

AI Adoption in Indian Healthcare A Survey Analysis

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Abstract

Using a structured survey instrument created by healthcare, informatics, and management specialists, this research investigates how Indian healthcare organisations have adopted and used Artificial Intelligence (AI). The purpose of this research is to evaluate artificial intelligence (AI) adoption in healthcare from a variety of angles, including its present state, important drivers, success levels, and obstacles. With phases like "no activity," "developing," "limited deployment," and "full implementation," data was gathered on a variety of AI use cases. Statistical studies, both descriptive and comparative, were carried out using Excel, with the use of tools such as Fisher's Exact and Chi-square tests. Clinical risk assessment and diagnostic imaging are examples of fields where AI use is further advanced, according to the results. In contrast, research and administrative automation are still in the early phases of AI adoption. Limited technical competence, budgetary restrictions, and regulatory hurdles are some of the key obstacles that have been identified. The report emphasises the increasing significance of AI in enhancing the effectiveness and decision-making process in India's healthcare system.

Keywords: *Instrument Healthcare, Adoption, Implementation, Hospitals.*

I. Introduction

Thanks to its ability to improve accuracy, efficiency, and decision-making, artificial intelligence (AI) is quickly changing the way healthcare is provided throughout the world. A growing number of healthcare institutions have begun to use AI tools in an effort to better serve patients, reduce administrative burdens, and enhance therapeutic results. The increasing need for high-quality healthcare services, the increasing number of patients, and the necessity for affordable solutions are driving the use of AI in the Indian setting. Machine learning algorithms, predictive analytics, and natural language processing are some of the AI-driven techniques that are now being investigated and used in several areas of healthcare.

Uneven distribution of medical resources between rural and urban regions is one of several problems plaguing India's healthcare system, which also suffers from a lack of trained healthcare workers and an outdated infrastructure. By facilitating early diagnosis, enhancing treatment planning, and assisting healthcare professionals in clinical decision-making, AI presents itself as a potential remedy to these problems. Radiology and diagnostics AI apps, for example, aid in the quicker and more precise interpretation of medical pictures, and risk prediction models powered by AI aid in the identification of patients at high risk and the prevention of consequences. The general availability and quality of healthcare are both improved by these innovations.

A number of variables, such as technical preparedness, financial capability, and organisational support, impact the adoption of AI in Indian healthcare organisations. While bigger healthcare facilities like tertiary care centers and hospitals are more likely to use cutting-edge AI technologies, smaller facilities often have limitations in areas such as budget, infrastructure, and technical knowledge. Regardless of these obstacles, healthcare practitioners are increasingly interested in investigating AI-driven advancements, especially in certain domains including clinical documentation, patient interaction, and hospital administration systems. The significance of government efforts and digital health programs in encouraging the use of AI in healthcare is also substantial.

But there are obstacles to using AI in healthcare. Persistent barriers to broad adoption include worries about data privacy, unclear regulations, ethical considerations, and healthcare providers' reluctance to shift. The integration process is further slowed down by the fact that there are no standardised frameworks and very little people know about AI technology. To guarantee the efficient and ethical use of AI in healthcare, it is essential to remove these obstacles.

Using a structured survey methodology, this research examines the present state of artificial intelligence use in healthcare organisations in India. The article delves into many use cases of AI, the steps involved in implementing them, and the main obstacles that healthcare organisations encounter. The report sheds light on the ways AI is influencing healthcare in India and presents possibilities for future research and development by revealing adoption trends and obstacles.

II. Review of Literature

Aqeel, Ubada et al., (2025) Many see AI as a game-changer that will have far-reaching effects on healthcare in the not-too-distant future. The purpose of this research is to find out how well-informed Indian healthcare workers are about artificial intelligence (AI) and what they think about the technology's possible uses in the medical field. A Google Forms survey was used to gather information from medical staff working at prestigious hospitals in Delhi, India. Email invitations to fill out the online survey were distributed only to employees working at large hospitals with 500 beds or more. Two hundred forty-four healthcare professionals (including eighty physicians, fifty nurses, forty-six chemists, thirty-four physiotherapists, and fifty others) took part in the survey. Main result: We want to discover how much healthcare workers know about AI and what they think about its current and future uses. Among those who filled out the survey's "knowledgebase" portion, 56 people (or 42% of the total) said they had never encountered an AI application in their line of work. Even though 83% of the participants were acquainted with one of these terms, research showed that 75% were unaware of the differences between deep learning and machine learning.

Chalutz - Ben Gal, Hila & Margherita, Alessandro. (2025). Strategic choices pertaining to the governance of people inside businesses are being improved by human resource management's growing use of digital innovation. Specifically, in the present context, researchers and practitioners are very interested in digital HRM, a trend that is defined by increasing complexity, volatility, and unpredictability. In reality, in order for companies to adapt and strengthen their resilience, these situations need that human resources take center stage. In order to construct companies that prioritise people, advanced decision-support skills are essential. For this reason, solid theoretical foundations and practical uses need fresh theoretical contributions and practitioner innovations. In light of this, this chapter examines healthcare HR digital innovation as a difficult and intricate field. Also included in this chapter is information on what happened at the Meir Medical Centre, which is a branch of the biggest Israeli healthcare provider, the Clalit Health Services Group. Human resource managers who want to launch effective digital-enhanced HR projects will find lessons and management recommendations drawn from this.

Bharti, Ankita & Kumari, Suman. (2024). In today's technology world, AI refers to a tool that mimics the way a human brain functions. Artificial intelligence (AI) is finding several useful applications in many different settings, including healthcare, academia, and research. In the medical field, AI helps with patient evaluation and therapy management. Artificial intelligence (AI) systems have been successful in healthcare because sophisticated algorithms have been developed to extract useful information from massive volumes of healthcare data. The algorithms might be enhanced with auto-learning capabilities to make them more efficient and accurate. In order to expedite patient care, clinicians may access advanced medical material from textbooks, clinical papers, and journals using artificial intelligence (AI) technology. AI shows promise in lowering the rate of diagnostic and therapeutic errors caused by humans. It is possible to utilise medical data, particularly patient data, for educational purposes. Artificial intelligence (AI) has several potential uses in medicine, including biomarkers, natural language processing (NLP), rule-based expert systems, and physical robots. Artificial intelligence (AI) has found applications in many fields, including healthcare, diagnosis, tracking illnesses, and patient monitoring. Examining the many technologies used by India's Central Government Health Scheme (CGHS) and Ayushman Bharat health protection programs to improve healthcare quality and patient happiness, this article seeks to investigate the importance of AI in healthcare. Among the most crucial things in India is getting the right kind of health screenings. Therefore, it is critical to understand how AI will influence healthcare infrastructure, professional practice, and services.

Das, Sushanta et al., (2024). The huge and varied population of India puts a burden on the country's healthcare system. Amidst all these complications, AI stands out as a ray of hope. Early illness detection and precise diagnosis are the first areas where this game-changing technology is expected to completely disrupt healthcare. By analysing massive amounts of medical data, AI is able to provide a more nuanced view of people's health. It saves lives by analysing health trends and finding hidden tumours and TB early. Beyond individual diagnoses, AI's influence reaches far and wide. By scanning people, it can detect potential dangers and foretell when epidemics may break out. By planning ahead, we can allocate resources more effectively and take preventative steps, which lessens the impact of outbreaks. Even healthcare may be personalised with the help of AI, which can analyse each patient's habits and medical history to create a treatment plan. This improves the patient's health, increases the treatment's effectiveness, and decreases the risk of side effects. Envision AI in the role of a reliable doctor who can assess a patient's needs and provide the best course of therapy. But there are obstacles to AI's potential. We need effective solutions for data privacy, dependable infrastructure, and biased algorithms. India is prepared to meet these problems head-on because to its robust digital environment and dedication to innovation. India can greatly benefit from artificial intelligence (AI) in healthcare if the country prioritises AI research, improves its data infrastructure, and sets up ethical frameworks. Millions will benefit from this, since it will guarantee that India's healthcare system undergoes a transformation with the help of AI, resulting in a future where everyone can enjoy better and more economical options.

III. Methodology

Instrument Development

A group of specialists from healthcare, medical informatics, and organisational management in India have come together to create a structured survey tool that would measure the extent to which healthcare organisations in the country have adopted and used AI. The goals of this tool are threefold: first, to assess where AI adoption stands and what factors are driving it in a subset of India's healthcare institutions; second, to look at how people feel about the pros and cons of AI deployment; and third, to find places where more in-depth case studies could be useful.

Using the following categories: no activity, developing or piloting, limited deployment, and fully deployed, we ask respondents to indicate the state of AI adoption in their organisations for different use cases. Respondents have the option to incorporate new use cases of AI that are not already stated on the instrument by using open-ended questions.

In addition, we would want you to rate the effectiveness of AI apps in several areas, including administrative tasks, patient involvement, clinical documentation, and diagnosis. Respondents indicate the frequency of their organisations' adoption of a set of standard performance indicators established from an exhaustive examination of literature and earlier research to evaluate the efficacy of AI.

Additionally, important hurdles to AI implementation in the Indian healthcare setting are highlighted, such as limited resources, complicated regulations, unwavering backing from leadership, scepticism from clinicians, a lack of specialised knowledge, and the dynamic nature of AI itself. We want people to rate these obstacles from most important to least.

Iterative evaluations and pilot testing are carried out with a limited group of healthcare experts and hospital managers to strengthen the instrument's validity and reliability. This approach guarantees that the questionnaire is clear, relevant, and complete, which allows it to successfully gather useful insights that are particular to the setting.

Data Analysis

In preparation for analysis, the gathered data is entered into Microsoft Excel and then organised. To summarise the features of the participating healthcare organisations and the current state of AI deployment across various use cases, descriptive statistics are used.

Data is compared across several responder categories where relevant, using suitable statistical tests such as Fisher's Exact and Chi-square. The significance of discrepancies in the data is determined by doing these tests using conventional online statistical tools.

Tabular presentation of findings allows for easy understanding of patterns, trends, and variances in AI deployment across Indian healthcare organisations.

IV. Results

Table 1: Characteristics of Indian Hospitals/Organizations Invited to Participate in the Survey

S. No.	Characteristics	Overall n (%)	Survey Respondents n (%)	Survey Non-Respondents n (%)	P Value
1	Size — Net Patient Revenue (NPR)				
1.1	Under ₹1 billion	53 (26%)	1 (1%)	1 (2%)	
1.2	₹1–₹4.9 billion	97 (48%)	43 (64%)	25 (58%)	
1.3	₹5–₹9.9 billion	36 (18%)	17 (25%)	15 (35%)	
1.4	₹10 billion and above	17 (8%)	6 (9%)	2 (5%)	
					0.04
2	Size — Number of Hospitals				
2.1	4 or fewer hospitals	62 (31%)	16 (24%)	12 (28%)	
2.2	5–10 hospitals	57 (28%)	23 (34%)	14 (33%)	
2.3	11–19 hospitals	41 (20%)	15 (22%)	9 (21%)	

2.4	20+ hospitals	43 (21%)	13 (19%)	8 (19%)	
					0.79
3	Teaching Status				
3.1	Major teaching hospitals	122 (60%)	51 (76%)	29 (67%)	
3.2	Non-major teaching hospitals	81 (40%)	16 (24%)	14 (33%)	
					0.07

The table below lists the features of the participating Indian hospitals in the survey. There is a preponderance of medium-sized institutions, since the majority of hospitals (48%), with revenues between ₹1 and ₹4.9 billion. It seems that hospital size affects survey participation, as there is a statistically significant difference in revenue distribution between respondents and non-respondents ($p = 0.04$). There is no statistically significant difference between the categories of respondents and non-respondents with respect to the number of hospitals ($p = 0.79$), suggesting that there is balanced representation. Although there is no statistically significant difference between the two groups with respect to teaching status, more respondents (76%) are from major teaching hospitals than non-respondents (67%).

Table 2: AI Use Cases and Their Implementation Stage

S. No.	AI Use Case Category	AI Use Case	No Activity n (%)	Developing/Piloting n (%)	Limited Deployment n (%)	Fully Deployed n (%)
1	Clinical Documentation					
1.1		Ambient Notes	0 (0%)	17 (40%)	20 (47%)	6 (14%)
1.2		Ambient Nursing	13 (31%)	28 (67%)	1 (2%)	0 (0%)
1.3		Drafting Care Plan Notes	12 (29%)	28 (68%)	1 (2%)	0 (0%)
1.4		Abstracting Data for Clinical Registries	13 (31%)	24 (57%)	4 (10%)	1 (2%)
2	Clinical Chart Review					
2.1		Inpatient Chart Summarization	9 (21%)	30 (71%)	3 (7%)	0 (0%)
2.2		Ambulatory/Clinic Chart Summarization	8 (19%)	31 (74%)	3 (7%)	0 (0%)
3	Clinical Risk Stratification					
3.1		Early Detection of Sepsis	5 (12%)	9 (21%)	8 (19%)	20 (48%)
3.2		Risk of Unplanned Admission	8 (19%)	12 (29%)	10 (24%)	12 (29%)
3.3		Risk of Clinical Deterioration	4 (9%)	15 (35%)	8 (19%)	16 (37%)
3.4		Risk of Patient Falls	9 (21%)	18 (43%)	7 (17%)	8 (19%)
4	Diagnosis					

4.1		Imaging and Radiology	2 (5%)	2 (5%)	21 (50%)	17 (40%)
4.2		Digital Pathology	16 (38%)	16 (38%)	8 (19%)	2 (5%)
4.3		Other Diagnostic Tools	11 (28%)	14 (35%)	12 (30%)	3 (8%)
5	Patient Engagement					
5.1		In-Basket Automation	3 (7%)	18 (42%)	16 (37%)	6 (14%)
5.2		Adjust Reading Levels	23 (55%)	18 (43%)	1 (2%)	0 (0%)
5.3		Language Translation	20 (48%)	18 (43%)	4 (10%)	0 (0%)
5.4		Remote Patient Monitoring	9 (21%)	20 (47%)	9 (21%)	5 (12%)
5.5		Companion AI/Conversational Agents	10 (24%)	23 (55%)	7 (17%)	2 (5%)
5.6		Care Navigation	15 (37%)	25 (61%)	1 (2%)	0 (0%)
6	Patient Access and Marketing					
6.1		Predict Risk of Patient No-Shows	10 (24%)	19 (45%)	7 (17%)	6 (14%)
6.2		Automate Patient Visit Scheduling	16 (38%)	22 (52%)	3 (7%)	1 (2%)
6.3		AI-Enabled Triage	20 (48%)	21 (50%)	1 (2%)	0 (0%)
7	Revenue Cycle					
7.1		Medical Coding	7 (17%)	16 (38%)	9 (21%)	10 (24%)
7.2		Automate Utilization Review	14 (34%)	18 (44%)	5 (12%)	4 (10%)
7.3		Streamline Prior Authorization	9 (22%)	24 (59%)	2 (5%)	6 (15%)
8	Business Functions (Non-Revenue)					
8.1		Forecast Census and Staffing	8 (19%)	20 (48%)	5 (12%)	9 (21%)
8.2		Optimize Patient Room Utilization	15 (36%)	19 (45%)	5 (12%)	3 (7%)
8.3		Optimize Operating Room Utilization	11 (26%)	17 (40%)	8 (19%)	6 (14%)
8.4		Supply Chain Tools	18 (45%)	16 (40%)	4 (10%)	2 (5%)
8.5		Recruiting and HR Tools	16 (40%)	15 (38%)	6 (15%)	3 (8%)
8.6		Cash Forecasting (Treasury)	25 (63%)	12 (30%)	2 (5%)	1 (3%)

9	Automating Analytics					
9.1		Data Analysis	3 (8%)	23 (58%)	12 (30%)	2 (5%)
9.2		AI-enabled Computer Coding	7 (17%)	23 (55%)	9 (21%)	3 (7%)
10	Supporting Research					
10.1		Clinical Trials Automation	21 (50%)	21 (50%)	0 (0%)	0 (0%)
10.2		Drug Discovery	25 (61%)	16 (39%)	0 (0%)	0 (0%)
10.3		Genetics and Genomics	19 (46%)	22 (54%)	0 (0%)	0 (0%)

The following table details the steps that healthcare organisations in India have taken to incorporate different AI use cases. The majority of AI applications are still in the early stages of development or piloting, which suggests that AI adoption has not yet reached its full potential. Ambient nursing and chart summarisation are two examples of clinical documentation and chart review features that are actively being developed but have not yet been fully deployed. The clinical value of AI use cases in clinical risk stratification is shown in the comparatively higher levels of complete deployment, especially in early identification of sepsis (48%) and clinical deterioration (37%). Only 40% of diagnostic imaging and radiology systems are completely operational, while digital pathology is still in its early stages of development. There has been very little comprehensive deployment of patient involvement and administrative tasks, which are still in the pilot phases. Similarly, there has been little to no complete deployment of AI applications connected to research, including drug development and clinical trials.

V. Conclusion

The study highlights the growing adoption of AI technologies in Indian healthcare organizations, emphasizing that most applications are currently in the developing or piloting stage. While certain areas such as clinical risk stratification and diagnostic imaging show relatively higher levels of implementation, many administrative and research-related applications are still in early phases. This indicates that AI integration in healthcare is progressing gradually rather than being fully established. The findings also reveal that factors such as financial constraints, limited technical expertise, and regulatory challenges continue to influence the pace of AI adoption. Despite these barriers, healthcare institutions demonstrate increasing interest in leveraging AI to improve efficiency, accuracy, and patient outcomes. The role of organizational readiness and leadership support emerges as crucial in facilitating successful implementation. Overall, the study concludes that AI has significant potential to transform the Indian healthcare system, but its full benefits can only be realized through strategic planning, investment in infrastructure, and capacity building. Addressing existing challenges and promoting awareness will be essential to accelerate adoption and ensure sustainable integration of AI technologies in healthcare.

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