

Assessing Artificial Intelligence as Information Source among Healthcare Practitioners across health institutions in Jos Metropolis

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Abstract

Artificial intelligence (AI) is increasingly being used in various sectors including the healthcare industry to enhance efficiency though with some barriers. Therefore, the thrust of this study is to evaluate the use of AI as information source among healthcare practitioners across health institutions in Jos metropolis, Plateau State, Nigeria. The study relied on the mixed research method, and was anchored on the technology acceptance model. It collected data from 200 respondents through the snowballing sampling technique. Finding indicated that a considerable number of the respondents acknowledged that AI has played key role in different aspects of healthcare service delivery. The result further revealed that older healthcare practitioners don't usually trust the information given by AI, as such, they hardly use it. Data of the study also showed some challenges of the application of AI which include insufficient knowledge relating to the use of AI in healthcare practice, scepticism of the information given by AI, data privacy concerns, and utilisation of AI could result in healthcare professionals becoming overly dependent on the information it provides, potentially undermining their critical thinking and judgement skills. It was concluded that the respondents showed good knowledge and readiness in the adoption and use of AI communication technologies in carrying out their practice, though with some of them, especially the older ones expressing reservations. The study recommended among others that seminars, workshops and symposia should be organised by relevant authorities to educate the older medical doctors on the need to see AI as an assistant in their practice and not a tool that is here to take over their jobs or make them redundant.

Keywords: Artificial intelligence, healthcare practitioners, information.

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Introduction

The adoption, reception, acceptance and application of digital communication technologies and platforms such as artificial intelligence (AI) have both immediate, short and long term positive effects on humans and organisations who choose to use them, with a view to bringing increased productivity at a minimal cost, convenience of usage and time savings (Marikyan & Papagiannidis, 2023). The origin of what is today referred to as Artificial Intelligence started with classical philosophers who made efforts to explain and describe human thoughts and ideas as a representative and symbolic arrangement or system (Robinson, 2018). However, AI as a machine thinking initiative was not fully successful at that time until 1956, when the modern brain behind this digital communication facility, John McCarthy at an academic conference in Dartmouth College in Hanover, New Hampshire coined the term “artificial intelligence” (McGuire, 2006). Since then, efforts were made to improve AI and incorporate it into various fields to aid humans in achieving their tasks more effectively and efficiently with minimal efforts.

Relating to health, studies and observations have demonstrated that healthcare practitioners across the world have integrated the use of artificial intelligence (AI) into their day-to-day activities to gain more knowledge about their discipline. This new communication technology is equally useful to healthcare professionals in terms of evacuating and assessing clinical documents, as AI assist them to extract information to report their activities more efficiently and professionally or to populate diagnosis coding (Hazarika, 2020). Rajpurkar et al (2022) contends that presently, AI has become one of the central communication platforms not only in the healthcare sector but across all disciplines. The application and integration of AI in healthcare sector presents a huge shift in the way and manner that healthcare practitioners carry out their assignments (Varnosfaderani & Forouzanfar, 2024).

The use of AI in healthcare practice can be traced to the invention of computer, and since then, researchers have continued to study how machines are used to mimic human capacity and intelligence (McCorduck & Cfe, 2004). For instance, statistics in the United States of America and Canada, according to Oladipo et al (2024) indicated that as of 2020, there were 25% and 12% decrease expenses in healthcare sectors due to the application and integration of AI. Another data by AIPRM (2024) concurs that the USA had the highest revenue of \$ 11.8 billion in it healthcare industry in 2023 due to use of AI.

Similarly, Vassas (2024) notes that in spite of data privacy issues and other concerns associated with the use of AI, it has continued to play a key role in France's healthcare sector by improving diagnosis, optimising personalised treatment, good means for attending to the health needs of aged population, reducing cost of medical treatment, management of resources in hospitals, facilitating research, among others (Ejjami, 2024).

In China, finding of a study conducted by Zheng et al (2021) indicated that about 42.6% of medical workers applied AI in their practice, especially as it relates to ophthalmology. In 2024, a research data confirmed that despite some limitations and challenges of the use of AI in health-related matters, the use of AI among oncologists in China stood at about 74.13% (Li, Xiong & Xu, 2024).

The adoption and utilisation of AI in healthcare practice is also visible among healthcare organisations and professionals in Africa. In Egypt, for instance, a report by Credence Research (2024) indicated that aside the market size of \$30.6 million in the country's healthcare sector due to the impact of AI, the AI communication innovation remains a vast potential for transforming Egypt's healthcare industry in terms of operational efficiencies, patient care, advanced healthcare services, and managing of infectious and chronic ailments. However, an investigation by Allam et al (2024) revealed that 87.4% of medical students and house officers in Egypt had negative perception about the application of AI in healthcare practice.

In Nigeria, the application of AI in health sector is still at a low ebb due to certain factors such as poor infrastructure that support the use of AI, insufficient knowledge among some healthcare practitioners on the use of AI, scepticism among others (Oladipo et al, 2024). Nevertheless, an increase in the use of AI in healthcare will lead to considerable improvement in the delivery of health services (Oladipo et al (2024). While the use of AI in health sector comes with a lot of advantages, concerns have also been raised. Some of the concerns include data privacy, bias because data used to train AI algorithm may result in biased healthcare decisions, ethical concerns, too much information to handle, to mention but a few.

While scholars have conducted studies on these phenomena (AI and healthcare), (Alowais et al, 2023; Varnosfaderani & Forouzanfar, 2024; Oladipo et al, 2024; Ojedokun et al, 2024; Adejumo et al, 2023; Zuhair et al, 2024), there is still gap in knowledge that needs to be filled. Therefore, the thrust of this study is to assess the purposes and issues on the adoption and utilisation of artificial intelligence as information source among healthcare practitioners across health institutions in Jos Metropolis.

Objectives of the Study

1. To ascertain respondents knowledge and use AI as source of information.
2. To examine the extent of use of AI among the respondents.
3. To find out whether the age of respondents affect the use of AI.
4. To explore the purpose of the utilisation of AI by the healthcare practitioners.
5. To find out the issues associated with the use of AI in healthcare service delivery.

Conceptual Clarifications

Artificial Intelligence

The capacity and ability of an online or digital device, or a computer-controlled device, sometimes called robot, which has the competence of performing tasks commonly associated with intelligent beings like humans are referred to as Artificial Intelligence (Robinson, 2018). Mohamed (2018) contends that Artificial Intelligence (AI) is often connected with the principles of Artificial Neural Networks (ANN), which imitate neurons, or brain cells and tries to carry out tasks that are done by humans. AI is a branch of discipline in computer science, which works with the assistance of online or digital electronic communication facilities that emphasises the creation of intelligent machines which work and react like humans (Harwood, Maltby & Mukaetova-Ladinska, 2019).

Healthcare Practitioners

Medical workers are individuals who have undergone training and equipped with the knowledge of preventing, advising and maintaining human based on certain medical philosophies, principles and procedures (World Health Organisation, 2013). In other words, the health professionals are saddled with the responsibility of conducting research, diagnosing, treating and preventing sickness in humans (Better Health Channel, 2024). This implies that, health practitioners are people who provide health information, education and other health services to the populace as a result of their medical training. They are skilled individuals such as nurses, dentists, midwives, physicians, podiatrists, dietitians, pharmacists, audiologists, therapists, neurologists, psychiatrists, chiropractors, psychotherapists, dermatologists, oncologists, cardiologists, among others (WHO, 2013).

Theoretical Underpinning

The study is situated within the thrust of the technology acceptance model (TAM). The model was initiated by Fred Davis 1986. The central position of the model is that people accept and use technology of communication based on certain factors. These factors include usefulness of the technology, how easy to use the technology and reasons and attitude of individuals towards the use of such information communication technology. This, Fred Davis succinctly explains that TAM operates in three phases, which are the system design features that trigger cognitive responses from the adopter and user, how importance and simple the user of the technology perceives it, which, in turn, form a valuable reaction or response from the user and attitude toward using such a technology/purpose, thereby influencing or affecting the user's behaviour (Davis, 1989; Davis, 1993).

Further, in order to predict the justification and attitude towards the employment of new communication technology, TAM's main concern is to educate users on the potential actions they could take before using a technology. This implies that the objective of the model is to provide explanation for exploring different behaviours of those who use technology and at the same time maintaining a cost-conscious approach (Davis, 1989).

Despite the limitations of TAM such as its simplicity and the lack of understanding of the antecedents of technology acceptance (perceived usefulness and perceived ease of use) (Venkatesh, Davis & Morris, 2007; Lee, Kozar & Larsen, 2003), scholars across board have applied TAM in studies relating to online transactions, digital advertising and marketing, e-health, online journalism, among others, and found it relevant as it concerns user behaviour regarding the use of new communication technology (Gefen, Karahanna & Straub, 2003; Araújo & Casais, 2020; Faqih & Jaradat, 2015; Jaradat & Mashaqba, 2014; Lucas, 2024; Marikyan & Papagiannidis, 2023; Venkatesh, 2000).

In line with the focus of this research, TAM is deemed appropriate for assessing how healthcare practitioners across health institutions in Jos Metropolis are using AI in their discipline. Put in another way, TAM applies to this study to understand the purposes and Issues on the Adoption and Utilisation of Artificial Intelligence as Information Source by the target population of this investigation.

Review of Literature

Importance of AI and Ethical Issues Surrounding its Use in Healthcare Practice

Artificial Intelligence impact in healthcare, according to McKee (2024), has been felt for decades. AI is applied in the diagnosis of patients and other treatment requirements (McKee, 2024). Dave and Patel (2023) concur that recent developments in AI in the healthcare industry have witnessed the application of innovative AI tools like Chatbots, ChatGPT and other forms of AI tools to engage directly with those seeking medical help, Gathering information regarding their medical history; assisting in reducing the workload of healthcare practitioners, thereby enhancing their efficiency. Varnosfaderani and Forouzanfar (2024) contend that AI remains important in healthcare sector due to its application to discover new diseases, offering virtual assistance to patients, used to reduce administrative bottlenecks, improving healthcare investigations, leading to more accurate check-ups or diagnosis, as well as enabling personalised treatments.

Empirical studies further add credence. Alowais et al (2023) conducted a study on how artificial intelligence is changing clinical practice. The investigation adopted the document review method and found that the application of AI in healthcare sector was importance in the aspect of diagnosing disease, it treatment, selection and to conduct test in the laboratory. The study further established that AI in healthcare was useful due to its ability to accommodate large datasets and locate patterns in health-related issues which the ordinary human brain cannot accommodate. The study also revealed that the use of AI comes with accuracy, less expensive, saving time, optimal treatment, provide avenue for treating patient through the online platforms, gives room for better patient health education and enlightenment, and a minimal human mistakes in healthcare. However, the finding showed the challenges associated with the application of AI in health discipline to include data privacy and bias. It was concluded that in spite of the issues with the use of AI in healthcare, AI remained significant in personalised treatment plans, helping health professionals to perform their tasks better and with ease, increasing quick contact with patients and automating tasks. It was recommended that health professionals needed to fact-check and cross-check information given to them by AI before using them.

Similarly, Varnosfaderani and Forouzanfar (2024) conducted a review on the impact of AI in healthcare organisations, focusing on how the AI communication technology is revolutionalising healthcare discipline in the present century. Finding of the study indicated that AI has empowered healthcare providers with the knowledge of obtaining deeper information concerning patient data, changing and reshaping diagnosis and treatment of patient, promoting learning, assisting in predicting ailments, and increasing the scope of

coverage of healthcare organisation. Others are automating administrative tasks, scheduling of appointments with patients, and helping in the analysis of vast amount of data. The study, therefore, concluded that despite the challenges of data security concerns, issues of interoperability, challenge of integrating AI with existing clinical workflows, issues surrounding the quality and quantity of data generated by AI, it remained an important tool in changing and enhancing the effectiveness and proficiency of hospital and healthcare practitioners operations. The conclusion thus underscores the continuous significance of AI in healthcare industry, however, draws attention to fact-checking of AI generated content.

In the same vein, the study of Oladipo et al (2024) delved into the significance and issues associated with the application of AI in healthcare industry. The thrust of the study was to find out the policies regarding the adoption and use of AI in the African continent, its peculiar challenges and potentials. The research found that AI has become useful in medical diagnosis in the African continent as it is applied in areas such as fast and quick treatment of patients, research tool for healthcare organisations and practitioners, precision making concerning medication among others. The study further found the challenges of the integration of AI to include deficit in infrastructure that support AI, issues regarding data privacy, and insufficient knowledge concerning the use of AI among healthcare practitioners. The study, thus advocated for raining of healthcare personnel in Africa on how best to use AI in their practice, improvement in digital communication facilities as this will serve as catalyst in improving the continent's healthcare industry.

Furthermore, Ojedokun et al (2024) assessed the views of medical practitioners across Nigeria concerning the optimisation of AI in the healthcare sector. The research adopted the cross-sectional method. Finding of the study revealed that despite the fact all the participants are aware of AI, only few of them have good knowledge on it application in health practice and this was attributed to age phenomenon. The study concluded that the integration of AI across healthcare institutions and among healthcare professionals in Nigeria is still at a low level. The study recommended adequate training to bride the gap in knowledge as well as efforts from the government regarding improvement of internet-support facilities.

Likewise, a finding by The Trusted Advisors (2023) further confirmed that AI was significant in accuracy of diagnosis, good too for personalised treatment, very impactful and effective in healthcare operations, used in early detection and prevention of diseases, important in discovering drugs and conducting clinical studies.

In a related study, Adejumo et al (2023) investigated the use of AI in medical discipline, focusing on closing the limitations for the present and leveraging on the opportunities for future use in Africa. Through the application of the document search method, the study established that AI was playing key role on different aspects of medical fields. This, the research found that AI was reducing errors, and that it has the capacity to predict the result of clinical efforts. The investigated further revealed that in spite of the role that AI is playing in health-related issues, there are still knowledge gaps and few studies concerning its application and integration in Africa. The study concluded that the incorporation of AI into medical discipline in Africa will greatly transform this sector, only if efforts were made by African leaders to move from the position of spectators to that of active players in the digital communication space.

Additionally, Zuhair et al (2024) explored how AI is impacting healthcare globally and enhancing healthcare service delivery in developing countries. The study collected data from articles on PubMed, Google Scholar and Cochrane from 2000 to 2023. Findings of the study indicated that the use of AI in healthcare practice such as in diagnosis, community healthcare, and management of patients, particularly in poor income countries has been enhanced. The study however found the challenges of using AI in such nations to include low adoption and usage of AI, no specific and standard laws and policies on the integration of AI in healthcare, cost of purchasing and maintaining equipment that support AI, and poor network also affect the application of AI negatively in healthcare. The study therefore, concluded that in spite of the shortcomings of AI application in health sector in developing nations, AI holds a bright future in healthcare industry of advancing countries, only if adequate training of healthcare professionals is provided, in addition to improving infrastructure that AI operation is based on.

Also, Adigwe, Onavbavba & Sanyaolu (2024) examined the perceptions, knowledge, matrix and prospects of AI as machine learning and communication platform among healthcare practitioners in Nigeria. Data of the study was collected from healthcare professionals across the six geopolitical zones in Nigeria through the cross-sectional research design. Findings of the study indicated that most of the respondents had good knowledge of AI and machine learning tool. The investigation further established that the participants did not believe in the submission that AI use in healthcare will lead to loss of jobs. Data from the research equally revealed that AI was a good platform in healthcare practice as it is used to augment human intelligence and knowledge, leading to effective and efficient healthcare service delivery in Nigeria. The study concluded that since AI has become an important tool in healthcare discipline, government and

policy actors should take advantage of this communication tool to improve healthcare service delivery in the country.

Methodology

Quantitative and qualitative research strategies were employed. The purpose of adopting mixed research methods was based on the argument that combining qualitative and quantitative data can enhance the rigour and validity of research findings and lead to more informed conclusions. This implies that the combination of these research designs provides deeper understanding of an investigating (Bjorklund, 2021).

The population of the study comprised of all categories of healthcare practitioners. Quantitative data was collected from 200 of the population working in both public and private healthcare facilities in Jos metropolis through the snowball method. Four trained research assistants were employed for the data collection, which took over a three months period. In-depth interview was conducted among 22 of the respondents to further add credence to the data. The use of 22 interviewees was predicated on the arguments advanced by scholars such as Baker (2021), Vasileiou (2018) cited in Lucas and Ubong (2022) and Morse (2000) that qualitative studies such as interviews are based on fewer samples because of saturation method.

In addition, descriptive statistics using Strongly Agree, Agree, Undecided, Strongly Disagree and Disagree measuring scale, as well as frequency and percentage charts were used to present quantitative data. Further, the research utilised the narrative approach for qualitative data presentation. This technique focuses on using people's stories and experiences to address research questions, is used to present content from a variety of sources, including respondent interviews (Dovetail Editorial Team, 2023). Further, the deductive method of data analysis was deemed appropriate for this study because it entails interpreting the stories that respondents have shared with a view to understanding the context and implication of the data collected while taking into cognizant the unique circumstances of every case and the experiences of each participant.

Data Presentation and Analysis

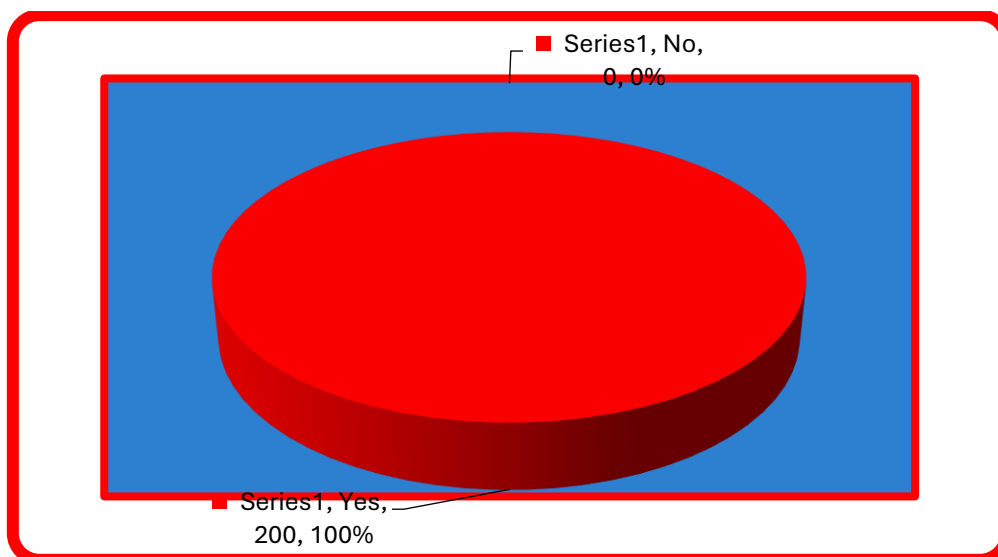


Figure 1: Respondents’ Knowledge of Use of AI as Source of Information

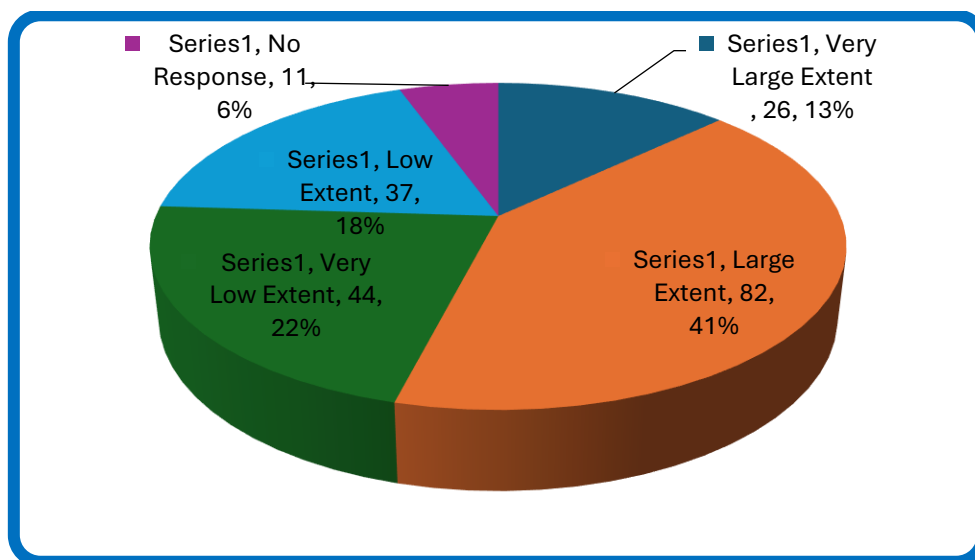


Figure 2: Respondents’ Extent of Use of AI as Source of Information

It could be deduced from the data in Figure 1 and 2 above that the respondents have knowledge of AI, but its application in healthcare practice is at varying degrees. The participants were subjected to additional questioning during the interview sessions to add credence to the quantitative finding. One of them stressed that “I consider AI as an online communication technology or system that has the ability to learn from stored memory or speeches of people, processes and gives out such information to the people when it is prompted”. Another respondent alluded that “I have heard much about AI, and I know it to be a computer communication software developed to think and act like humans. However, I have not used it that much in carrying out my tasks as a health practitioner”. Additionally, a participant stated

that “I know AI to be a modern communication platform that first learns from information that are stored on the Internet when a user instruct it; it then analyses and interprets the information and releases it to such an information seeker”. Another respondent stated that “I use AI a lot to source for information”. One more participant contended that “It appears at the moment, everyone uses the AI for information. As a health practitioner, I apply AI a lot in carrying out my assignments. I go to Chatbots, ChatGPT and other AI tools to look for information quickly”.

The data, thus, suggests that while the respondents possess an understanding of AI, their application of it within healthcare services varies significantly.

Table 1: Responses on How Age of Respondents Affect the Use of AI

Age Bracket	AS	A	U	SD	D	Total	Mean Rating	Decision
18-25 (use AI in practice)	48	152	0	0	0	200	4.2	Accepted
26-35 (use AI in practice)	111	89	0	0	0	200	4.5	Accepted
36-45 (use AI in practice)	66	86	17	22	9	200	3.2	Accepted
46-55 (use AI in practice)	33	61	3	66	37	200	2.9	Accepted
56 and above (use AI in practice)	13	18	9	105	55	200	2.1	Rejected

The finding in Table 1 implies that age of the respondents determine how they use AI in their practice. This is indicative of the fact that data showed that respondents who are between the ages of 18-50 find it easy to apply AI compared to the older ones.

When the respondents were further interrogated during the interview sessions, some of them did contend that younger health practitioners find it easy to make use of AI due to their exposure to similar communication platforms when they were growing up compared to the older ones. Some of the older health professionals expressed scepticism concerning the application of AI in their practice; others simply said they will not use AI. A younger participant opined that “I search for information and clarification from AI regularly. Its use is improving in Nigeria, and any time I find it difficult to navigate a particular type of AI, I contact my fellow younger doctors. In contrast, an older respondent stated that “I have been very

sceptical about this AI of a thin. I do see my younger colleagues using it. But I prefer to use my human intellect because I sometimes do not trust the information that AI gives”. Another older healthcare practitioner submitted that “I am sceptical about the quality of information and analysis that AI provides. AI can mislead your patients by misinforming them when they try to self medicate through the information that AI offers them. Some of the patients could take AI more seriously than physical human healthcare professionals”. Another older respondent stated that “I like to use my brain which is more credible and reliable”. Another older practitioner averred that “I don’t have confidence or trust on AI-generated medical information”.

Table 2: Responses on the Purpose of the Use of AI by the Healthcare Professionals

Options	AS	A	U	SD	D	Total	Mean Rating	Decision
AI is empowering decision making in health practice	93	107	0	0	0	200	4.4	Accepted
AI promotes and optimises your operations and management of time	102	98	0	0	0	200	4.5	Accepted
AI assists in generating and analysis of large patient data	145	55	0	0	0	200	4.7	Accepted
AI helps in monitoring patient care and treatment	157	32	11	0	0	200	4.7	Accepted
AI automates administrative tasks	142	58	0	0	0	200	4.7	Accepted
AI is useful in predicting diseases	112	88	0	0	0	200	4.5	Accepted
AI is important in tailoring treatments to genetic profiles, i.e., AI assists in knowing and identifying a particular genetic makers in a patient	179	15	6	0	0	200	4.7	Accepted
AI assists in predicting how different patients will react to various drugs,	122	65	13	0	0	200	4.5	Accepted

giving ways to predictive analysis when developing a drug								
AI can be used to customise plans on how to attend and treat a patient	79	113	8	0	0	200	4.3	Accepted
AI offers virtual help to meet other professional colleagues, and also to treat patients without seeing them physically	194	6	0	0	0	200	4.9	Accepted
AI is useful in educating and enlightening the public on different diseases	137	39	21	0	3	200	4.5	Accepted

Data in Table 2 indicates that AI is important to healthcare practitioners. The entire acceptance rate of the result revealed 4 point and above.

The result was as well supported during an interview with one of the participants emphasising that “I have utilised the different types of AI, most especially ChatGPT. I have used this communication platform on many occasions to speed up my work and to find responses and clarity on certain terms. It is a very useful information source; it gives information immediately you prompt it”. Another respondent concurred that “AI is very important to achieve result instantly. Job or task that usually takes hours to actualise before can be done within few minutes now through the instrumentality of AI. It is really a good communication technology”. This opinion was further stressed by another participant that “AI is useful. It can assist you to minimise mistakes. AI does this through its advanced algorithms and predictive analysis capabilities. But this is only possible when you give AI the correct prompt. Once you do not give AI wrong information, it helps reduce medical errors”.

It could, therefore be inferred from both the qualitative and quantitative data that the application of AI in healthcare practice allows for efficiency and improved performance. AI is vital to reaching out to many patients in less time, provides better analysis and diagnosis assistance to healthcare professionals. This further implies that AI remains significant in healthcare practice,

enhancing the capacities of healthcare professionals and improving their research and work performance efficiency.

Table 3: Responses on the Challenges Associated with the Use of AI by the Healthcare Professionals

Options	AS	A	U	SD	D	Total	Mean Rating	Decision
The use of AI will lead to loss of jobs	21	24	14	57	39	200	1.9	Rejected
Inadequate knowledge of the use of AI	86	67	22	19	6	200	4.0	Accepted
Scepticism and resistance to adoption and use of AI due to lack of trust on the quality of information and suggestion that AI gives leading to misdiagnosis	38	114	8	29	11	200	3.7	Accepted
Concerns regarding data privacy and security	79	112	3	0	6	200	4.2	Accepted
Use of AI may lead to overreliance on the information it supplies by healthcare practitioners thereby affecting critical thinking and discernment	101	32	27	18	22	200	3.8	Accepted
Difficulty in identifying who or what is responsible if there is a mistake, which raises reliability and accountability issues about AI	144	30	15	3	8	200	4.4	Accepted
Challenges of regulation of AI content	53	123	11	0	13	200	4.0	Accepted
Financial constraints to purchase and maintain AI-related soft and hard tools	38	159	3	0	0	200	4.1	Accepted

Technical concerns like failure of network	41	113	38	11	24	200	4.0	Accepted
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The findings in Table 3 showed that most of the respondents acknowledged that AI communication technology is constrained by number of factors. This is presented by mean scores ranging from 3 point to 4 point and above in the Table. However, the respondents disagree that AI will not take over their jobs.

When the respondents were questioned further during the interviews, one of them explained that “it is often said that developments occur gradually, and their acceptance by humans is usually a slow process. As with other inventions and innovations, at the initial stage, there may be apprehension regarding the potential of AI and its uses to supplant human roles. But I don’t see it coming to reality. Machines will always be developed to complement and assist humans in their tasks, but they will not replace humans”. A contrary view was expressed by another respondent that “Indeed, it is very feasible that machines can take over. This has happened in many technological fields and industries. It is feasible that in no distance time, similar transition may occur within the healthcare sector”.

Another respondent contended that “There is an adage which says that ‘an untrained person with a weapon poses great dangers not only to him/herself but also’. The point being emphasised is that anyone who has access to a communication tool like AI and does not know how to use it is dangerous due to misapplication. So, when training is provided, there will good application of AI for the benefit of both we the healthcare practitioners and our patients”. Another participant further affirmed that “taking some training courses online concerning AI use is key; periodic seminars and workshops will also be helpful”. Another participant pointed out that “online video communication platforms like YouTube have proven to be exceptionally important for individuals to acquire self knowledge due to their accessibility and convenience of use”.

Further attending to the question bothering on the challenges of AI use by healthcare practitioners, a respondent stated that “The human brain application can never be taken away in place of machines no matter the accuracy of such a machine. The AI tool cannot have the human feelings that we have, especially when treating patients”. Another participant averred that “financial challenges to purchase and maintain AI-related tools are main problems. To

attend to our patients through AI requires that the patients also have access to AI-enabled tools. But when getting these tools are difficult due to insufficient finance, AI use become very difficult”. Another respondent averred that “there could be network failure especially in a country like Nigeria when you are trying to obtain the information of a patient using AI-related devices. Such a technical challenge can make the patient to wait for hours”.

The quantitative findings and the interview assertions by the respondents above thus, emphasised the significance of training of healthcare professionals for good and effective utilisation of AI. The findings further pointed out that some respondents speculated that AI may in the long run take over the works of health professionals, while others are of the view that this replacement is not likely to happen. There were also the issues of finance, inaccurate information, regulation and ethical issues concerning the use of AI in healthcare practice.

Discussion of Findings

The data of this investigation revealed that a considerable number of the respondents acknowledged that AI has played key role in different aspects of healthcare service delivery. Most of those who participated in the study concurred that AI was significant empowering decision making in health practice, promotes and optimises medical operations and management of time, assists in generating and analysis of large patient data, helps in monitoring patient care and treatment, automation of administrative tasks, and useful in predicting diseases. Others are AI assists in knowing and identifying a particular genetic makers in a patient, helps in predicting how different patients will react to various drugs, giving ways to predictive analysis when developing a drug, useful in customising plans on how to attend and treat a patient, offers virtual help to meet other professional colleagues, and also to treat patients without seeing them physically, and important in educating and enlightening the public on different diseases (see Table 2, Figure 1 and interview excerpts above). The findings are in line with earlier one carried out by Adigwe, Onavbavba and Sanyaolu (2024), which found that AI was a good communication technology in healthcare practice as it is used to argument human intelligence and knowledge, leading to effective and efficient healthcare service delivery in Nigeria. The study of Alowais et al (2023) further collaborate this finding by stating that AI in healthcare was useful due to its ability to accommodate large datasets and locate patterns in health-related issues which the ordinary human brain cannot accommodate. The finding here demonstrates an increased consciousness and awareness of the prospects of AI to turn-around and improve healthcare service delivery. The result also underscores the

significance of leveraging on the AI technologies due to its capabilities to improve medical diagnosis leading to more precision and better treatment of patients. The data equally justifies the use of technology acceptance model in the study, which states that people accept and use technology of communication based on certain factors, which include usefulness of the technology, how easy to use the technology and reasons and attitude of individuals towards the use of such information communication technology.

The study also found that age is a determinant factor in the usage of AI by the respondents as data in Table 1 and interview excerpts indicated that younger healthcare practitioners find it more convenient to use AI than the older health professionals. An earlier investigation by NORC at the University of Chicago for the U-M Institute for Healthcare Policy and Innovation (Shryock, 2024) reaffirmed this finding. The study established that adults between the ages of 50-101 had scepticism on the quality of healthcare messages generated and released by AI. This finding is an indication of trust gap regarding AI-related medical information.

Finding of the study further revealed that the application of AI by the medical practitioners is challenged by barriers such as insufficient knowledge relating to the use of AI in healthcare practice, scepticism of the information given by AI, data privacy concerns, and utilisation of AI could result in healthcare professionals becoming overly dependent on the information it provides, potentially undermining their critical thinking and judgement skills. Others are difficulty in identifying who or what is responsible if there is a mistake, which raises reliability and accountability issues about AI, regulatory challenges, financial and network problems (refer to Table 3 above). The finding of the study is in tandem with that of Zuhair et al (2024) on the use of AI by healthcare providers in developing countries. The study found the barriers to the application of AI include low use, lack of laws and policy frameworks on how to use AI, insufficient money to acquire and use AI tools, as well as poor infrastructure support facilities like network coverage. Another study conducted earlier by Adejumo et al (2023) and Ojedokun et al (2024) corroborate the result of this research by stating that there are knowledge gaps in the application of AI by some healthcare practitioners in Nigeria.

Conclusion

The crux of the study has been on assessing artificial intelligence as information source among healthcare practitioners across health institutions in Jos metropolis. From the findings of the research, it could be concluded that the respondents showed good knowledge and readiness in the adoption and use of AI communication technologies in carrying out their practice, though

with some of them, especially the older ones expressing reservations. There are also some challenges that hindered the effective and efficient use of AI in healthcare. This conclusion underscores the importance of swift policy formulation and implantation by the Nigerian government, which can address challenges identified, thereby paving ways for effective adoption and utilisation of AI in healthcare.

Recommendations

1. As a policy recommendation, Nigerian government needs to strengthen health laws on the application of digital technology in healthcare to address issues such as data privacy concerns and algorithm transparency.
2. Seminars, workshops and symposia should be organised by relevant authorities to educate the older medical doctors on the need to see AI as an assistant in their practice and not a tool that is here to take over their jobs or make them redundant.
3. The application of AI in healthcare practice at the global level is rapidly increasing, therefore, healthcare workers in Nigeria are motivated to continue to tap into the opportunities offer by AI for better results.
4. More researches concerning the application of AI in medical discipline in Nigeria is also recommended to scholars.

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References:

- Adejumo, A. A., Alegbejo-Alarinoye, M. I., Akanbi, O. O., Ajamu, O. J. & Akims, S. M. (2023). Artificial intelligence in medical practice: Closing the gaps for the present and creating opportunities for the future. *The Nigerian Health Journal*, 23(2), <https://doi.org/10.60787/tnhj.v23i2.655>

Adigwe, O. P., Onavbavba, G. Sanyaolu, S. E. (2024). Exploring the matrix: knowledge, perceptions and prospects of artificial intelligence and machine learning in Nigerian healthcare. *Frontiers in Artificial Intelligence*, 6:1293297. doi: 10.3389/frai.2023.1293297

AIPRM, (2024). 50+ AI in healthcare statistics 2024. <https://www.aiprm.com/ai-in-healthcare-statistics>

Allam, R. M., Abdelfatah, D., Khalil, M. I. M., Elsaieed, M. M. & Desouky, E. D. (2024). Medical students and house officers' perception, attitude and potential barriers towards artificial intelligence in Egypt, cross sectional survey. *BMC Medical Education*, 24, 1244. <https://doi.org/10.1186/s12909-024-06201-8>

Alowais, S., Alghamdi, S. S., Alsuhebany, N., Alqahtani, T., Alshaya, A. I., Almohareb, S. N., Aldairem, A., Alrashed, M., Saleh, K. B., Badreldin, H. A., Al-Yami, M. S., Harbi, S. & Albekairy, A. M. (2023). Revolutionising healthcare: The role of artificial intelligence in clinical practice. *BMC Medical Education*, 23(689), <https://doi.org/10.1186/s12909-023-04698-z>

Araújo, T. & Casais, B. (2020). Customer acceptance of shopping-assistant chatbots. *Marketing and Smart Technologies*, 278-287.

Baker, S. E. & Edward, R. (2012). How many qualitative interviews is enough?: expert voices and early career reflections on sampling and cases in qualitative research. *National Centre for Research Methods Review Paper*. http://eprints.ncrm.ac.uk/2273/4/how_many_interviews.pdf

Better Health Channel, (2024). Types of doctors and health professionals. Victoria State Government. <https://www.betterhealth.vic.gov.au/health/servicesandsupport/types-of-doctors-and-health-professionals>.

Bjorklund, E. A. (2021). *5 reasons to combine qualitative and quantitative research*. <https://www.questback.com/blog/5-reasons-to-combine-qualitative-and-quantitative-research/>

Credence Research, (2024). Egypt artificial intelligence (AI) in healthcare market. <https://www.credenceresearch.com/report/egypt-artificial-intelligence-ai-in-healthcare-market>

- Dave, M. & Patel, N. (2023). Artificial intelligence in healthcare and education. *British Dental Journal*, 234, 761-764. <https://doi.org/10.1038/s41415-023-5845-2>
- Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13 (3), 319.
- Davis, F.D. (1993). User acceptance of information technology: system characteristics, user perceptions and behavioural impacts. *International Journal of Man-Machine Studies*, 38 (3), 475-487.
- Dovetail Editorial Team*. (2023). Using narrative analysis in qualitative research. <https://dovetail.com/research/narrative-analysis/>
- Ejjami, R. (2024). AI-driven healthcare in France. *International Journal for Multidisciplinary Research*, 6(3), 1-27.
- Faqih, K.M. & Jaradat, M.R.M. (2015). Assessing the moderating effect of gender differences and individualism-collectivism at individual-level on the adoption of mobile commerce technology: TAM3 perspective. *Journal of Retailing and Consumer Services*, 22, 37-52.
- Gefen, Karahanna, & Straub (2003). Trust and TAM in online shopping: An integrated model. *MIS Quarterly*, 27 (1), 51.
- Harwood, T., Maltby, J., & Mukaetova-Ladinska, E. (2019). Role of artificial intelligence (artificial intelligence) art in care of ageing society: focus on dementia. *OBM Geriatr*. 3:062. doi: 10.21926/obm.geriatri.1903062
- Hazarika, I. (2020). Artificial intelligence: Opportunities and implications for the health workforce. *International Journal of Health*, 12(4), 241-245.
- Jaradat, M.I.R.M. & Mashaqba, A.M.A. (2014). Understanding the adoption and usage of mobile payment services by using TAM3. *International Journal of Business Information Systems*, 16 (3), 271.
- Lee, Y., Kozar, K.A. & Larsen, K.R. (2003). The technology acceptance model: Past, present, and future. *Communications of the Association for Information Systems*, 12.

- Li, M., Xiong, X. & Xu, B. (2024). Attitude and perceptions of Chinese oncologists towards artificial intelligence in healthcare: A cross-sectional survey. *Frontiers Digital Health*, 6: 1371302. DOI:103389/fdgth.2024.1371302
- Lucas, B. D. & Ubong, B. A. (2022). Assessing the effectiveness of indigenous communication system in the control of cholera in selected local government areas of Plateau State, Nigeria. *CRUTECH Journal of Communication*, 4(1), 60-72
- Lucas, M. G. (2024). *Use of social media to create awareness on reproductive health by Jos-based healthcare practitioners*. (Undergraduate project, Plateau State University, Bokokos).
- Mahomed, S. (2018). Healthcare, artificial intelligence, and the fourth industrial revolution: ethical, social, and legal considerations. *S. Afr. J. Bioeth. Law*, 11, 93–95. doi: 10.7196/SAJBL.2018.v11i2.664
- Marikyan, D. & Papagiannidis, S. (2023). Technology acceptance model: A review. In S. Papagiannidis (Ed), *Theory Hub Book*. Available at <https://open.ncl.ac.uk/> / ISBN: 9781739604400
- McCorduck, P. & Cfe, C. (2004). *Machines who think: A personal inquiry into the history and prospects of artificial intelligence*. CRC Press.
- McGuire, B. (2006). *History of AI applied to Chess*. Washington: History of Computing CSEP 590A.
- McKee, A. (2024). *AI in healthcare: Enhancing diagnostics, personalising treatment, and streamlining operations*. <https://www.datacamp.com/blog/ai-in-healthcare>
- Ojedokun, S., Afolabi, S., Olukoejo, O. & Alatishe, T. (2024). Perceptions and opinions of medical professionals on artificial intelligence in optimising the healthcare sector. *Asian Journal of Media Principles and Clinical Practice*, 7(1), 279-288.
- Oladipo, E. K., Adeyemo, S. F., Oluwasanya, . J. et al (2024). Impact and challenges of artificial intelligence integration in the Africa health sector: A review. *Trends in Medical Research*, 19(1), 220-235.
- Rajpurkar, P., Chen, E., Banerjee, O. & Topol, E. J. (2022). Ai in health and medicine. *Nat. Med.*, 28, 31-38. doi:10.1038/s41591-021-0614-0

- Robinson, R. N. (2018). Artificial intelligence: Its importance, challenges and applications in Nigeria. *Direct Research Journal of Engineering and Information Technology*, 5(5), 36- 41. DOI: <https://doi.org/10.26765/DRJEIT.2018.4780>
- Shryock, T. (2024). Older adults don't trust AI healthcare information. *Medical Economics*. <https://www.medicaleconomics.com/view/older-adutls-don-t-trust-ai-health-care-information>
- The Trusted Advisors* (2023). Legal, implications of AI in healthcare: Nigerian perspective. <https://trustedadvisorslaws.com/legal-implications-of-ai-in-healthcare-nigerian-perspective>.
- Varnosfaderani, S. M & Forouzanfar, M. (2024). The role of AI in hospitals and clinics: Transforming healthcare in the 21st century. *Bioengineering*, 11(4), 337. doi:103390/bioengineering1104337
- Vassas, Q. (2024). Access to health data: A national challenge to advance artificial intelligence. *Hack Your Care*. <https://www.hackyourcare.com/en/blog/laces-aux-donnees-de-sante-un-enjeu-nationa-pour-faire-avancer-lintelligence-artificielle>
- Venkatesh, V. (2000). Determinants of perceived ease of use: integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information Systems Research*, 11 (4), 342-365.
- Venkatesh, V., Davis, F. & Morris, M. (2007). Dead or alive? The development, trajectory and future of technology adoption research. *Journal of the Association for Information Systems*, 8 (4), 267-286.
- World Health Organisation*, (2013). Transforming and scaling up health professionals' education and training: World Health Organisation, Guidelines. www.who.int/about/licensing/copyright_form/en/index.html
- Zheng, B., Wu, M. N., Zhu, S. J. et al (2021). Attitude of medical workers in China toward artificial intelligence in ophthalmology: A comparative survey. *BMC Health Survey Research*, 21, 1067. <https://doi.org/10.1186/s12913-021-07044-5>
- Zuhair, V., Babar, A., Ali, R., Oduoye, O., Noor, Z., Chris, K., Okon, I. I. & Rehman, L. U. (2024). Exploring the impact of artificial intelligence on global health and enhancing

healthcare in developing nations. *Journal of Primary Care and Community Health*,
12(15), doi:10.1177/21501319241245847