another important part of AI in healthcare is how data is handled, especially when private patient data moves across countries. Bradford, Aboy, and Liddell (2020) pointed out the difficulties of sending health data between places like the European Union (EU) and the United States (USA). Their specific approach highlights the need for enough data protection. This ensures rules like the General Data Protection Regulation (GDPR) and the Health Insurance Portability and Accountability Act (HIPAA) are followed. This part of the framework protects patient rights. It also helps share health information globally, which is needed for AI healthcare research and uses. Also, the real effect of AI technology on healthcare is a main part of this framework. Farid et al. (2023) gave a full review of how AI can lower hospital readmissions for long-term illnesses. This is a constant problem for many healthcare systems. Their study shows that prediction tools and machine learning models can find patients at high risk. They can also make treatment plans better and allow early actions. This improves healthcare results and lowers costs for healthcare places.

To sum up, the main ideas of AI in healthcare rest on three core parts. These are new technology, following rules and ethics, and real healthcare uses. These parts work together to form a complete model. This model guides how AI solutions are made, used, and checked in healthcare. A balanced approach, looking at each part, is necessary to get the most from AI and lower its dangers.

1.3 Objective

1. To examine the various applications of Artificial Intelligence in enhancing diagnostic accuracy, treatment planning, and personalized medicine in the healthcare sector.
2. To analyse the impact of AI technologies on improving hospital service quality, patient monitoring, and reducing hospital readmission rates, particularly for chronic diseases.
3. To identify and explore the ethical, legal, and data privacy challenges associated with the implementation and international transfer of AI-driven healthcare data.
4. To assess the limitations, opportunities, and future potential of Artificial Intelligence in transforming healthcare delivery systems, especially in resource-constrained and developing regions.

2. Review of literature

Sr. No.	Author(s)	Year	Aim	Objective	Scope	Findings
1	Abdallah et al.	2023	To assess AI's role in optimizing diagnosis and treatment for rare genetic disorders.	Explore the impact of AI in improving rare disease management.	Rare genetic disorder diagnosis and treatment.	AI significantly enhances diagnostic accuracy and personalized treatment for rare genetic conditions.
2	Abidi et al.	2024	To develop a framework for AI-based hospital service improvement.	Understand AI's role in elevating hospital service quality.	Hospital service quality improvement.	AI enhances hospital operations, leading to better service quality and patient satisfaction.
3	Ahmadi	2024	To leverage AI for health monitoring and disease management.	Discuss digital transformation using AI in healthcare.	Disease monitoring and management.	AI tools enable continuous monitoring and predictive disease management.
4	Alrefaei et al.	2022	To analyse genetic data sharing for AI-driven personalized medicine.	Evaluate AI's role in the Saudi human genome project.	Personalized medicine, genetic data handling.	AI facilitates efficient genetic data analysis, supporting personalized healthcare solutions.
5	Alshamrani	2022	To survey AI and IoT implementations in remote healthcare.	Assess AI integration in remote health monitoring systems.	Remote healthcare systems.	Integration of AI and IoT improves remote patient monitoring and health data collection.
6	Bradford et al.	2020	To propose a framework for	Examine cross-border health data	International health data	A sector-specific approach is

			health data transfer between EU and USA.	sharing laws with AI consideration.	transfer policies.	needed to secure cross-border health data sharing.
7	Dwivedi et al.	2021	To identify challenges and opportunities of AI across sectors.	Explore multidisciplinary perspectives on AI.	AI across industries including healthcare.	AI offers vast potential but faces regulatory and ethical challenges in healthcare.
8	Farid et al.	2023	To study AI's role in reducing hospital readmissions for chronic diseases.	Analyse AI applications in chronic disease management.	Chronic disease management in hospitals.	AI-driven models can predict patient risk and reduce readmissions.
9	Gupta et al.	2021	To review AI and deep learning in drug discovery.	Highlight AI-based approaches in pharmaceutical development.	Drug discovery and development.	AI accelerates drug discovery, reducing time and cost.
10	Krones & Walker	2023	To present real-world AI implementation in low-income healthcare.	Understand challenges of AI deployment in resource-limited settings.	Low-income healthcare environments.	AI potential is high, but infrastructure and cost barriers remain.
11	Lee & Yoon	2021	To assess AI applications in healthcare.	Discuss opportunities and risks of AI in the medical field.	Healthcare industry globally.	AI improves diagnostics but raises ethical and legal concerns.
12	Leone et al.	2021	To explore AI's role in value co-creation in healthcare ecosystems.	Study AI-driven innovation in healthcare business models.	Healthcare business value generation.	AI fosters collaboration and value co-creation among healthcare stakeholders.
13	McLennan et al.	2022	To propose ethical integration in AI development.	Recommend embedding ethics in medical AI design.	Ethical AI design for healthcare.	Proactive ethical inclusion enhances trust and AI acceptance in healthcare.
14	Naik et al.	2022	To examine legal and ethical responsibilities in AI-based healthcare.	Clarify accountability in AI decisions in medical practice.	Legal and ethical healthcare frameworks.	Ambiguities in responsibility demand clear AI regulation policies.
15	Patil & Shankar	2023	To demonstrate AI's transformative power in modern healthcare.	Present the evolving role of AI technologies in health services.	AI transformation in contemporary healthcare.	AI significantly improves diagnostics, patient care, and operational efficiency.
16	Paul et al.	2021	To explore AI's impact on drug discovery processes.	Highlight AI methods used in pharmaceutical research.	Pharmaceutical R&D using AI.	AI enhances drug development efficiency, reducing risk and cost.
17	Pāvāloaia	2023	To review AI as a	Conduct systematic	Technology	AI disruption

	& Necula		disruptive technology.	literature review of AI's disruptive potential.	disruption, including healthcare.	reshapes industries but requires adaptive regulation.
18	Schwalbe & Wahl	2020	To predict AI's influence on global health systems.	Discuss AI-driven changes in global healthcare.	Global healthcare systems.	AI can reduce health disparities but needs global cooperation.
19	Shaik et al.	2023	To assess AI's application in remote patient monitoring.	Study current AI-based remote health monitoring practices.	Remote healthcare technologies.	AI enhances continuous patient monitoring and early detection of health issues.
20	Shuaib et al.	2021	To examine compliance of blockchain health records with privacy laws.	Analyse HIPAA and GDPR adherence in AI-based systems.	Blockchain & AI in health data management.	AI and blockchain can comply with data laws but require strict governance.

2.1 Research gap

Although many studies have explored Artificial Intelligence (AI) in healthcare, the existing research is largely fragmented. Most scholars focus on individual themes such as AI applications, ethical concerns, clinical effectiveness, or implementation challenges. However, no comprehensive study has examined all major areas of AI in healthcare together its use, benefits, ethical issues, data privacy concerns, practical limitations, and real-world adoption barriers in a single, integrated analysis. Because previous research addresses these themes separately, there remains a significant gap in understanding how these factors interact and influence one another. Recognizing this gap, the present study aims to bring all these key dimensions together, offering a holistic examination of AI in healthcare that connects technological, ethical, operational, and practical aspects within one unified framework.

3. RESEARCH METHODOLOGY

This study follows a conceptual research approach aimed at exploring the role of Artificial Intelligence (AI) in the healthcare sector. Being theoretical in nature, the research relies on an extensive review of secondary data, including peer-reviewed journal articles, books, and credible reports published between 2020 and 2024. Sources were selected to cover diverse aspects of AI in healthcare, such as diagnostic accuracy, personalized medicine, hospital operations, patient monitoring, and ethical, legal, and social considerations. The methodology involved systematic literature mapping, critical synthesis, and comparative analysis of findings to identify trends, gaps, challenges, and future prospects of AI implementation. By integrating insights from 20 key studies, the research constructs a conceptual framework highlighting the interplay between AI technologies, clinical applications, and ethical-legal considerations, providing a comprehensive understanding of AI's potential and limitations in modern healthcare systems.

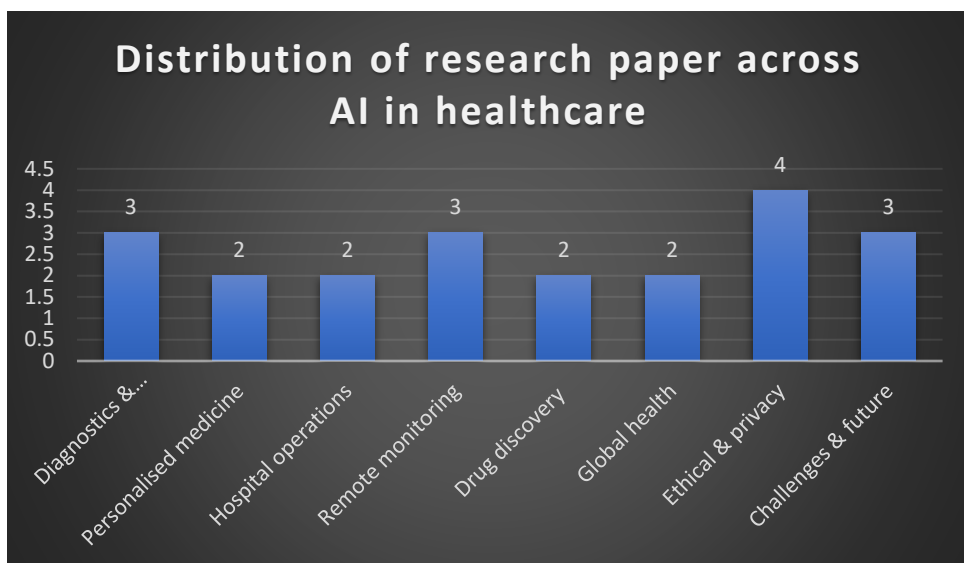
Main Factor	Paper(s) & Year	Publication	APA Citation	Key Context / Contribution
AI in Diagnostics & Treatment	Abdallah et al.	Cureus	Abdallah, S., ... Ekomwereren, O. (2023). The impact of artificial intelligence on optimizing diagnosis and treatment plans for rare genetic disorders. <i>Cureus</i> , 15(10).	AI improves diagnostic accuracy and treatment for rare genetic disorders.
	Lee & Yoon	IJERPH	Lee, D., & Yoon, S. N. (2021). Application of artificial intelligence-based technologies in the healthcare industry: Opportunities and challenges. <i>International Journal of Environmental Research and Public Health</i> , 18(1), 271.	AI improves diagnostics, reduces medical errors, but raises ethical concerns.

Main Factor	Paper(s) & Publication Year	APA Citation	Key Context / Contribution
	Patil & Shankar (2023) IJMSA	Patil, S., & Shankar, H. (2023). Transforming healthcare: Harnessing the power of AI in the modern era. <i>International Journal of Multidisciplinary Sciences and Arts</i> , 2(1), 60–70.	AI improves patient care and operational efficiency.
AI Personalized Medicine Genomics	Alrefaei & al. (2022) Scientific Reports	Alrefaei, A. F., ... Bakhrebah, M. A. (2022). Genetic data sharing and artificial intelligence in the era of personalized medicine... <i>Scientific Reports</i> , 12(1), 1405.	AI enables genetic data analysis for tailored treatments.
	Dwivedi et al. (2021) IJIM	Dwivedi, Y. K., ... Eirug, A. (2021). Artificial intelligence (AI): Multidisciplinary perspectives... <i>International Journal of Information Management</i> , 57, 101994.	AI explores beyond intelligence on ethics, opportunities, and policy in healthcare.
AI in Hospital Operations & Service Quality	Abidi et al. (2024) IGI Global	Abidi, M. H., ... Usmani, Y. S. (2024). The role of AI in elevating hospital service quality: Framework, development, and applications. In <i>Modern Healthcare and Marketing in the Digital Era</i> (pp. 211–224). IGI Global.	AI improves hospital service quality, and patient satisfaction.
	Leone et al. (2021) JBR	Leone, D., ... Chiao, B. (2021). How does artificial intelligence enable and enhance value co-creation... <i>Journal of Business Research</i> , 129, 849–859.	AI fosters collaboration and value co-creation in healthcare ecosystems.
AI in Remote Patient Monitoring & Telemedicine	Ahmadi (2024) —	Ahmadi, A. (2024). Digital health transformation: Leveraging AI for monitoring and disease management.	AI enables real-time patient monitoring and disease management.
	Alshamrani (2022) JKSUCIS	Alshamrani, M. (2022). IoT and artificial intelligence implementations for remote healthcare monitoring systems: A survey. <i>Journal of King Saud University – Computer and Information Sciences</i> , 34(8), 4687–4701.	AI+IoT improves remote healthcare monitoring and alerts.
	Shaik et al. (2023) WIREs Data Mining	Shaik, T., ... Acharya, U. R. (2023). Remote patient monitoring using artificial intelligence: Current state, applications, and challenges. <i>WIREs Data Mining and Knowledge Discovery</i> , 13(2), e1485.	AI improves monitoring of chronic disease patients, but faces privacy challenges.
AI in Drug Discovery & Development	Gupta et al. (2021) Molecular Diversity	Gupta, R., ... Kumar, P. (2021). Artificial intelligence to deep learning: Machine intelligence approach for drug discovery. <i>Molecular Diversity</i> , 25, 1315–1360.	AI speeds up drug discovery, reduces costs and risks.
	Paul et al. (2021) Drug Discovery Today	Paul, D., ... Tekade, R. K. (2021). Artificial intelligence in drug discovery and development. <i>Drug Discovery Today</i> , 26(1), 80.	AI accelerates pharmaceutical R&D.
AI in Resource-Constrained	Krones & Walker medRxiv	Krones, F. H., & Walker, B. (2023). From theoretical models to practical income health	AI potential in low-income health

Main Factor	Paper(s) & Year	Publication	APA Citation	Key Context / Contribution
Global Health Settings	(2023)		deployment... medRxiv.	systems, but faces cost and infrastructure barriers.
	Schwalbe & Wahl (2020)	The Lancet	Schwalbe, N., & Wahl, B. (2020). Artificial intelligence and the future of global health. <i>The Lancet</i> , 395(10236), 1579–1586.	AI can reduce disparities, but requires global cooperation.
Ethical, Legal & Data Privacy Concerns	Bradford et al. (2020)	Journal of Law & Biosciences	Bradford, L., Aboy, M., & Liddell, K. (2020). International transfers of health data between the EU and USA... <i>Journal of Law and the Biosciences</i> , 7(1), Isaa055.	Cross-border health data sharing requires stronger protections.
	McLennan et al. (2022)	BMC Medical Ethics	McLennan, S., ... Buyx, A. (2022). Embedded ethics: A proposal for integrating ethics into the development of medical AI. <i>BMC Medical Ethics</i> , 23(1), 6.	Advocates for ethical integration in AI design.
	Naik et al. (2022)	Frontiers in Surgery	Naik, N., ... Smriti, K. (2022). Legal and ethical consideration in artificial intelligence in healthcare... <i>Frontiers in Surgery</i> , 9, 266.	AI responsibility and liability issues.
	Shuaib et al. (2021)	Materials Today: Proceedings	Shuaib, M., ... Nasir, M. S. (2021). Compliance with HIPAA and GDPR in blockchain-based electronic health records, but need strict governance. <i>Materials Today: Proceedings</i> .	Blockchain + AI can secure health records, but need strict governance.
Challenges, Gaps & Future Prospects	Pvăloaia & Necula (2023)	Electronics	Pvăloaia, V.-D., & Necula, S.-C. (2023). Artificial intelligence as a disruptive technology—A systematic literature review. <i>Electronics</i> , 12(5), 1102.	AI disruption requires adaptive regulation.
	Farid et al. (2023)	—	Farid, F., ... Hossain, F. (2023). The roles of Predictive AI technologies in reducing hospital readmission for chronic diseases: A comprehensive analysis.	AI reduces hospital readmissions for chronic illnesses.
	Patil & Shankar (2023)	IJMSEA	(Already cited above)	Also discusses skill gaps, adoption barriers, and AI transformation.

-The analysed factors and the number of papers reviewed under each are as follows:

Main Factor	No. of Papers
1. AI in Diagnostics & Treatment	3
2. AI in Personalized Medicine & Genomics	2
3. AI in Hospital Operations & Service Quality	2
4. AI in Remote Patient Monitoring & Telemedicine	3
5. AI in Drug Discovery & Development	2
6. AI in Resource-Constrained & Global Health Settings	2
7. Ethical, Legal & Data Privacy Concerns	4
8. Challenges, Gaps & Future Prospects	3



4. APPLICATIONS OF AI IN HEALTHCARE SECTOR

Artificial Intelligence (AI) has changed many parts of healthcare. It offers new ways to improve how well things work, how correct they are, and how easy they are to get. Using AI technology has changed how doctors find and treat illnesses. It also affects finding new medicines, giving healthcare in poor areas, and managing healthcare around the world. One very important use of AI is in finding and making new medicines. Gupta et al. (2021) stated that AI, especially through deep learning and machine intelligence, makes finding medicines faster. It does this by guessing how drugs and targets will interact, what molecules are like, and what side effects might happen. Their study shows how machine learning programs can look through large amounts of chemical and biological information to find new healing compounds. This cuts down on the time and money usually spent on drug research. This AI method helps researchers pick the best drug options, make early studies simpler, and adjust medicine for each person based on their genes and traits.

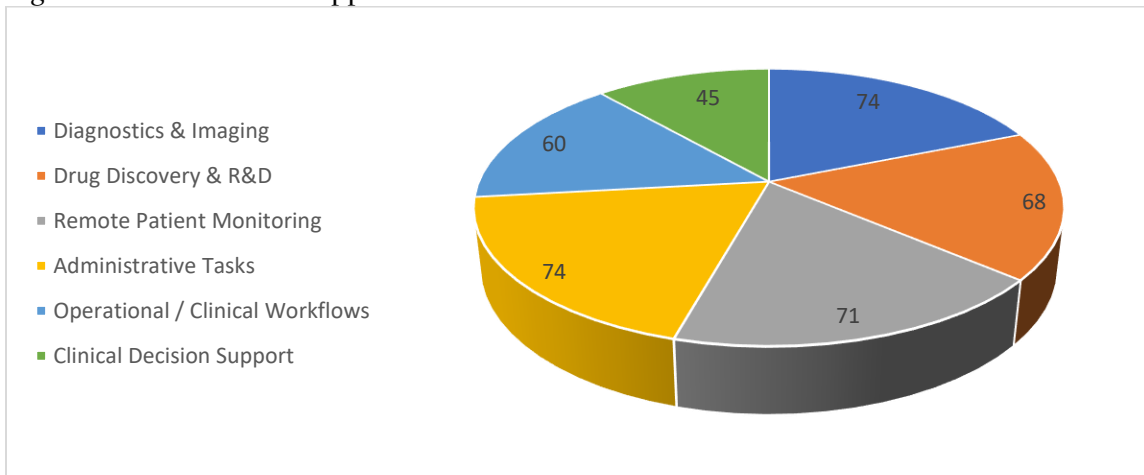
Besides making medicines, AI is very important for healthcare problems in poor areas with few resources. Krones and Walker (2023) looked at how AI models are used in these places. They talked about the good points and the problems with using AI solutions. Their study showed that AI can make healthcare better by helping with diagnoses, automatically handling medical records, and making telemedicine easier. But they also pointed out problems like not enough digital systems, not enough trained staff, and moral worries. These issues need attention to fully use AI's good points in these situations. Overall, AI is used in many healthcare areas. This includes systems that help doctors make decisions, medicine made for individuals, medical pictures, making hospital work better, and watching patients from far away. These technologies help improve patient care, find illnesses early, lower costs, and make healthcare easier to get, especially in areas that do not have enough services. Still, for AI to work well, technical, system, and rule problems must be solved. This will help make sure AI is used fairly and morally in all healthcare settings.

Table 1: Distribution of AI Applications in the Healthcare Sector

Application Area	Statistic / Percentage (Published)	Source
Diagnostics & Imaging	~74% of U.S. hospitals use AI-powered diagnostic tools in radiology.	(SQ Magazine)
Drug Discovery & R&D	~68% of drug discovery firms have integrated AI into R&D operations.	(SQ Magazine)
Remote Patient Monitoring	~71% of hospitals use predictive AI for patient monitoring.	(articlesledge.com)
Administrative Tasks	~74% of healthcare providers use AI for administrative tasks.	(ZipDo)
Operational / Clinical Workflows	~60% of hospitals use AI to optimize operational efficiency.	(ZipDo)
Clinical Decision Support	~45% of healthcare providers use AI tools for clinical	(ZipDo)

	decision support.	
Other AI Uses (Chatbots, Virtual Assistants, etc.)	AI chatbots and virtual assistants are growing rapidly in usage (e.g., ~60% adoption spikes in engagement).	(ZipDo)

Fig 2: Distribution of AI Applications in the Healthcare Sector



This pie chart presents the spread of AI usage across key domains of the healthcare sector. Diagnostics and imaging and administrative tasks account for the largest portions, indicating that AI is widely adopted for improving diagnostic accuracy and streamlining routine operations. Remote patient monitoring and clinical decision support also represent substantial shares, showing the growing role of AI in continuous care and informed medical decisions. Drug discovery and R&D, while slightly lower in comparison, still demonstrate meaningful adoption due to AI's ability to accelerate research processes. Overall, the chart reflects a balanced integration of AI, supporting both clinical outcomes and healthcare system efficiency.

5. IMPACT OF AI ON HEALTHCARE OUTCOMES

The adoption of Artificial Intelligence (AI) in the healthcare sector has significantly influenced various healthcare outcomes, leading to improvements in diagnostic accuracy, operational efficiency, patient satisfaction, and value co-creation among stakeholders. Lee and Yoon (2021) emphasized that AI technologies play a crucial role in enhancing the quality and precision of medical services. AI-powered systems contribute to early disease detection, improved treatment planning, and reduced medical errors, which collectively enhance patient safety and treatment outcomes. Their study also underlined that AI tools facilitate real-time data analysis, enabling personalized patient care and timely clinical interventions. As a result, healthcare organizations can reduce hospital readmission rates, optimize resource utilization, and improve overall service delivery.

In addition to clinical improvements, AI also impacts the co-creation of value within the healthcare ecosystem, as discussed by Leone et al. (2021). Their exploratory study revealed that AI technologies foster collaboration among various stakeholders including healthcare providers, patients, and technology developers by enabling data-driven decision-making and service innovation. AI-driven platforms support seamless communication, efficient information sharing, and enhanced patient engagement, which are essential for delivering patient-centered care and improving the overall healthcare experience. Moreover, the integration of AI solutions has resulted in cost reduction and operational streamlining in healthcare institutions. Automated administrative tasks, such as scheduling and documentation, reduce the burden on medical staff, allowing them to focus more on patient care. AI-based predictive analytics also assists healthcare managers in forecasting patient inflow and managing resources effectively.

In summary, AI has a multifaceted impact on healthcare outcomes by improving clinical accuracy, enhancing operational efficiency, and promoting collaborative value creation among stakeholders. However, the full potential of AI in healthcare will depend on addressing challenges related to data privacy, technology adoption, and skill development among healthcare professionals.

6. ETHICAL, LEGAL, AND SOCIAL IMPLICATIONS OF AI IN HEALTHCARE

Aspect	Description	Source/Reference
Ethical Integration	Emphasizes the need for embedding ethical considerations early in AI design to ensure transparency, fairness, and patient autonomy.	McLennan et al. (2022)
Responsibility and Accountability	Highlights the ambiguity in legal responsibility when AI systems make clinical decisions raising concerns over liability in case of medical errors.	Naik et al. (2022)
Data Privacy and Security	Stresses the importance of safeguarding patient data and ensuring compliance with data protection laws like GDPR and HIPAA in AI-driven healthcare.	Naik et al. (2022)
Bias and Discrimination Risks	Points out potential biases in AI algorithms which may lead to unequal treatment outcomes across different patient populations if not carefully designed.	McLennan et al. (2022)
Social Acceptance and Trust	Notes the challenge of building trust among patients and healthcare professionals regarding AI's reliability and safety in clinical settings.	Patil & Shankar (2023)
Skill Gap and Professional Adaptation	Identifies the need for healthcare professionals to acquire new skills and training to effectively use and supervise AI tools in medical practice.	Patil & Shankar (2023)

7. CHALLENGES AND FUTURE PROSPECTS AND INNOVATIONS

Artificial Intelligence (AI) offers much for healthcare. But several problems prevent its wide use. One main problem is in finding and developing new drugs. AI shows great ability here, finding new healing compounds and predicting how drugs and targets interact. However, as Paul et al. (2021) noted, AI drug discovery often fails because there are not enough good, standard datasets. Also, understanding complex machine learning models is hard. Rules for approving AI-made drug candidates are also unclear. This slows down using AI discoveries in patient care.

Another big problem comes from AI changing things so much. Păvăloaia and Necula (2023) explained that bringing AI into healthcare systems can cause big changes in technology. This means healthcare workers must adapt a lot. People often resist change, medical staff lack technical skills, and they fear losing their jobs. Also, putting AI into current healthcare systems needs a lot of money for digital tools. This creates money and work problems for healthcare providers, especially in poorer areas.

Looking ahead, AI offers great hope for new ideas in health systems worldwide. Schwalbe and Wahl (2020) stressed that AI could greatly help make health fair for everyone. It can do this by offering low-cost ways to find sickness, personal treatment plans, and ways to predict disease to prevent it in areas without many resources. Future new ideas may include AI robots for surgery, watching patients in real-time with devices worn on the body, and using AI in mental health help. Also, combining AI with new tools like the Internet of Medical Things (IoMT) and blockchain could change how healthcare data is handled and kept safe.

In short, AI offers great chances to make healthcare better and operations smoother. But we must fix problems with data quality, worker readiness, ethics, and building up systems. Future possibilities show a path toward more personal, available, and smooth healthcare services driven by AI advances.

8. CASE STUDIES AND REAL-WORLD IMPLEMENTATIONS

Artificial Intelligence (AI) helps healthcare in real situations. It improves patient care, how data is handled, and following rules. Many examples show how AI solutions change healthcare services and operations everywhere.

Remote patient monitoring (RPM) is one important area where AI is used. Shaik et al. (2023) talked about using AI systems for RPM. They looked at how these systems are used now, what good they do, and what problems they have. Their study gives examples where AI programs look at information from wearable devices and home monitors. This helps find early signs of health getting worse in people with long-term illnesses like heart problems and diabetes. These AI systems send alerts to healthcare workers right away. This allows quick action to stop patients from going back to the hospital and makes them healthier. Even with these good points, the study also found problems. These include risks to data privacy, devices not working together, and needing clear rules to make

sure information is correct and dependable in different healthcare settings.

AI also helps manage health data using blockchain technology. This makes sure electronic health records (EHRs) are stored safely, clearly, and according to rules. Shuaib et al. (2021) looked at blockchain-based EHR systems. These systems follow strict data protection rules like HIPAA and GDPR. Their study showed successful uses where AI programs helped control who could access data safely. They also found unusual patterns in data use and kept records of data changes. These things make data more complete, protect patient privacy, and build trust in digital health records. These points are important for wider use in healthcare systems around the world.

These real examples show the practical good and bad points of AI in healthcare. AI helps with patient monitoring and data safety. However, problems with putting technology together, following rules, and user trust need constant attention for AI to be used widely and last a long time.

CONCLUSION

Artificial Intelligence (AI) changes the healthcare field. It makes diagnoses more accurate, improves treatment plans, and simplifies hospital work. AI also helps make medicine more personal. Many studies show that AI technology, such as machine learning, deep learning, and natural language processing, changes old healthcare practices. It offers new ways to solve old problems in patient care and disease management. AI helps in areas like finding new drugs, checking on patients from far away, and helping doctors make choices. It can improve health results, lower costs, and make care easier to get, especially where resources are few.

But, putting AI into healthcare has its problems. Ethical, legal, and data privacy worries are big hurdles. These must be handled to use AI tools safely and with care. Problems like unfair algorithms, who is responsible for AI choices, data safety, and the lack of skills among healthcare workers need constant thought. Also, poor infrastructure and people not wanting to use new technology stop AI from being fully used in many developing areas.

Even with these problems, AI's future in healthcare looks good. New ideas like AI-helped robots, health devices you wear, and AI working with things like the Internet of Medical Things (IoMT) and blockchain are expected to change how healthcare is given. With steady research, policy making, and groups working together, AI can be very important in making healthcare systems work better, be more personal, and focus on the patient.

To sum up, AI can change healthcare across the world. Its success depends on a balanced method that mixes new technology with ethical rules, legal structures, and people accepting it. We need to keep putting money into research, infrastructure, and education. This will help us use all of AI's abilities and make sure health results improve fairly and lastingly everywhere.

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