Automation of Healthcare Management Systems in the U.S. Using Information Technology and Artificial Intelligence

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Abstract

The integration of Artificial Intelligence (AI) and Information Technology (IT) into healthcare management systems (HMS) has shown promise in automating administrative and operational processes, addressing inefficiencies, reducing costs, and improving patient outcomes. However, stakeholder perceptions and challenges associated with adoption remain inadequately explored. Objective: This study aims to evaluate the perceptions, benefits, and challenges of implementing AI and IT solutions in HMS, focusing on their impact on efficiency, user satisfaction, economic implications, and ethical concerns. Methodology: A cross-sectional design was employed, using a structured questionnaire distributed to 103 participants, including administrators, clinicians, IT professionals, and patients. Quantitative data were analyzed using descriptive statistics, correlation, and regression analyses to identify trends and relationships among variables such as automation, accuracy, and safety concerns. Results: The study reveals a moderate level of AI and IT awareness in healthcare management (M = 3.07, SD = 0.95). While AI is perceived as beneficial (M = 3.59, SD = 0.89), concerns about ethical and security issues (r = 0.454, p < 0.01) persist. Significant predictors of AI expectations include ethical concerns (β = 0.399, p < 0.01) and implementation challenges (β = 0.359, p < 0.01). Conclusion: AI has the potential to revolutionize healthcare management, but addressing barriers such as usability, cost, and ethical challenges is critical. Collaborative strategies and regulatory frameworks are essential to maximize AI's impact and foster sustainable adoption in healthcare systems.

Keywords: Artificial Intelligence, Information Technology, Healthcare Management Systems.

Introduction

The significance of utilising Information Technology (IT) and Artificial Intelligence (AI) is steadily becoming prominent in the healthcare industry. These advanced technologies have improved the healthcare management system through automation of processes, better clinical performance, and operation efficiency. In recent years, top healthcare executives have faced many problems: increasing costs, lack of labour, and the increasing number of older adults requiring urgent medical treatment, among others; therefore, IT and AI can be a response to these

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challenges [1]. Healthcare organizations can use automation and data analysis to tackle the challenges above and adopt patient-centred care models.

The responsibilities of health care management include patient record systems, appointment scheduling, billing, insurance claims, resource and materials management and inventory control. Traditionally, these processes have been manual, subjective, and liable to error, which has created gaps in the delivery of efficient healthcare. Most of these processes require a lot of paperwork, which, with the advancement in AI and IT, can be designed to undergo specific changes that help reduce the many overheads and enable healthcare professionals to dedicate their time and energy to the patients fully. Implementing automation in health care management has not only revealed possibilities of reducing costs but also encouraged possibilities of being semblance with an efficient way of enhancing the quality and cost of healthcare services [2].

The primary AI technologies are machine learning, natural language processing and predictive analytics, which are significant in automating the healthcare industry. Such tools allow for analysing petabytes of data, transforming them into patterns, and generating real-time operational insights. For instance, AI-user interface systems can apply the no-show rates to schedule the patients more effectively to conserve resources and reduce the number of hours the patients spend waiting [3]. Similarly, other related technological adoptions, such as automatic billing and coding, have been found effective in eradicating errors and enhancing the revenue cycle, which has also been useful in strengthening financial processes [4].

However, even today's healthcare management systems (HMS) suffer from various challenges linked with using IT and AI. There is also a need to recognize that despite the tremendous advances, the administration costs are still relatively high and it is still a large portion of the total health care costs; as of recent years, the estimations are showing that the administrative expenses in the United States consume almost 25% of the total on health care. Also, frequent paperwork has disadvantages like billing problems, slow patient service provision, and overall patient dissatisfaction. These inefficiencies indicate why there is a need to implement enhanced technological frameworks to fill existing gaps and improve healthcare management.

Another pressing challenge in the contemporary healthcare system is the need for an individual approach. Thus, in modern conditions, healthcare consumers' expectations shift to optimistic and demand differentiated care. AI-implemented systems present good potential in this case as they analyze patient data to recommend or suggest various interventions. For instance, predicting patients likely to develop one or multiple chronic diseases is possible to create a leverage point for preventive measures that guarantee efficient and effective health care while lowering the tendency towards costly future requirements [5]. This understanding corresponds to shifting from the traditional acute care model to preventive care delivery systems.

IT and AI usage in healthcare management has created threats such as Electronic Health Record systems as an opportunity. The implemented systems enable various healthcare centres to share information and integrate with other healthcare centres and AI-based solutions to a lesser extent. Ensuring that data access is enhanced reduces data duplication and helps maintain client care, thus improving clients' clinical health outcomes [6]. In addition, the planning and forecasting part of these systems can forecast staff and supplies required to attend to the patients to avert a shortage of commodities within the compound.

AI-based integrated applications such as chatbots and virtual assistants have been confirmed as applicable in patient information sharing. Such systems can respond to simple questions,

schedule an appointment and provide the patient with the medicine they are supposed to take, increasing satisfaction and compliance. Also, the integration of AI must be adopted in supply chain processes, especially in cases of an unforeseen pandemic like COVID-19. These innovations ensure that critical medical equipment required at the time of need is delivered as advances in supply chain management identify and eradicate any gaps beforehand [7].

However, adopting AI and IT in healthcare management has some challenges. Several ethical and regulatory issues exist, including data security and patient privacy. Healthcare systems reflect many software solutions into the infrastructure, making them more vulnerable to cyber threats. To avoid complications, regulatory requirements, including the Health Insurance Portability and Accountability Act (HIPAA), must be adhered to to safeguard critical patient data [8]. Furthermore, the issue of responsibility is raised when AI is making decisions. Distinctions must be created to define accountability when AI impacts the clinical or administrative practice.

Another significant issue is the equitable distribution of AI technologies across organizations and individuals. As more tools are deployed into healthcare systems, it is important to eliminate inequalities and give technology a fair shot at benefiting society. Some of them are twofold-enhancing access to health among inequities laid out by WHO (2021), such as directing more funds to the more deprived areas and populations. Hence, failure to consider the barriers is likely to hinder the achievement of the expected changes in healthcare management through IT and AI [9].

The study aims to examine the application of IT and AI as well as their potential to automate the management of systems in the U.S. healthcare industry for efficiency, cost reduction, and patient outcomes improvement, as well as the challenges and opportunities of implementation to support a better functioning, fair, and patient-centric health care sector.

Literature Review

Perception of Stakeholders on AI in Healthcare

Stakeholders such as healthcare professionals, patients, insurers, and policymakers, and their beliefs on AI-based systems are critical determinants for the deployment and effectiveness of AI systems. AI is expected to act as an enabler to optimize general organisational tasks, help make decisions, and improve operation efficiency.

These findings reveal that stakeholders admit the capability of AI to reduce the voluminous manual bureaucratic and administrative tasks, including appointment-making, billing, medical, and resource management. For example, it is accurate to understand that using Natural Language Processing (NLP) for automated medical coding gives better results in claims with over 15% less error and processes results within a shorter time [10]. Furthermore, the process through AI helps predict future healthcare trends in patient arrival and supplies [5].

However, challenges include inadequate training balanced by equally strong concerns with resistance to adopting new technologies. The acceptance of AI in many sectors will require not only optimization of its performance but also an information campaign to let users know what it is capable of and why they should use it. Therefore, stakeholder engagement programs are crucial in increasing trust and use of AI. Specifically, stakeholder engagement programs are essential in increasing the trust and use of AI applications.

Efficiency and Service Quality Enhancement

The application of AI in healthcare management reforms elements of service delivery by enhancing service delivery and the efficiency required to offer services. Decision-making in healthcare is made easier through machine learning models to analyze large volumes of patient data in real-time.

For instance, Mustafee et al. (2018) showed that the use of AI in the prediction and planning of patient flows and workload, as well as the triage of emergency patients, both decreased wait time by 25% and increased triage accuracy [11]. Further, these systems, such as IBM Watson Health, enhance physician support regarding diagnosis and decision-making about the best treatment method to apply to a patient. Hospitals that use AI mainly in managing their stock get to hear their patients complaining of late supplies being made available by a reduced percentage of 20% [12].

AI is also improving the quality of services in teleradiology, especially during such calamities as the COVID-19 outbreak. That is why chatbots and virtual assistants created by AI have enabled patients to consult physicians online, shifting the load from physical centres. In addition, computer diagnostic aids like the use of radiology in imaging have enhanced the precision of diagnosis from imaging in the body.

Challenges such as algorithmic bias and the inability of AI systems to integrate with the rest of the healthcare technology are challenges to properly integrating AI into the health sector. Solving these problems is possible with the help of the standardization of AI systems, and they should be regulated.

Accessibility and Usability of AI Systems

Therefore, other factors that define the AI system's practicality in different healthcare use places are essential determinants. Application developers also try to make the interface user-friendly because AI-driven systems are introduced to workers and regular users alike.

Research shows that patients do not have problems using appointment scheduling tools and virtual assistants that AI supports. Bachina & Kanagala (2023) established that those chatbots that offered appointment reminders and follow-up care instructions were highly satisfactory regardless of their low technical competency [13]. In the same way, healthcare administrators use AI analyzing tools in the form of layouts to make it easier to interpret large amounts of data and make decisions [14].

Furthermore, AI is emerging in wearable health devices like smartwatches to track the patient's vital signs and alert the health care practitioners in a crisis. These advancements help bridge the gap between patients and healthcare providers to improve participation.

However, specific problems pointed out by other researchers concern the proper education of healthcare staff in using AI systems. Factors like lack of awareness and inadequate digital skills in some groups of users create challenges. The solutions to these problems require keen emphasis on the necessity of training programs and relying on user opinions for designing.

Cost-Effectiveness of AI in Healthcare Management

The most significant benefit that healthcare managers can get from AI-driven automation is the reduction of costs. AI allows businesses to dispense with time-wasting chores and has the potential to decrease total costs.

Prabhod (2024) found that hospitals that engaged AI for billing and claims processing showed an average of 30% reduction in cost [15]. Predictive maintenance for medical equipment leads to a 40% reduction in equipment downtime - saving costs [16]. Also, virtual assistants minimize the need for many live staff members, including for appointments, which can transform the healthcare centres and direct their resources to needy areas.

AI reduces the cost through prevention measures. Screening helps determine patients at risk of developing chronic diseases, hence devoted attention and treatment, thus cutting the costs of curing them several years later. For instance, Kaiser Permanente used AI-based predictive analytics to decrease high-risk consumer hospitalisations by 15% in 2020.

However, a typical disadvantage is the implementation cost, which can be high at the beginning of the modelling process. As in any cost-saving investment, standing to gain financially in the long run is definite. However, in small healthcare treatment centres, the main issue is being unable to meet the immediate cost. State and healthcare managers must find financial solutions to apply AI solutions and systems in the sector.

Privacy and Accountability Concerns

However, the application of AI in health care management brings one major challenge: privacy and accountability. Healthcare data is primarily confidential, and its violation will likely cause substantial risks to healthcare institutions and patients.

Goodman et al. (2016) noted that AI interfaces working with patient information must maintain high-security measures against cyber threats [17]. However, the present example, including the one in May 2021 in which the U.S. healthcare provider fell to ransomware attacks, proves that digital systems remain weak. These problems can only be solved with higher encryption, audits, and legislation such as the Health Insurance Portability and Accountability Act (HIPAA).

Another necessary discipline is accountability. Thus, Reddy et al. (2019) addressed the importance of understanding the ethical issues of AI in media, including the problem of bias in decision-making algorithms and the opacity of AI [6]. For instance, concerns about impartiality in AI models used for resource allocation, such as in prioritizing treatment, knowing that some algorithms adversely affect minorities. Policymakers must set up well-defined policies to address such ethical issues and make equitable use of AI effective.

Research Hypotheses

H₁: Stakeholders' perception of implementing AI in HMS is seen as highly valuable in improving administrative productivity and decision-making systems.

H₂: The integration of AI standards raises the efficiency of healthcare management and increases the quality of patient services.

H₃: AI systems used in the administration of healthcare organizations are easy to understand by the general users.

H₄: Functional AI in managing healthcare lowers general operation expenses since extra time and money are not wasted due to excessive procedure inaccuracies.

H₅: AI in the management of health care systems, the stakeholders have high concerns regarding privacy and accountability of the data.

Methodology

Study Design

This study uses a cross-sectional research design to evaluate the utilisation level of AI and IT to lead the automation of HMS. The study aims to assess the stakeholders' impressions, outline the difficulties, and assess these technologies' opportunities in improving the healthcare business processes.

Survey Design

A structured questionnaire was used to obtain nominal and ordinal responses to facilitate data collection. It had 20 questions with the most significance on factors like usefulness, efficiency, and user-friendliness of the AI systems, social expectations of its inclusion in the HMS, and its legislative aspects. Each question was measured on the Likert or ordinal scales to give the participant a chance to indicate the perceived level of response to set questions.

Sampling Strategy

Purpose sampling was used to select members with firsthand experience or at least a basic understanding of HMS. The target sample was healthcare personnel (managers, doctors, IT department workers). The candidates were hired through professional association sites, healthcare organizations, and e-mail and social networks. The criteria for participant selection included previous experience or awareness of using AI and IT in healthcare facilities. The final sample consisted of 103 participants, which should be an adequate size for diversity.

Data Collection Procedure

The data was collected electronically through the use of e-mail and professional networks. The recruitment of participants was easy and fast using online distribution, making sure that the sample covered different regions and included different perceptions of the topic. Participants were briefed on the study's objective and that they were under no obligation to continue participation if they volunteered.

Data Analysis

The quantitative statistical analysis of the collected data allowed identifying trends, relationships, and predictors of stakeholder perceptions of AI in healthcare. Descriptive statistics, correlation, regression, and ANOVA (within the context of regression models) were calculated to describe participant responses. Pearson coefficients were used in the correlation analysis to assess the relationships between the variables, such as the relationship between automation and user satisfaction. Linear regression techniques were used to establish the relationship between automation and the performance measures of efficiency, user satisfaction, and safety issues. Hypotheses were tested regarding adjusted R-squared values, beta coefficients and the resultant significance levels for ease of interpretation.

Ethical Considerations

Ethical approval for the study was obtained from an institutional review board. Before providing written consent, participants were informed about the study's purpose, procedures, and confidentiality measures. All data were anonymized to maintain participant confidentiality, and the data collection and storage process adhered to stringent security protocols, including encryption of digital records, in alignment with healthcare data protection guidelines.

Limitations

Several limitations to this study were discussed. Its cross-sectional approach, however, severely restricts the measurement of any subsequent changes in the respective perceptions. By relying on self-reported information, the possibility of biases like social desirability or response bias crept in, skewing the responses. However, while ensuring relevant findings, purposive sampling may limit the ability to generalize results to other populations. Furthermore, using the quantitative approach eliminated the qualitative perception that could have enriched the appraisal of participants' experiences.

Results

Descriptive Statistics

The descriptive analysis highlights stakeholder perceptions of AI and IT in healthcare management. The mean score for awareness and adoption of automation was 3.07 (SD = 0.95), indicating moderate acceptance of automation in healthcare processes. The perceived benefits of AI and IT in healthcare management recorded a mean of 3.59 (SD = 0.89), suggesting a generally positive outlook on its advantages. Challenges associated with AI in healthcare had a mean score of 3.25 (SD = 0.71), reflecting moderate concerns. Ethical and security concerns received a mean of 3.28 (SD = 0.93), highlighting apprehensions regarding data privacy and system integrity. Lastly, perceptions regarding the future of AI in healthcare management had a mean score of 3.43 (SD = 0.72), indicating a cautiously optimistic view of AI's long-term impact (**Table 1**).

	N	Minimum	Maximum	Mean	Std. Deviation
Awareness and Adoption of Automation	102	1	5	3.076	0.95557
Benefits of AI and IT in Healthcare Management	102	1	5	3.598	0.89079
Challenges of AI and IT in Healthcare	102	1	5	3.2525	0.71103
Ethical and Security Concerns	102	1	5	3.2868	0.9317
Future of AI in Healthcare Management	102	1	5	3.4392	0.72524
Valid N (listwise)	102				

Table 1. Descriptive Statistics

Correlation Analysis

The present study investigates the relationships between awareness and adoption of automation, the benefits of AI and IT in healthcare management, challenges of AI and IT in healthcare, ethical and security concerns, and the future of AI in healthcare management using Pearson correlation analysis. The results reveal a significant positive correlation between awareness and adoption of automation with challenges of AI and IT in healthcare ($r = .398$, $p < 0.01$), ethical and security concerns ($r = .595$, $p < 0.01$), and the future of AI in healthcare management ($r = .431$, $p < 0.01$), indicating that increased awareness of automation is associated with recognition of AI-related challenges, ethical concerns, and optimism regarding AI's future. However, no significant relationship is found between awareness and the perceived benefits of AI and IT in healthcare ($r = 0.105$, $p = 0.292$). Additionally, the benefits of AI and IT in healthcare management show no significant correlation with the challenges of AI ($r = -0.004$, $p = 0.966$) or its future ($r = 0.032$, $p = 0.753$), suggesting that perceived advantages of AI do not necessarily relate to concerns or expectations regarding its implementation. Conversely, challenges of AI and IT in healthcare exhibit strong correlations with ethical and security concerns ($r = .454$, $p < 0.01$) and the future of AI in healthcare management ($r = .562$, $p < 0.01$), emphasizing that recognizing AI-related obstacles aligns with ethical considerations and future projections. Ethical and security concerns are also significantly correlated with the future of AI in healthcare ($r = .586$, $p < 0.01$), highlighting the intertwined nature of ethical dilemmas and AI's anticipated trajectory. These findings underscore the importance of addressing ethical challenges and security risks to foster a sustainable and beneficial future for AI in healthcare (**Table 2**).

		Awareness and Adoption of Automation	Benefits of AI and IT in Healthcare Management	Challenges of AI and IT in Healthcare	Ethical and Security Concerns	Future of AI in Healthcare Management
Awareness and Adoption of Automation	Pearson Correlation	1	0.105	.398**	.595**	.431**
	Sig. (2-tailed)		0.292	0	0	0
	N	102	102	102	102	102
Benefits of AI and IT in Healthcare Management	Pearson Correlation	0.105	1	-0.004	0.189	0.032
	Sig. (2-tailed)	0.292		0.966	0.057	0.753
	N	102	102	102	102	102
Challenges of AI and IT in Healthcare	Pearson Correlation	.398**	-0.004	1	.454**	.562**
	Sig. (2-tailed)	0	0.966		0	0

	N	102	102	102	102	102
Ethical and Security Concerns	Pearson Correlation	.595**	0.189	.454**	1	.586**
	Sig. (2-tailed)	0	0.057	0		0
	N	102	102	102	102	102
Future of AI in Healthcare Management	Pearson Correlation	.431**	0.032	.562**	.586**	1
	Sig. (2-tailed)	0	0.753	0	0	
	N	102	102	102	102	102

Table 2. Correlation Analysis

Note: p < 0.01 indicates statistical significance.

Regression Analysis

The regression analysis was conducted to examine the combined effect of awareness and adoption of automation, benefits of AI and IT in healthcare management, challenges of AI and IT in healthcare, and ethical and security concerns on the dependent variable. The model summary indicates that the overall regression model is significant, with an R-value of 0.677, signifying a strong positive relationship between the predictors and the outcome variable. The R Square value of 0.458 suggests that approximately 45.8% of the variance in the dependent variable can be explained by the independent variables, while the Adjusted R Square value of 0.436 accounts for the potential overfitting of the model. The standard error of the estimate (0.54463) indicates the average deviation of observed values from the predicted values. These results highlight the substantial influence of ethical and security concerns, benefits of AI, challenges of AI, and automation awareness on shaping the dependent variable, emphasizing the need for strategic policy interventions to optimize AI adoption and address its associated challenges in healthcare management (**Table 3**).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.677[a]	0.458	0.436	0.54463

Table 3. Model Summary of Regression Analysis

a. Predictors: (Constant), Ethical and Security Concerns, Benefits of AI and IT in Healthcare Management, Challenges of AI and IT in Healthcare, Awareness and Adoption of Automation

Analysis of Variance (ANOVA)

Table 4 presents the analysis of variance for the regression model examining the impact of awareness and adoption of automation, benefits of AI and IT in healthcare management, challenges of AI and IT in healthcare, and ethical and security concerns on the future of AI in healthcare management. The model is statistically significant, as indicated by an F-value of

20.523 and a p-value of .000 ($p < 0.01$), confirming that the independent variables collectively contribute to explaining the variance in the dependent variable. The regression model accounts for a total sum of squares of 53.123, with the regression sum of squares at 24.351 and the residual sum of squares at 28.773, distributed across 101 degrees of freedom. The mean square value for regression (6.088) is substantially higher than the residual mean square (0.297), reinforcing the model's explanatory power. These findings suggest that the selected predictors play a crucial role in shaping perceptions of AI's future in healthcare, underscoring the importance of addressing ethical and security concerns, AI-related challenges, and automation awareness to ensure the effective and responsible implementation of AI in healthcare management.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.351	4	6.088	20.523	.000[b]
	Residual	28.773	97	0.297		
	Total	53.123	101			

Table 4 ANOVA a

a. Dependent Variable: Future of AI in Healthcare Management/

b. Predictors: (Constant), Ethical and Security Concerns, Benefits of AI and IT in Healthcare Management, Challenges of AI and IT in Healthcare, Awareness and Adoption of Automation

Regression Coefficients

Table 5 presents the standardized and unstandardized coefficients of the independent variables in predicting the future of AI in healthcare management. The regression equation suggests that ethical and security concerns (B = 0.31, β = 0.399, t = 4.032, $p < 0.01$) and challenges of AI and IT in healthcare (B = 0.366, β = 0.359, t = 4.186, $p < 0.01$) are significant predictors of the dependent variable, indicating that as concerns and challenges increase, they strongly influence expectations regarding AI's future in healthcare. However, awareness and adoption of automation (B = 0.043, β = 0.057, t = 0.601, p = 0.549) and benefits of AI and IT in healthcare management (B = -0.039, β = -0.048, t = -0.629, p = 0.531) do not show statistically significant relationships with the future of AI in healthcare, suggesting that perceptions of AI's benefits and automation awareness alone do not necessarily shape expectations about its future implementation. The constant value (B = 1.238, $p < 0.01$) represents the predicted baseline level of the dependent variable when all independent variables are set to zero. These findings emphasize the critical role of addressing AI-related challenges and ethical concerns in shaping a sustainable and responsible future for AI in healthcare management.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.238	0.341		3.63	0

	Awareness and Adoption of Automation	0.043	0.072	0.057	0.601	0.549
	Benefits of AI and IT in Healthcare Management	-0.039	0.062	-0.048	-0.629	0.531
	Challenges of AI and IT in Healthcare	0.366	0.087	0.359	4.186	0
	Ethical and Security Concerns	0.31	0.077	0.399	4.032	0

Table 5 Coefficients a

a. Dependent Variable: Future of AI in Healthcare Management

Discussion

This paper presents the key findings of the study regarding stakeholder's attitudes towards the implementation of AI and IT in HMS. These findings show the potential of automation in the healthcare setting, as well as the important need for addressing the ethical issues and practical limitations in order to achieve the desired outcomes in the given field.

The analysis shows a moderate use of artificial intelligence and information technologies in healthcare management with a mean value of 3.07 (SD=0.95). Although increase in awareness is a key to change and development, lack of relationship between awareness and perceived benefits (r = 0.105, p = 0.292) give indication that awareness of AI leads to lack of perceived benefits of AI. This is in line with previous studies which have highlighted that successful implementation of emerging technologies entails residual awareness, exposure, and training enhancement to understand the potential of the tools [18]. Also, the presence of a moderately high positive relationship between awareness of automation and AI-related issues (r = 0.398, p < 0.01) imply that higher exposure to AI may raise awareness of the risks involved which include; algorithm bias, cyber security, and ethical issues [19].

Stakeholders have a positive attitude towards AI in healthcare management with an overall mean score (M = 3.59, SD = 0.89), with better efficiency, effective decision making, and better patient outcome. Nonetheless, the insignificant positive relationship between perceived benefits and future expectations regarding AI (r = 0.032, p = 0.753) indicates that the expectation of favorable current benefits does not necessarily translate to a positive expectation of AI impact in the future. This is in concordance with prior studies that have shown that, although AI has proven to be effective in solving organizational work-related issues affecting healthcare, concerns surrounding compliance issues, financial challenges, and intricacy of integration hinder AI's

sustainability [20]. The literature also reveals that decision makers in the healthcare domain are skeptical about the application of AI because of threats posed to their employment statuses, opacity of algorithms and trust in artificial intelligence-driven solutions [21].

The results also reveal that the perceived difficulties in implementing of AI and IT in healthcare (M = 3.25, SD = 0.71) significantly relate to ethical and security considerations (r = 0.454, p <0.01). This indicates the level of interaction between technological impediments and concerns that relate to data protection, system integrity, and algorithmic transparency. Previous studies support such concerns, highlighting that privacy and data protection, consent, and fair decision-making based on AI applications are still the most crucial and vital concerns in the use of AI in healthcare environments [22]. Furthermore, self-organized ethical concerns (M = 3.28, SD = 0.93) are moderately correlated to AI's future utilization in healthcare as expected by the stakeholders (r = 0.586, p < 0.01), which points toward the direction that ethical principles and policies standby when it comes to stakeholders' acceptance of AI technologies. This finding aligns with the recommendation by various scholars to promote the creation of clear AI standards, methods of reducing bias, as well as the establishment of multi-sectorial supervision tactics so that AI can be implemented responsibly in healthcare [23].

The regression analysis enhances the understanding of the relationship between the perceived expectations of stakeholders on AI in health care and the potential influence factors. There is statistical evidence that ethical and security issues and the difficulties of AI adoption are significant (β = 0.399, p < 0.01) in the long-term perception of AI by stakeholders (β = 0.359, p < 0.01). The results confirm the promise of AI in boosting healthcare productivity and patient outcome but they show that an increased adoption of AI comes with a number of ethical, security, and operational questions. This concurs with the existing literature about the need for proper policies, interdisciplinary teamwork, and monitoring of the effects of AI on both the healthcare system and patients [24]. In addition, global regulatory measures like the European Commission's AI legislation and FDA directives are significant in developing the fundamental standard on ethical guidelines and safety and efficacy documentation in AI in healthcare systems [25, 26].

Despite the significant contributions of this study, several limitations must be acknowledged. The cross-sectional approach to the study does not allow the evaluation of temporal changes in the use of AI and the views of stakeholders. Moreover, the use of self-report data means that there may be social desirability bias and response bias that could affect the participants' answers. Subsequent research should longitudinally investigate the changes in attitudes towards AI in healthcare and use qualitative measures to get a further understanding of the respondents' experiences. Additionally, it might be also useful to study variables related AI adoption in various types of organizations within the healthcare sector and to compare AI attitudes between different professional categories.

Conclusion

This study shows how AI and IT can change the healthcare management system by automating the existing management systems and solving some of the most crucial problems like administrative constraints, cost control and patient quality. Despite expected returns achieved in improving organizational performance through the Application of AI, it is evident that there are many challenges, including usability, economic precedent, and the provision of ethical features like data security and accountability, among others. According to the study, the general implementation of AI should involve effective training, the development of interfaces that are

easy to use, viable cost structures, and adequately determined legal frameworks to encourage the members of the healthcare profession and the patients to trust the AI technology. The opportunities generated through AI for policymakers, healthcare firms, and technology companies contribute towards harmonizing successful AI solutions in the healthcare field to empower policy reforms regarding efficiency, equity, and patient orientation to enhance the general standards of healthcare and sustainable management of the limited healthcare resources.

Future Recommendations and Limitations

Future studies should involve AI and IT in cross-sectional studies. They should consider using longitudinal research to establish stakeholders' dynamic perceptions of AI and IT in HMS and increase sample heterogeneity, such as demographic and occupational. Also, using qualitative approaches might enrich the understanding of the users' experience and advancement of AI technologies and factors that might affect their implementation. Recommendations for future research should concentrate on the end-user acceptance of AI technology, effective interface design, and AI technology training and professional development. Economic demands and concerns must be addressed through 'value discovery', thorough cost/benefit analysis, and fair regulation. The use of self-administered questionnaires and purposive sampling are some of the limitations that should be avoided in future research on the topic, which will enable future studies to capture other relevant aspects of AI's potential in changing healthcare management.

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