Strategies and Outcomes of AI Adoption of Health Record Management Systems in Teaching Hospitals in Nigeria

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Abstract

Advancements in digital technology have transformed higher education and healthcare. Artificial intelligence (AI), which includes robotics, chatbots, and data analytics, is increasingly being integrated into health services within academic institutions. However, the adoption of AI in Nigerian teaching hospitals is still in its early stages compared to that in developed countries. This study examined AI adoption strategies in Nigerian teaching hospitals and their impact on healthcare delivery. Using a descriptive survey design with a quantitative approach, the study employed a structured questionnaire. The study population consisted of health workers at selected teaching hospitals in Nigeria. Four teaching hospitals were chosen by the researcher: two located in the north and two in the south. A total of 200 health workers were purposively selected, with 50 participants from each hospital. The study found that many health workers in teaching hospitals are quite familiar with various AI tools, such as ChatGPT, Copilot, chatbots, and others, which they sometimes use for research, medical diagnosis, and administrative workflow. The usage pattern indicated a low adoption rate among health workers in Nigerian teaching hospitals, particularly in the area of health record management. Consequently, this study highlights the importance of institutional support for AI and emphasizes the need to prioritize AI adoption in teaching hospitals. The study recommended that teaching hospitals in Nigeria establish clear policies and frameworks to guide AI adoption, particularly in health record management, among other areas.

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Introduction

The adoption of digital technologies in healthcare has recently become a significant game changer. Digital technology has notably transformed and influenced healthcare operations, enhancing both service accessibility and optimization. This digital revolution has enabled the integration of electronic health record systems and telemedicine based on artificial intelligence technologies. With electronic health record management, automating data entry operations across all units and departments in teaching hospitals has become increasingly feasible. Records are crucial for effective healthcare delivery in teaching hospitals, and the use of digital technologies in record management has streamlined these routines.

An AI-powered health record system can detect sequences in medical histories, flag potential health risks, and simplify administrative tasks, allowing healthcare workers to focus more on patient care. However, the successful implementation of digital technologies in teaching hospitals relies on institutional readiness, including infrastructure and staff competence (Onyeabor et al., 2023). For instance, in Nigeria, studies indicate that while clinicians acknowledge the need for digital systems, low computer literacy remains a challenge (Morah & Brown, 2024).

The integration of Artificial Intelligence (AI) technologies into healthcare systems has become a transformative force worldwide, with the potential to greatly enhance the efficiency, accuracy, and accessibility of healthcare delivery (Ephraim et al., 2024; Roppelt et al., 2025). In sub-Saharan Africa, particularly Nigeria, the adoption of AI tools in health record management systems (HRMS) is gaining traction as part of extensive efforts to improve the quality and management of healthcare delivery, especially within public health facilities (Oladipo et al., 2024; Umar et al., 2024). Electronic Health Records (EHRs) provide a crucial platform for the adoption of AI technologies. These systems allow instantaneous access to patient data, streamline clinical workflows, and enable analytics with foresight and decision support systems that can significantly enhance patient outcomes (Babatope et al., 2024). Despite these benefits, the adoption and effective application of AI-driven EHRs in Nigerian teaching hospitals remain in their early stages and are fraught with numerous challenges.

Ogolodom et al. (2023) and other researchers contend that Nigeria continues to face significant health management challenges, including poor data quality, insufficient health infrastructure, inadequate digital skills among health workers, and cybersecurity issues (Alobo et al., 2020). These limitations have impeded the successful adoption of digital innovations in healthcare services, particularly within teaching hospitals, which serve as nerve centers of clinical care, research, and training. Several studies have reiterated the growing interest and awareness among healthcare professionals in Nigeria regarding the application of AI in health systems. For instance, Ogolodom et al. (2023) found that while there is moderate awareness of AI tools among health workers, there are also major concerns related to data privacy, ethical issues, and the risk of job displacement. Similarly, Babatope et al. (2024) highlighted operational and policy-level challenges, such as inconsistent power supply, weak institutional frameworks, and resistance to change, as significant impediments to EHR adoption.

Nonetheless, the potential of AI to enhance EHRs is immense. In a multicountry review by Ephraim et al. (2024), the study suggested that AI technologies, when properly contextualized and supported, can enable intelligent data mining, diagnostic support, patient

risk stratification, and remote patient monitoring, particularly in resource-limited settings. Additionally, Oladipo et al. (2024) highlighted specific strategies, such as staff retraining, phased implementation, and stakeholder engagement, as crucial for ensuring the sustainability and adaptability of AI integration in healthcare. Ye et al. (2024) identified numerous benefits of AI-driven electronic health records, including shared decision-making between patients and relatives, improved patient-provider relationships, reduced clinical appointment times, and cost-effectiveness.

Problem Statement

Artificial Intelligence is recognized for its potential to revolutionize health record management. Nevertheless, its adoption and utility in Nigerian teaching hospitals remain limited and poorly documented. The successful implementation of AI-powered electronic health record systems largely depends on factors such as infrastructure readiness, human resource capacity, institutional policies, and strategic alignment with clinical goals (Babatope et al., 2024; Umar et al., 2024). Recent studies have explored the opinions and attitudes of health workers toward AI adoption (Fritsch et al., 2022; Habib et al., 2024; Ogolodom et al., 2023), the policy and technical challenges impeding EHR implementation (Alobo et al., 2020), and the associated benefits of AI in healthcare service delivery (Roppelt et al., 2025; Yusuf et al., 2022). However, there is a significant knowledge gap regarding the planned structure adopted by Nigerian teaching hospitals to implement AI-based health record systems, and how this translates into measurable operational outcomes.

Moreover, while some studies have confirmed the potential of AI in enhancing healthcare operations and medical diagnostics (Ephraim et al., 2024; Umar et al., 2024), there is limited empirical evidence regarding its direct impact on record management processes, such as data accuracy, retrieval efficiency, interoperability, and decision support functionalities within institutional contexts, such as teaching hospitals. This gap in the literature highlights the urgent need to further explore the adoption and use of AI tools in Nigerian teaching hospitals.

Objectives

This study specifically aims to:
1. Identify the current state of AI adoption in Nigerian teaching hospitals.
2. Assess the strategies employed in the adoption of AI-driven HRMS in Nigerian teaching hospitals.
3. Examining the outcomes of AI adoption in HRMS in Nigerian teaching hospitals.
4. explored the challenges impeding the successful adoption of AI in HRMS in Nigerian teaching hospitals.

Research Questions

This study addressed the following research questions:
1. What is the current level of AI adoption for HRMS in Nigerian teaching hospitals?
2. What strategies are employed for the adoption of AI in HRMS in Nigerian teaching hospitals?
3. What measurable outcomes can be observed from the adoption of AI in HRMS in teaching hospitals?
4. What challenges impede the successful adoption of AI in HRMS in teaching hospitals?

Literature Review

Haenlein and Kaplan (2019) defined artificial intelligence (AI) as a system's capability to accurately interpret external data, learn from it, and utilize these insights to accomplish specific goals and tasks through adaptable methods (p. 5). Similarly, Mikalef and Gupta (2021) described AI as a system's ability to identify, interpret, infer, and learn from data to meet predetermined organizational and societal objectives (p. 3). AI is seen as a driving force of the digital revolution across various sectors, especially with the advent of large language models (LLM), that empower computer systems to undertake tasks that require human-like intelligence (Ilicki, 2023).

Numerous scholars have highlighted the importance of AI in healthcare, particularly in the realm of medical informatics (Dwivedi et al., 2021; Reddy et al., 2021). The emergence of new technologies that comprehend the intricacies of hospital operations, ensure necessary patient care, and address resource limitations is becoming increasingly crucial. Through deep learning, AI systems can discern patterns indicative of early disease stages, such as cancer, by analyzing available patient data (Mira et al., 2024). In the realm of biometric data analysis, AI systems facilitate the processing of data from wearable devices, enabling the monitoring of vital signs and detection of changes that may signal health concerns (Huang et al., 2022). AI holds significant promise for Nigeria's public health system for the management of infectious diseases. For example, AI-driven diagnostic tools have been tested in Lagos, where they have enhanced the early detection rates of tuberculosis compared to traditional methods (Alege et al., 2024).

The integration of AI into electronic health records is gaining traction in health centers worldwide. As noted by Ye et al. (2024), health records can harness AI technologies to enhance clinicians' diagnostic capabilities, assess patient-level risks using integrated data, and offer essential support to clinics and hospitals.

Babatope et al. (2024) examined the factors influencing the successful implementation of EHR in Nigeria, focusing on the University of Medical Sciences Teaching Hospital (UNIMEDTH). This study employed a descriptive cross-sectional design, targeting participants, such as doctors, nurses, health information managers, pharmacists, and medical laboratory scientists. The findings revealed a high level of awareness but a low utilization rate, highlighting a significant issue with technology implementation. Financial constraints and inadequate ICT resources were identified as the primary obstacles to effective EHR implementation. Additionally, factors such as poor internet connectivity and unreliable power supply showed a statistically significant positive association with effective EHR implementation. Under these circumstances, AI adoption in teaching hospitals is likely to face similar challenges.

Ye et al. (2024) conducted a systematic review of the impact of AI on electronic health records and found that it aids in cleaning and managing diverse or mixed datasets and enhances clinical care processes. The primary challenges identified were the vast amount of integrated data, data standards, data transfer and interoperability, security and privacy, data interpretation, and acceptable use of data.

maintained that the integration of AI into the healthcare system of Nigeria raises certain legal and ethical concerns such as the regulation of AI algorithms, ensuring accountability for AI-driven decisions, addressing algorithmic bias, and protection of data privacy. Therefore,

researchers have suggested that existing frameworks such as the National Health Act (NHA) and Nigerian Data Protection Act (NDPA) should be further strengthened to address these and other challenges (Azeez et al., 2021; Oladipo et al., 2024).

The Socio-Technical Systems (STS) Theory

This study is grounded in socio-technical systems theory (STS), which was initially introduced by Eric Trist and his colleagues at the Tavistock Institute in the 1950s. This theory highlights the interaction between social and technical components within an organizational framework. It posits that for optimal performance, both social (human) and technical (machine) systems must be designed to function seamlessly and in harmony.

Initially, the socio-technical systems theory was developed for a large coal mine to restore efficiency in mining operations. Achieving this requires understanding the machinery and social structures of miners as cohesive units (Chen & Metcalf, 2024). However, since its inception, socio-technical systems theory has been widely applied across various disciplines and contexts to enhance operational efficiency, including fields such as cybersecurity (Malatji et al., 2019), manufacturing (Soliman & Saurin, 2017), ICTs (Jarrahi & Sawyer, 2015), and distributed knowledge systems such as Wikipedia (Damadi & Davoust, 2023). For example, management and organization researchers have employed this theory to illustrate how workplace organizational structures must integrate with technical and software systems to realize their full potential and better design information systems (Mumford, 2006). Similarly, in human-computer interaction (HCI), researchers have utilized STS theory to assess how effectively software or web platforms integrate with and adapt to the core needs of users and communities, who then redesign them based on specific requirements (Whitworth, 2009). These studies considered not only the function of each individual and piece of technology, but also all elements that constitute the social institution, such as "regulations and laws, the physical environment, ecosystems, software, hardware, networks, and data structures" (Chen & Metcalf, 2024, p. 4).

Research on the effective adoption of new technologies has shown that "AI interventions must always be thought of as socio-technical systems, in which social context, relationships, and power dynamics are central, not an afterthought" (Elish & Watkins, 2020). This socio-technical perspective is vital when discussing AI adoption in teaching hospitals, as it reflects a complex environment in which technology, healthcare professionals, patients, and administrative systems interact. AI can streamline administrative tasks and support personalized patient care. However, successful integration necessitates addressing challenges such as ethical concerns, staff training, and ensuring that AI systems complement rather than disrupt existing workflows (Holdsworth & Zaghloul, 2022, 2024). Common examples of AI applications in teaching hospitals include predictive analytics using patient data and automated scheduling systems. The sociotechnical approach ensures that digital technologies are employed in a manner that aligns with the hospital's culture, values, and operational needs (Chen & Metcalf, 2024).

Research Gaps

In sub-Saharan Africa, including Nigeria, there is growing interest in adopting AI tools, particularly to enhance the health system, as highlighted in the literature. c Meanwhile, Oladipo et al. (2024) suggested that strategically implementing AI can resolve data management issues and optimize care delivery in health centers. Babatope et al. (2024)

specifically examined the factors hindering effective EHR implementation in Nigeria, identifying operational, infrastructural, and socio-technical barriers.

Despite growing global interest, significant gaps persist in the literature regarding the adoption of AI in health record management systems in Nigerian teaching hospitals. Empirical studies on the implementation of AI-enabled EHRs in Nigerian medical institutions are limited. Many existing Nigerian studies (Alobo et al., 2020; Babatope et al., 2024) have focused primarily on general healthcare settings without differentiating between hospital types or administrative complexities. Furthermore, the current literature inadequately addresses the institutional- and policy-level dynamics unique to teaching hospitals that influence AI adoption. Given these contextual gaps, it is essential to investigate the adoption of AI for health record management in Nigerian teaching hospitals.

Methodology

The primary aim of this study was to evaluate the adoption of artificial intelligence (AI) technologies in Nigerian teaching hospitals. Employing a descriptive survey design with a quantitative approach, this study utilizes this design because of its effectiveness in gathering structured and measurable data from healthcare workers regarding their interaction with AI technologies (Creswell & Creswell, 2017).

Population and Sample

The study population consisted of healthcare workers from selected teaching hospitals in Nigeria. These hospitals, which are responsible for healthcare delivery, medical education, and research, were deemed suitable settings for this study. Purposive sampling was employed to select four major teaching hospitals across northern and southern Nigeria: Lagos State University Teaching Hospital (LASUTH), Obafemi Awolowo University Teaching Hospital (OAUTH), Ahmadu Bello University Teaching Hospital (ABUTH), and Usman Danfodio University Teaching Hospital (UDUTH). A total of 200 healthcare workers were purposively sampled, with 50 participants from each hospital. The participants included consultants, health information officers, medical laboratory scientists, and medical record officers, to ensure diverse perspectives on AI adoption among professionals.

Data Collection and Analysis Techniques

Data for the study were collected using a structured questionnaire specifically designed for this purpose. As noted by Saunders et al. (2019), questionnaires are an effective method for obtaining standardized responses suitable for quantitative analysis. The questionnaire aimed to evaluate familiarity with and usage of AI tools, AI adoption strategies, the impact of AI on health record management, and the challenges hindering successful AI adoption. Multiple expert reviews were conducted to ensure the instrument's validity. Furthermore, a pilot test involving 20 health workers was conducted to refine the clarity and relevance of the questionnaire items (Babbie, 2020).

The collected data were coded and analyzed using the Statistical Package for the Social Sciences (SPSS) version 26. A comprehensive analysis of the four research questions was conducted using descriptive statistics, specifically frequencies and percentages, to summarize trends in the adoption of AI in healthcare centers.

Ethical Considerations

The study rigorously followed ethical research principles and obtained informed consent from both participating institutions and individuals. This ensured the anonymity of the respondents to facilitate unbiased feedback. In compliance with the Data Protection Act of Nigeria (NDPA), the study safeguarded participants' data privacy and confidentiality, using all collected information solely for research purposes.

Analysis and Results

The primary objective of this study was to investigate strategies for integrating AI with health workers in teaching hospitals. To achieve this goal, four research questions were formulated and analyzed in this section.

Table 1
Demographic Characteristics of Respondents

Variable	Frequency	Percentage (%)
Name of Teaching Hospital		
ABUTH	29	21.0
LASUTH	39	28.3
OAUTH	48	34.8
UDUTH	22	15.9
Total	**138**	**100.0**
Designation/Post		
Consultant	43	31.2
Health Information Officer	53	38.4
Medical Laboratory Scientist	13	9.4
Medical Record Officer	29	21.0
Total	**138**	**100.0**
Gender		
Male	94	68.1
Female	44	31.9
Total	**138**	**100.0**
Department/Unit		
Community Health	3	2.8
General Outpatient Department	21	15.2
Health Information Management Dept	40	29.0
ICT Unit	20	14.5
Internal Medicine	10	7.2
Maxillofacial surgery	7	5.1
Medical Laboratory Unit	21	15.2
Records	18	13.0
Total	**138**	**100.0**

Table 1 presents the respondents' demographic distribution. The distribution by teaching hospital name indicated that 48 (34.8%) of the respondents were from the Obafemi Awolowo University Teaching Hospital, followed by 39 (28.3%) from the Lagos State University Teaching Hospital. Additionally, the results revealed that 53 (38.4%) were Health Information Officers, while 43 (31.2%) were consultants. Among the respondents, 94 (68.1%) were male and 44 (31.9%) were female. The respondents were distributed across

various departments and units within the teaching hospital, with 40 (29.0%) in the Health Information Management Department and 21 (15.2%) in both the General Outpatient Department and the Medical Laboratory Unit.

Research Question 1: What is the current level of AI adoption among HRMS in Nigerian teaching hospitals?

Some AI tools used by health workers in teaching hospitals are presented in Table 2.

Table 2
Types of AI Tools Used by Health Workers

S/N	Types of AI Used	Frequency	Percent
1	Robotics	12	8.7
2	ChatGPT	78	56.5
3	Bing AI	24	17.4
4	Copilot	57	41.3
5	Google Bard	14	10.1
6	Google Gemini	20	14.5
7	Chatbots	65	47.1
8	Never used any AI tool	11	8.0

As indicated in Table 2, ChatGPT was the most frequently used AI tool among health workers, with a usage rate of 56.5%, followed by chatbots at 47.1%, and copilot at 41.3%. Robotics was the least utilized, and approximately 8% of the health workers had never used any AI tools. These findings suggest that health workers in Nigerian teaching hospitals actively engage in AI technology.

Table 3 presents the different areas in which AI tools are used by health workers in teaching hospitals.

Table 3
Areas of AI Adoption

S/N	Use of AI	Always	Sometimes	Rarely	Never
1	Clinical documentation	11 (8.0%)	31 (22.5%)	59 (42.8%)	35 (25.4%)
2	Medical imaging	11 (8.0%)	33 (23.9%)	70 (50.7%)	24 (17.4%)
3	Patient monitoring	3 (2.2%)	41 (29.7%)	60 (43.5%)	34 (24.6%)
4	Research	23 (16.7%)	88 (63.8%)	15 (10.9%)	12 (8.7%)
5	Robotics	11 (8.0%)	8 (5.8%)	78 (56.5%)	41 (29.7%)
6	Electronic health records	38 (27.5%)	64 (46.4%)	9 (6.5%)	27 (19.6%)
7	Administrative workflow	3 (2.2%)	82 (59.4%)	26 (18.8%)	27 (19.6%)
8	Medical diagnosis	5 (3.6%)	86 (62.3%)	21 (15.2%)	26 (18.8%)

Table 3 indicates that only a small number of health workers in tertiary hospitals consistently used AI tools in their daily routines. In contrast, the majority occasionally employed AI tools for research (63.8%), medical diagnosis (62.3%), and administrative workflow (59.4%). The infrequent use of AI for various activities within teaching hospitals suggests a low level of AI adoption in Nigerian teaching hospitals. This finding highlights that health workers in these institutions do not heavily rely on AI tools and have yet to integrate this new technology into their health record management systems.

Research Question 2: What strategies are employed for the adoption of AI in HRMS in Nigerian teaching hospitals?

Table 4 presents some strategies currently employed, as well as potential strategies for the adoption of AI by health workers in Nigerian teaching hospitals.

Table 4
AI Adoption Strategies by Health Workers

S/N	AI Adoption Strategies	SA	A	D	SD
1	Allocation of adequate funding for AI adoption	112 (81.25)	2 (1.4%)	11 (8.0%)	13 (9.4%)
2	Management supports and prioritizes the adoption of AI.	79 (57.2%)	58 (42.1%)	1 (0.7%)	--
3	Regular training of staff on digital technologies.	43 (31.2%)	92 (66.7%)	1 (0.7%)	2 (1.4%)
4	Develop clear objectives and cases where AI can be used	79 (57.2%)	55 (39.9%)	2 (1.4%)	2 (1.4%)
5	Build a strong data foundation such as data accessibility, security and privacy	69 (50%)	65 (47.1%)	2 (1.4%)	2 (1.4%)
6	Foster an AI-ready culture like AI training, and collaboration	28 (20.3%)	106 (76.8%)	1 (0.7%)	3 (2.2%)
7	Establishing ethical guidelines and regulatory compliance	79 (57.2%)	46 (33.3%)	10 (7.2%)	3 (2.2%)
8	Leverage partnerships and expertise like AI vendors and research institutions	75 (54.3%)	50 (36.2%)	11 (8.0%)	2 (1.4%)
9	Continuous system monitoring and evaluation	78 (56.5%)	49 (35.5%)	13 (9.4%)	--

As illustrated in Table 4, several strategies can facilitate the adoption of AI in health record management. These include the necessity for management to support and prioritize AI adoption (137, 99.3%), establishing a robust data foundation encompassing data accessibility, security, and privacy (97.1%), and cultivating an AI-ready culture through AI training and collaboration (97.1%).

Research Question 3: What measurable outcomes can be observed following the adoption of AI in HRMS in teaching hospitals?

Table 5 presents the impact and outcomes of AI adoption in HRMS in teaching hospitals.

Table 5
Impact of AI Adoption on Health Records Management

S/N	Impact of AI Adoption	SA	A	D	SD
1	AI adoption improves the accuracy of health records.	30 (21.7%)	105 (76.1%)	2 (1.4%)	1 (0.7%)
2	Increase in the efficiency of health record management.	75 (54.3%)	51 (37.0%)	11 (8.0%)	1 (0.7%)
3	Reduction in the time required to retrieve patient records.	40 (29.0%)	94 (68.1%)	2 (1.4%)	2 (1.4%)
4	Enhanced data security in health records management.	83 (60.1%)	39 (28.3%)	13 (9.4%)	3 (2.2%)
5	Reduces errors in health record documentation.	80 (58.0%)	51 (37.0%)	3 (2.2%)	4 (2.9%)
6	Improves patient satisfaction with health records management	36 (26.1%)	97 (70.3%)	2 (1.4%)	3 (2.2%)
7	Streamlines the health record management processes.	73 (52.9%)	57 (41.3%)	3 (2.2%)	5 (3.6%)

Table 5 reveals that the majority of respondents concurred that, if implemented successfully, AI adoption holds the potential to enhance the accuracy of health records (97.8%), decrease the time needed to access patient records (97.1%), and optimize health record management processes (94.2%), among other advantages.

Research Question 4: What challenges impede the successful adoption of AI in HRMS in teaching hospitals?

Table 6 provides an analysis of the challenges hindering the adoption of AI in health record management in teaching hospitals.

Table 6
Challenges of AI Adoption for Health Records Management

S/N	Challenges	SA	A	D	SD
1	The use of AI is against the hospital ethics	10 (7.2%)	6 (4.3%)	112 (81.2%)	10 (7.2%)
2	There is resistance to change among staff regarding AI adoption.	24 (17.4%)	84 (60.9%)	21 (15.2%)	9 (6.5%)
3	The cost of implementing AI technologies is very high	79 (57.2%)	50 (36.2%)	6 (4.3%)	3 (2.2%)
4	Lack of technical expertise hinders AI adoption in health records management.	28 (20.3%)	93 (67.4%)	12 (8.7%)	5 (3.6%)
5	Difficulty in the integration of AI with existing health record systems	38 (27.5%)	92 (66.7%)	3 (2.2%)	5 (3.6%)
6	There are concerns regarding data privacy and security	40 (29.0%)	87 (63.0%)	10 (7.2%)	1 (0.7%)
7	Limited infrastructure to effectively adopt AI.	8 (5.8%)	121 (87.7%)	6 (4.5%)	3 (2.2%)
8	Poor awareness on the potentials of AI in health records	57 (41.3%)	67 (48.6%)	11 (8.0%)	3 (2.2%)
9	Lack of staff training to effectively use AI in health records management	53 (38.4%)	81 (56.7%)	1 (0.7%)	3 (2.2%)

Respondents identified several significant challenges to AI adoption in health record management in Nigerian teaching hospitals (Table 6). The chief among these is the lack of technical expertise, which poses the greatest obstacle at 94.2%. This was closely followed by inadequate infrastructure for effective AI implementation (93.5%) and concerns regarding data privacy and security (92%). Notably, respondents disagreed with the notion that AI use contradicts hospital ethics, suggesting that teaching hospitals recognize AI's potential and are inclined to support its integration into health record management.

Discussion of Findings

This study examines the strategies that teaching hospitals in Nigeria can implement for utilizing AI in health records management, particularly in this digital age, where AI is revolutionizing every facet of work life, including healthcare. The findings revealed a significant gap in the use of AI tools by health workers in Nigerian teaching hospitals, with many familiar with ChatGPT, Chatbots, and Copilot. While the results show that health workers in these hospitals do not lag behind in adopting AI tools, only a few consistently use them in their daily routines. However, most occasionally employ AI tools for research, medical diagnoses, and administrative tasks. They seldom used AI for various activities within the teaching hospital, indicating a low level of AI adoption in Nigerian teaching hospitals. This outcome highlights that health workers in tertiary hospitals have not fully embraced the new technology in health record management systems. Babatope et al. (2024) supported these findings, noting that despite a high level of AI awareness among health workers at UNIMEDTH in Nigeria, there is a low rate of utilization, pointing to a significant issue with technology implementation.

This study identified strategies for adopting AI in health record management within teaching hospitals. These strategies include management's support and prioritization of AI adoption; establishing a robust data foundation encompassing data accessibility, security, and privacy; and cultivating an AI-ready culture through training and collaboration. Supporting these findings, Oladipo et al. (2024) highlighted similar strategies, such as staff retraining, phased implementation, and stakeholder engagement, as crucial for ensuring the sustainability and adaptability of AI integration in healthcare. Similarly, Ogundele et al. (2021) emphasized the role of institutional support in facilitating the use of new technologies for health records. This aligns with the importance of institutional readiness, including infrastructure and staff competence, in the successful application of digital technologies in teaching hospitals, as suggested by Onyeabor et al. (2023).

The findings indicate that adopting AI can enhance the accuracy of health records, reduce the time required to access patient records, and streamline health record management processes, thereby boosting the effectiveness and efficiency of health care delivery. This aligns with Ye et al. (2024), who assert that electronic health records can utilize AI technologies to "enhance clinicians' abilities to diagnose patients' health issues, classify risks at the patient level by harnessing the power of integrated data, and provide essential support to clinics and hospitals."

In teaching hospitals in Nigeria, the adoption of AI in health record management faces significant challenges, including a lack of technical expertise, inadequate infrastructure, and concerns about data privacy and security. Respondents, however, disagreed with the notion that AI use contradicts hospital ethics, suggesting that these institutions recognize AI's potential and are open to its integration into health record management. Supporting these

findings, Babatope et al. (2024) identified financial constraints, insufficient ICT resources, poor Internet connectivity, and unreliable power supply as the primary obstacles to effective EHR implementation. Ye et al. (2024) highlighted issues related to security and privacy, data interpretation and analytics, and the acceptable use of data. This aligns with Umar et al. (2024), who pointed out certain legal and ethical concerns regarding AI's integration of AI into Nigeria's healthcare system. Therefore, addressing these challenges is crucial.

Conclusion

The study highlights the increasing importance of adopting and utilizing Artificial Intelligence in teaching hospitals, emphasizing the necessity for Nigerian health workers to embrace this advancement. This reveals that many health workers in these institutions are already acquainted with various AI tools, such as ChatGPT, Copilot, chatbots, and others, which they occasionally employ for research, medical diagnosis, and administrative tasks. However, the usage pattern indicates a low adoption rate among health workers in Nigerian teaching hospitals, particularly in health record management. Consequently, this study underscores the significance of institutional support for AI and prioritizes its adoption in teaching hospitals. This approach aimed to address some of the identified barriers to AI adoption and foster its use among health workers in teaching hospitals throughout Nigeria.

Recommendations

These recommendations were based on the findings of this study.

1. With the widespread integration of AI across various disciplines, it is essential for teaching hospitals in Nigeria to develop clear policies and frameworks to guide the adoption of AI in health record management. This initiative should also encompass ethical guidelines to address concerns related to AI in healthcare management.
2. State and federal governments, along with hospital management, should prioritize the integration of AI in teaching hospitals by ensuring that adequate funding and resources are allocated.
3. To enhance digital literacy and competency among healthcare workers, regular training programs, including workshops and AI certifications, should be organized.
4. Teaching hospital management should prioritize investing in a reliable digital infrastructure that includes stable Internet connectivity and an uninterrupted power supply. Additionally, robust cybersecurity measures must be implemented to safeguard patient data and ensure compliance with data privacy regulations.

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