The Potential Economic Impact of AI In Healthcare in Nigeria: Evidence from United State

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Abstract

This paper delves into the potential economic impact of a i in healthcare in Nigeria. There is potential for AI to enhance healthcare delivery and efficiency, there are still uncertainties surrounding its effectiveness, value, and broader adoption. This comprehensive literature review aims to explore and synthesize existing knowledge on the economic impact of AI in healthcare. The primary objective of this review is to understand the potential cost savings and efficiency improvements associated with the deployment of AI in healthcare settings. By highlighting the economic impact of AI, this review seeks to offer insights into the value proposition of investing in AI technologies for stakeholders such as healthcare providers, payers, and policymakers. Methods: To conduct this review, we conducted a search of literature from 2020 to 2023 across three databases: PubMed, Scopus and Google Scholar. We specifically focused on studies that discuss the impacts of AI in healthcare and include cost evaluations, using combinations of key-words related to AI, economics, healthcare, and cost evaluation. The inclusion criteria were studies that conducted some form of economic evaluation related to AI in healthcare settings, while exclusion criteria were studies without a cost evaluation component. Data extraction and quality assessment using the CASP checklist were undertaken on the final set of included studies. Results: After screening studies, we identified 10 out of a total of 28 studies and reports that met our criteria of outlining any form of economic impact and evaluation of AI in healthcare settings. Based on our findings, implementing AI in healthcare could potentially lead to cost savings. Several studies suggest savings ranging from $200 billion to $360 billion in the United State alone. The use of AI in healthcare sectors such as ophthalmology, radiology and disease screening will have a positive and significant economic impacts in Nigeria. While AI has potential for cost savings and efficiency improvements, in healthcare settings, it's crucial to conduct detailed context specific cost evaluations to optimize the adoption and implementation strategies of AI.

Keywords: *Artificial Intelligence, Healthcare, Medicine Economic Impact,*

Introduction

Artificial Intelligence (AI) has rapidly transformed various industries, healthcare are no exception. The relationship between AI and healthcare has the potential to revolutionize the way medical services are delivered, diagnoses are made, and patient outcomes are improved. One of the key areas where AI is making a significant impact in healthcare is in medical imaging. AI algorithms are being used to interpret and analyze medical images such as X-rays, MRIs, and CT scans, allowing for faster and more accurate diagnoses. This not only improves

patient care but also increases the efficiency of healthcare providers Christopher (2023). AI is also being used in drug discovery and development. By analyzing large volumes of biomedical data, AI algorithms can identify potential drug candidates and predict their effectiveness, speeding up the drug development process and potentially leading to the discovery of new treatments for various diseases.

AI is being used to personalize patient care and treatment plans. By analyzing patient data and medical records, AI algorithms can identify patterns and trends that can help healthcare providers tailor treatment plans to individual patients, leading to more effective and personalized care Christopher (2023) .

In the field of medical research, AI is also being used to analyze large datasets and identify potential research opportunities and areas for further exploration. This can lead to the discovery of new medical breakthroughs and advancements that can significantly impact the healthcare industry Berwick et al (2008). The relationship between AI and healthcare also extends to patient engagement and monitoring. AI-powered chatbots and virtual assistants can provide patients with information, support, and guidance, improving overall patient experience and access to care. Additionally, wearable devices and sensors powered by AI can monitor patient health in real-time, allowing for early detection of health issues and proactive intervention Sunarti, et al (2021) .

However, the integration of AI in healthcare also raises important ethical and regulatory considerations. Issues such as data privacy, algorithm bias, and accountability need to be carefully addressed to ensure that AI is used responsibly and ethically in the medical field. Nevertheless, the relationship between AI and healthcare is rapidly evolving and has the potential to significantly improve patient care, medical research, and the overall healthcare industry. As AI technologies continue to advance, it is important for healthcare providers, researchers, policymakers, and industry stakeholders to collaborate and ensure that AI is leveraged in a way that maximizes its benefits while addressing potential challenges and risks. Overall, the integration of AI in healthcare holds great promise for improving patient outcomes and advancing the field of medicine Sunarti, et al (2021).

Review of Related Literature

The chapter reviewed related literature under the following headings: Theoretical Review, Conceptual Review, Review of Related Empirical Studies and Summary of literature Review

Theoretical Framework

This paper will be anchored by the Classical economics theory and Social Determinants of Health theory

Classical economics theory

Classical economics theory explains economic impact by emphasizing the importance of free markets, limited government intervention, and the role of individual behaviors in influencing economic outcomes. According to classical economists, the economy tends towards a state of equilibrium in which the forces of supply and demand, as well as individual self-interest, lead to optimal resource allocation and economic growth. They believe that government intervention in the form of regulation or intervention in the market disturbs this natural equilibrium and can lead to inefficiency and economic problems Day, (1983).

Classical economics also stresses the importance of factors such as wages, prices, and production in determining economic outcomes. Overall, the theory suggests that minimal government involvement and individual decision-making lead to the most beneficial economic impact Harris, (1988).

Social Determinants of Health theory

The "Social Determinants of Health" theory can be used to explain healthcare. This theory emphasizes that health is influenced by a wide range of factors beyond just healthcare services, including social, economic, and environmental factors. It posits that factors such as income, education, housing, employment, and social support all play a significant role in determining an individual's health outcomes Loucks E.(2012).

This theory highlights the importance of addressing social and economic inequalities in order to improve overall health outcomes within a society. It emphasizes the need to look beyond healthcare services and focus on addressing the underlying social and economic determinants of health, such as poverty, discrimination, and lack of access to education and employment. The Social Determinants of Health theory can be used to inform policies and interventions aimed at achieving better healthcare outcomes by addressing factors such as income inequality, housing stability, access to education, and social support systems. By focusing on these social and economic factors, healthcare systems can more effectively promote overall well-being and reduce health disparities Loucks E.(2012).

The Social Determinants of Health theory provides a framework for understanding the complex interactions between social, economic, and environmental factors in determining health outcomes, and it emphasizes the importance of addressing social and economic inequalities to improve overall healthcare.

Conceptual Framework
Artificial Intelligence (AI)

Artificial Intelligence (AI) is revolutionizing the healthcare and medicine industry and is poised to have a significant economic impact. The potential of AI to improve patient outcomes, streamline healthcare processes, and enable medical breakthroughs has the potential to not only improve the quality of healthcare but also drive economic growth and innovation. One of the key areas where AI is expected to have a substantial economic impact in healthcare is in medical imaging. With AI algorithms, medical imaging can be interpreted and analyzed more efficiently and accurately, reducing the time and resources required for diagnoses. This can lead to cost savings for healthcare providers and patients, as well as improved patient outcomes through faster and more precise diagnoses Dave, and Patel, (2023).

In addition to medical imaging, AI is also expected to drive cost savings and economic benefits in drug discovery and development. By accelerating the drug development process and potentially leading to the discovery of new treatments, AI has the potential to reduce healthcare costs associated with long and expensive drug development processes and contribute to the overall economic impact on the healthcare industry. Moreover, AI-powered personalized patient care and treatment plans have the potential to drive economic benefits by improving the efficiency and effectiveness of healthcare delivery. Tailoring treatment plans to individual patients based on AI analysis of patient data can lead to better outcomes and reduced healthcare costs by preventing unnecessary tests and treatments Dave, and Patel, (2023).

The use of AI in medical research also holds significant economic potential. By analyzing large datasets and identifying research opportunities, AI can contribute to the discovery of new medical breakthroughs and advancements that have the potential to drive economic growth and innovation in the healthcare and life sciences industries. The economic impact of AI in healthcare and medicine also extends to patient engagement and monitoring. AI-powered technologies such as chatbots, virtual assistants, and wearable devices can improve patient experience, access to care, and real-time health monitoring, ultimately contributing to economic benefits by reducing healthcare costs and improving overall patient outcomes Anyoha, R. (2017).

However, it is important to note that the economic impact of AI in healthcare and medicine will also depend on factors such as ethical and regulatory considerations. Issues related to data privacy, algorithm bias, and accountability need to be addressed to ensure that the economic benefits of AI in healthcare are realized responsibly and ethically. the potential economic impact of AI in healthcare and medicine is significant. By improving patient outcomes, streamlining healthcare processes, driving medical breakthroughs, and reducing healthcare costs, AI has the potential to drive economic growth and innovation in the healthcare industry. As AI technologies continue to advance, collaboration between healthcare providers, researchers, policymakers, and industry stakeholders will be crucial in realizing the economic potential of AI in healthcare and medicine Ali, et al (2021).

Healthcare

Healthcare refers to the maintenance and improvement of a person's physical and mental well-being through the provision of medical services, treatments, and preventative measures. It encompasses a wide range of services, including diagnosis, treatment, rehabilitation, and support for various health conditions and illnesses. Healthcare is delivered by healthcare professionals such as doctors, nurses, pharmacists, and other allied health professionals, as well as healthcare organizations and facilities such as hospitals, clinics, and long-term care facilities Dave and Patel, (2023) .

The primary goal of healthcare is to promote and maintain the overall health and wellness of individuals, as well as to diagnose and treat illnesses and injuries when they occur. It also includes preventive measures such as vaccinations, screenings, and education to help individuals avoid health problems before they arise.

Healthcare services can be categorized into different levels of care, including primary care, secondary care, and tertiary care. Primary care involves the first point of contact for individuals seeking healthcare services, typically provided by a general practitioner or family doctor. Secondary care involves specialized medical services that are typically provided by medical specialists and hospitals, while tertiary care involves highly specialized and complex medical care provided by specialized hospitals and centers, often for individuals with severe or complex medical conditions Bohr, and Memarzadeh, (2020).

The healthcare system also includes various healthcare policies, regulations, and financing mechanisms that govern the delivery and funding of healthcare services. This includes issues such as healthcare insurance, government-funded healthcare programs, private healthcare providers, and the overall management and organization of healthcare services within a country or region. In recent years, healthcare has seen significant advancements and innovations, particularly with the integration of technology into the delivery of healthcare services. This

includes the use of electronic health records, telemedicine, wearable health devices, and artificial intelligence to improve the quality, efficiency, and accessibility of healthcare services. These technological advancements have the potential to revolutionize the healthcare industry and improve patient outcomes, while also posing challenges related to data privacy, security, and ethics Dave and Patel, (2023) .

Challenges in the healthcare industry include issues such as healthcare disparities, access to care, rising healthcare costs, and the burden of chronic diseases. Additionally, the COVID-19 pandemic has highlighted the fragility of healthcare systems and the need for preparedness and resilience in the face of global health crises.

Overall, healthcare is a crucial component of society that impacts the well-being and quality of life of individuals and populations. It encompasses a wide range of services, professionals, and organizations, and plays a critical role in addressing health needs, promoting wellness, and supporting individuals in times of illness and injury. The ongoing evolution of healthcare will continue to shape the way in which healthcare services are delivered and accessed, with a focus on improving outcomes, reducing costs, and ensuring equitable access to care for all.

Empirical Review

Sahni et al, (2023), examine the potential impact of AI on healthcare system cost analysis. The paper adopted a wider AI systems to analyzed the healthcare cost analysis. The Wider AI systems found that
implementation could result in 5% - 10% savings in US healthcare spending annually.

Pifer, R (2023), investigates the potential cost saving from implementing AI in healthcare sector in US. The study employe a wider AI healthcare system to find how Implementation of AI could save: The US healthcare system $200 - 360 billion annually. Private payers between $80 - 110 billion annually. Physician groups between $20 - 60 billion annually.

Leeuwenthe et al (2022), explore on how To discuss how AI improves efficiency and

outcomes in radiology in US. The paper employed Various AI applications relevant to Radiology to uncover how AI shows promise in streamlining workflow, speeding interpretation, and improving accuracy and personalization.

Rossi et al. (2022), examine the study on the cost-effectiveness of AI applications in medicine in US. The study employed various AI applications to uncover how Cost-effectiveness depends on use cases and assumed effects of diagnosis in the US.

Khanna et al.(2022), explore on the AI technology in the context of healthcare costs, namely in the areas of diagnosis and treatment in UK. The empirical paper adopted Various AI applications to find how AI can save time for diagnosis & treatment which in turn results in cost-saving in UK.

De Vos et al. (2022), investigate the study on cost-effectiveness of machine learning tool for ICU patients in UK. The paper used Prediction model (Pacmed Critical)-to find how Pacmed Critical for ICE was a cost-effective strategy and continued to be cost-effective when compared to standard care in the UK.

Ruamvibo-onsuk et al, (2021), explore on how economic evaluations of AI in ophthalmology in US.the manuscript employed AI software to uncover how AI could enhance quality and reduce cost

Spatharou et al, (2020), explore how AI can support improvements in care outcomes, patient experience and access to healthcare services in US. The empirical paper emplyed various AI application to discover how AI can Minimize inefficiencies, create cost-effective healthcare ecosystem, and maximize return on investment.

Review of Empirical literature

However, it is important to consider that the integration of AI in healthcare has faced obstacles like patients' and doctors' lack of trust, varied data, and conflicting incentives. Overall, while the potential for cost savings differs depending on the use case and underlying assumptions, there is evidence that embracing AI more widely could result in a more efficient healthcare system with reduced expenses. This review's notable strength lies in its recent and coverage. By encompass-sing studies conducted after the recent AI hype and developments and from robust databases without limiting the search based on publication types or geographic locations, we were able to include a range of perspectives on the economic impact of AI in healthcare. This inclusive approach enabled us to capture an understanding of the financial benefits and operational efficiencies that can be achieved through implementing AI in healthcare. Moreover, our rigorous data extraction process and thorough quality assessment using the CASP Economic Evaluation Checklist ensured reliability and credibility, further bolstering the robustness of this review.

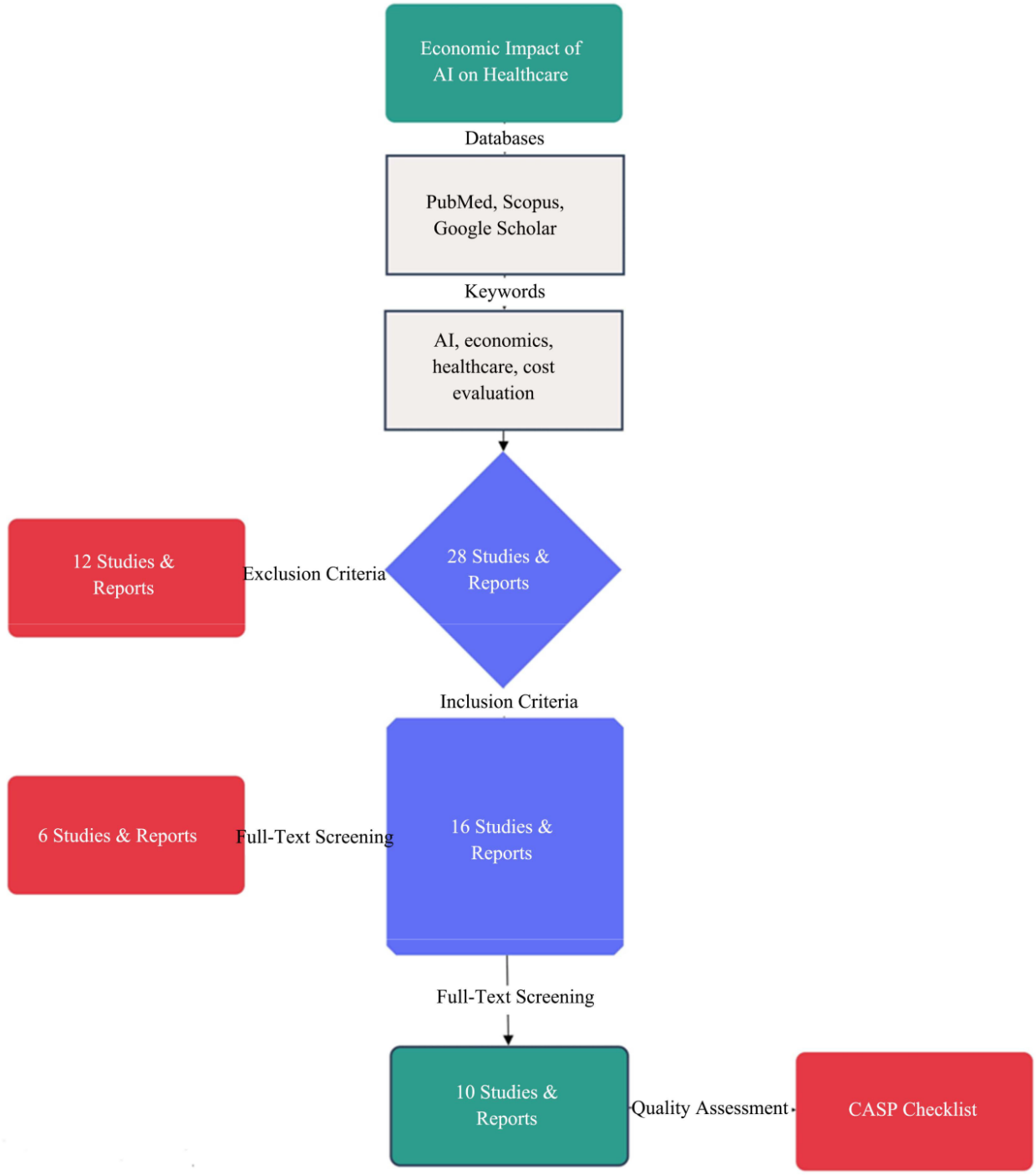
Furthermore, what sets this review apart is its focus on evaluating costs associated with AI in healthcare. The economic impact of AI on healthcare and medicine is a concern as global healthcare expenses continue to escalate. This review offers in-sights for stakeholders considering investing in AI technologies in healthcare by focusing on the cost implications. Our findings shed light on the cost savings and efficiencies that can be achieved, aiding decision-making regarding the adoption and implementation of AI in healthcare and medicine. However, it is important to acknowledge some limitations of this review. The variability in economic evaluation methods used across the included studies might have affected the comparability of our findings. While we encompassed different forms of evaluation, such as cost-effectiveness analysis, cost-utility analysis, cost-benefit analysis, or cost minimization analysis, it is worth noting that each method has its own strengths and weaknesses which may hinder direct comparison. Additionally, there was variation in the quality of studies included, which could have influenced the findings.

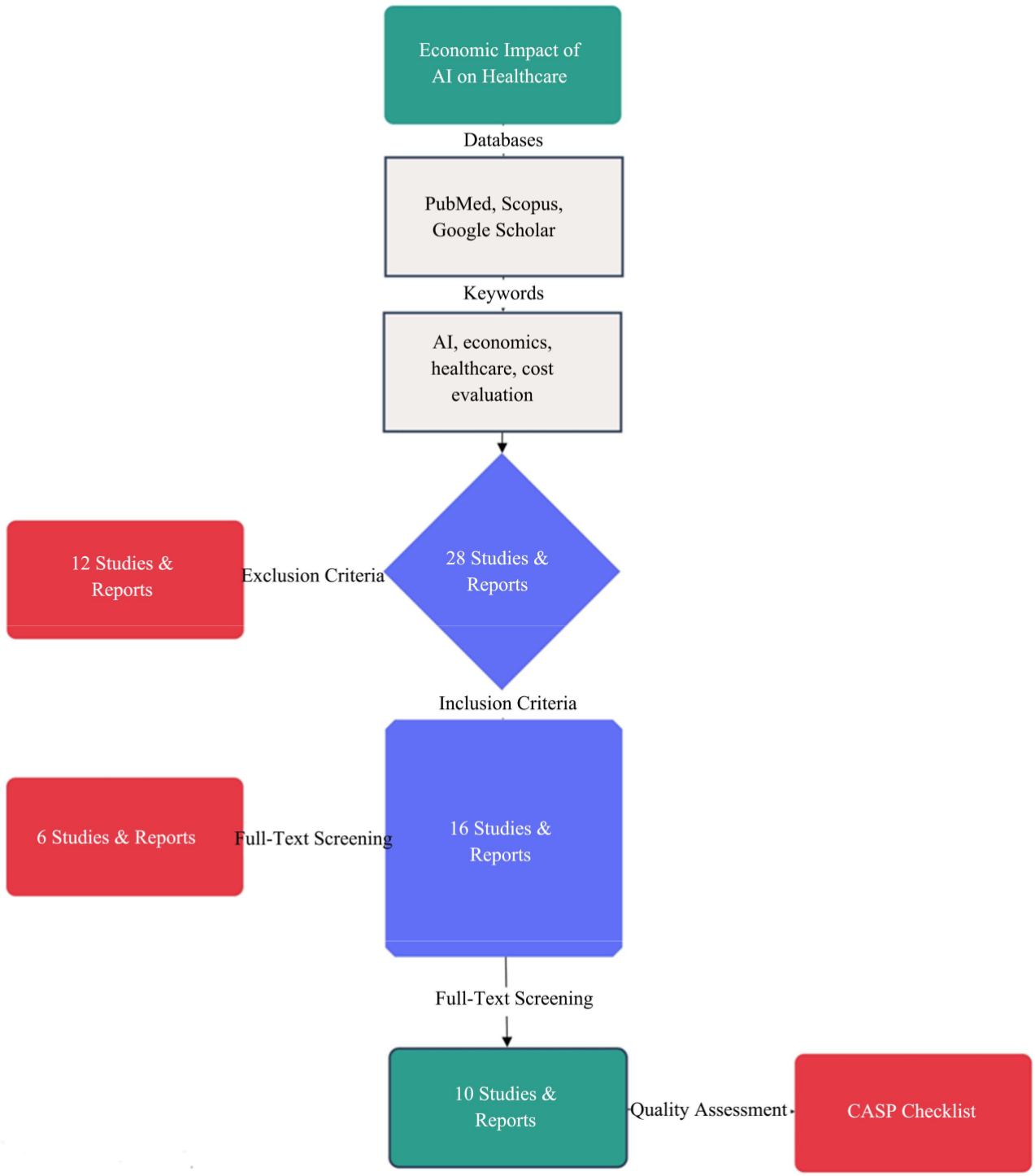
Another limitation is the lack of studies from middle-income countries. Our search primarily yielded studies from high-income countries, potentially limiting generalization to settings. It is crucial to consider that implementing AI in healthcare and medicine might yield costs and benefits in middle-income countries due to variations in health systems and resources compared to high-income countries. Therefore, readers should interpret our findings with this context in mind.

Methodology

This research method is base on a comprehensive strategy. The focus was mainly on developments after the recent hype of AI. So, we ensured that recent and relevant studies on how artificial intelligence (AI) impacts healthcare economically were collected, thus, focusing on publications from 2020 to 2023. Our search encompassed three databases: PubMed, Scopus, and Google Scholar. These databases were selected due to their coverage of health and economic literature.

Our search strategy involved using a combination of keywords and MeSH terms (for PubMed) related to “Artificial Intelligence”, “Economics”, “Health-care”, and “Cost Evaluation”. This approach generated combinations of search terms such as “Artificial Intelligence AND Economics AND Healthcare”, as well as “AI AND Cost Evaluation AND Healthcare”. We did not limit our search based on publication type or geographical location to ensure a broad perspective. However, we did restrict our search to English language studies, articles, and reports. The search results were imported into a reference management soft-ware. In this software, we removed any duplicate citations. Then we carefully re-viewed the remaining citations to determine if they should be included in the re-view.


Economic Impact of AI on Healthcare
Databases
PubMed, Scopus, Google Scholar
Keywords
AI, economics, healthcare, cost evaluation
28 Studies & Reports
Exclusion Criteria
12 Studies & Reports
Inclusion Criteria
16 Studies & Reports
Full-Text Screening
6 Studies & Reports
Full-Text Screening
10 Studies & Reports
Quality Assessment
CASP Checklist



Inclusion and Exclusion Criteria

To decide which articles to include or exclude, we first screened the titles and abstracts of the identified articles. We concentrated on articles that discussed or mentioned the economic impact of AI in healthcare, including its cost-effectiveness or any cost-related implications. After this screening process, we retrieved the full texts of potentially relevant articles for a more detailed assessment. During this detailed assessment stage, our inclusion criteria were

studies that included a cost evaluation related to AI in healthcare. This could take forms such as cost-effectiveness analysis, cost-utility analysis, cost-benefit analysis, or cost-minimization analysis. Any studies that did not include a cost evaluation were excluded from consideration.

Data Extraction

Once we had determined which studies met our inclusion criteria, we used a data extraction form to extract information for our review. The form used for data extraction contained fields such as author(s), publication year, study location, study objective, AI technology investigated, healthcare area or disease studied, type of evaluation employed, key findings, and conclusions. The data from the included studies were extracted by two reviewers independently. Any discrepancies that arose were resolved through consensus or by seeking input from a third reviewer if needed. This approach aimed to ensure the accuracy and reliability of the extracted data.

Assessment of Quality

To assess the quality of the studies included in our review, we utilized the Critical Appraisal Skills Programme (CASP) Economic Evaluation Checklist [16]. This tool is specifically designed to evaluate the quality of economic evaluations. The checklist comprises 12 items that evaluate aspects such as the clarity of study objectives, adequacy of methodology used, validity of data sources utilized, appropriateness of analysis techniques employed, and relevance of findings obtained. Each study was classified as either “high”, “medium”, or “low” quality based on the scores obtained for these items. Two reviewers conducted the quality assessments, with any disagreements resolved through consensus or consultation with a third reviewer if necessary. By employing this process for quality assessment, we aimed to ensure reliability and credibility in our eview.

Results

The literature review has identified studies and reports discussing the economic impact of artificial intelligence (AI) on healthcare. The initial screening yielded 28 studies and reports. After excluding those with no mention of any economic or cost implications of AI on healthcare, the search resulted in 16 studies. The full text screening yielded 10 studies that directly discussed, as a primary or secondary aim of the study, the economic impact of AI in healthcare, which varied in its evaluations from simple cost analysis to advanced cost modelling. The fol-lowing are the findings of the literature review.

AI Cost-Saving in Healthcare

A report by researchers from McKinsey and Harvard suggests that the implementation of AI in healthcare could save the United States up to $360 billion annually. The researchers predict that AI adoption could reduce healthcare spending by 5% to 10%, resulting in savings ranging from $200 billion to $360 billion Pifer, R. (2023). These estimates are predicated on AI applications using existing technologies within five years without compromising quality or accessibility. Private payers could potentially save approximately 7% to 9% of their expenses, equating to $80 billion to $110 billion in annual savings over the next five years. Physician groups, on the other hand, could save between 3% and 8% of costs, equivalent to savings ranging from $20 billion to $60 billion within the next five years Pifer, R. (2023). By leveraging AI-based systems, inefficiencies can be minimized, leading to a cost-effective

healthcare ecosystem. Additionally, organizations can utilize AI technology to maximize their return on investment (ROI) Spatharou et al (2020).

Additionally, Nikhil Sahni and colleagues have estimated that wider implementation of AI in healthcare could result in savings of 5 to 10 percent in US healthcare spending, equivalent to $200 billion to $360 billion annually in 2019 dollars. These estimates are predicated on use cases utilizing technologies achievable within the next five years without compromising quality or accessibility. The article also includes case studies and explores strategies for overcoming challenges associated with implementing AI in healthcare. The authors conclude that the adoption of AI in this field could yield financial benefits such.

AI in Ophthalmology

A research study examining the integration of AI and tele medicine in ophthalmology found that merging these technologies can result in cost savings. After auditing 5456 eye visits, it was estimated that 15% of urgent transfers and 24% of outreach consultations were suitable for tele medicine, leading to a cost reduction of $1.1 million Ramessur et al (2021). Moreover, Ruamviboonsuk and others propose that AI has the potential to enhance quality and reduce costs in ophthalmology significantly. The study emphasizes that most economic data on AI in ophthalmology focus on retinopathy (DR) screening. However, some studies delve into the costs associated with AI software being classified as a medical device, including both research and development investment and ongoing maintenance expenses Ruamviboonsuk, et al (2021).

AI in Radiology

AI in radiology is also seen as having potential for improving healthcare efficiency. According to a study by Leeuwenthe et al. (2022), the integration of AI in radiology shows promise in enhancing healthcare delivery and reducing expenses. The researchers outline six objectives that can benefit from AI implementation, including streamlining workflow, reducing reading time, minimizing the use of contrast agents and radiation dose, enabling early disease detection, enhancing diagnostic accuracy, and facilitating personalized diagnostics. The study suggests that AI can help achieve these objectives by optimizing efficiency, speeding up the interpretation process, reducing reliance on contrast agents and radiation dose levels, detecting diseases, improving diagnostic accuracy rates, and tailoring diagnostics to individual patients. However, it is important to note that there is still limited knowledge regarding how AI impacts healthcare quality, efficiency, and costs Van Leeuwen, et al (2022).

Treatment vs. Diagnosis

In an analysis exploring the cost-effectiveness of AI applications in medicine, researchers found a disparity between studies demonstrating cost-effectiveness in treatment compared to those focusing on diagnosis. Nevertheless, they dis-covered that utilizing AI for screening colonoscopies can serve as a cost-saving strategy for preventing colorectal cancer. Furthermore, AI's cost-effectiveness has been extensively examined for its potential to enhance diagnosis, streamline screening processes, and optimize laboratory tests and surgical appointments. The cost-effectiveness of AI heavily relies on assumed treatment effects following diagnosis. It is particularly sensitive to the fees associated with AI usage. In summary, it is revealed that while the cost-effectiveness of AI in healthcare has been widely investigated, the results are diverse, and the potential for cost savings with AI varies depending on use cases and assumed treatment effects after diagnosis Gomez Rossi, (2022) . In terms of comparing diagnosis with treatment using an AI driven model, a study suggests that saving

time in treatment procedures directly translates into cost savings. However, there are studies demonstrating the cost-effectiveness of treatment compared to those focusing on efficiency. Although specific figures or results regarding cost savings are not provided by the study Khanna, et al (2022).

AI in Decision Support System

Rossi and others analyzed the "Cost-effectiveness of Artificial Intelligence as a Decision Support System Applied to the Detection and Grading of Melanoma, Dental Caries, and Diabetic Retinopathy" by utilizing data from three Markov models used in studies on cost-effectiveness. These models were adjusted to compare AI against standard care in detecting melanoma through skin photo-graphs, dental caries through radiography, and diabetic retinopathy through fund us imaging. The findings indicate that in dermatology, AI exhibited costs of $750 (with a 95% confidence interval ranging from $608 to $970) while yielding 86.5 quality-adjusted life years (QALYs) (with a 95% confidence interval be-tween 84.9 - 87.9 QALYs). In comparison, standard care showed higher costs but fewer QALYs. The findings suggest that AI can effectively detect and assess me-lanoma, dental caries, and diabetic retinopathy at a lower cost compared to standard care Gomez Rossi, (2022).

AI in Intensive Care Units (ICUs)

Finally, a recent study investigated the cost-effectiveness of a machine learning prediction model called Pacmed Critical (PC) compared to care for patients in ICUs. The study used a 1-year 7-state Markov model that reflected the ICU care pathway and incorporated the PC decision tool. The findings demonstrated that PC was a cost-effective strategy and continued to be cost-effective when com-pared to standard care across various scenarios and sensitivity analyses. This study highlights the cost-effectiveness of PC for ICUs within a one-year time-frame, making it one of the pioneering analyses on the economic impact of ma-chine learning devices De Vos et al (20220.

Discussion

This literature review aimed to explore existing evidence on how artificial intelligence (AI) affects healthcare costs. Our key findings indicate that AI has the potential to generate cost savings within the healthcare sector. For example, widespread implementation of AI could potentially reduce healthcare spending by 5% to 10%, saving up to US$360 billion annually in the United States alone. Furthermore, incorporating AI and telemedicine into ophthalmology was found to be a cost-effective approach, with potential annual savings amounting to $1.1 million. These findings seem consistent with results from numerous studies fo-cusing on the economic impact of AI on healthcare, where some form of cost-saving was reported Ali, et al (2023).

Conclusion

The ability to reason logically is an important aspect of intelligence and has always been a major focus of Artificial intelligence (AI) research. This focus has revolutionized Artificial intelligence in virtually every field it has touched. This revolutionizing ability of AI can be of immense benefits to the Nigerian economy and society if AI is deliberately given a priority to strive in the nation. Artificial intelligence (AI) makes it possible for machines to learn from experience, adjust to new inputs and perform human-like tasks.

this paper review offers an overview of the evidence regarding the economic impact of AI on healthcare. This comprehensive literature review aims to explore and synthesize existing knowledge on the economic impact of AI in healthcare. The primary objective of this review is to understand the potential cost savings and efficiency improvements associated with the deployment of AI in healthcare settings. By highlighting the economic impact of AI, this review seeks to offer insights into the value proposition of investing in AI technologies for stakeholders such as healthcare providers, payers, and policymakers. Methods: To conduct this review, we conducted a search of literature from 2020 to 2023 across three databases: PubMed, Scopus and Google Scholar. We specifically focused on studies that discuss the impacts of AI in healthcare and include cost evaluations, using combinations of key-words related to AI, economics, healthcare, and cost evaluation. The inclusion criteria were studies that conducted some form of economic evaluation related to AI in healthcare settings, while exclusion criteria were studies without a cost evaluation component. Data extraction and quality assessment using the CASP checklist were undertaken on the final set of included studies. Results: After screening studies, we identified 10 out of a total of 28 studies and reports that met our criteria of outlining any form of economic impact and evaluation of AI in healthcare settings. Based on our findings, implementing AI in healthcare could potentially lead to cost savings. Several studies suggest savings ranging from $200 billion to $360 billion in the United State alone. The use of AI in healthcare sectors such as ophthalmology, radiology and disease screening will have a positive and significant economic impacts in Nigeria.

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