International Journal of Research in Engineering and Applied Sciences(IJREAS)
Available online at http://euroasiapub.org/journals.php
Vol. 13 Issue 03, March- 2023
ISSN(O): 2249-3905, ISSN(P) : 2349-6525 | Impact Factor: 8.202 |
Thomson Reuters ID: L-5236-2015

"Healing with Algorithms: The AI Revolution in Healthcare"

[1]Sanjay Sharma, [2] Prof. Dr. Shamim Ahmed
[1]Research Scholar, [2]Research Supervisor
Department of Management, NIILM University, Kaithal, Haryana

ABSTRACT

The integration of artificial intelligence (AI) into healthcare systems marks a transformative shift in the delivery of medical services. This paper explores to analyse the perception of healthcare professionals and stakeholders regarding the integration of AI technologies. By surveying a diverse group of healthcare representatives, this research aims to understand their perspectives on AI applications in diagnostics, patient outcomes, data management, and administrative processes.

Furthermore, researcher shed light on the challenges encountered in implementing AI in healthcare settings. This includes examining issues related to data security, patient privacy, diagnostic accuracy, and the overall acceptance and adoption of AI technologies. By identifying these challenges, the study aims to provide insights into the areas that require attention and refinement in the ongoing AI revolution in healthcare.

Through a comprehensive analysis of perceptions and challenges, this paper contributes to the growing discourse on the role of AI in reshaping healthcare delivery. The findings aim to inform healthcare professionals, policymakers, and technology developers, facilitating a more nuanced and informed approach to the integration of AI in the healthcare landscape. As healing increasingly intertwines with algorithms, understanding both the positive perceptions and the challenges becomes imperative for navigating the evolving landscape of AI in healthcare.

Keywords: *Artificial Intelligence, Diagnostics, algorithms, patient care, medical robots.*

International Journal of Research in Engineering and Applied Sciences(IJREAS)
Available online at http://euroasiapub.org/journals.php
Vol. 13 Issue 03, March- 2023
ISSN(O): 2249-3905, ISSN(P) : 2349-6525 | Impact Factor: 8.202 |
Thomson Reuters ID: L-5236-2015

1.INTRODUCTION

Healthcare professionals and services are confronting unprecedented challenges due to shifting demographics, administrative demands, workforce shortages, and rising morbidity, alongside evolving expectations driven by changes in information technology (Innes, 2015). Recent years have witnessed substantial advancements in artificial intelligence (AI) and its integration into healthcare practices. Forecasts indicate that these AI techniques will gradually assume some responsibilities currently handled by clinicians and healthcare administrators (Diprose and Buist, 2016). Nevertheless, there has been considerable exaggeration regarding the capabilities of AI, with occasional assertions that it could entirely replace human clinicians. Such perspectives may not accurately reflect the current limitations of AI systems. A more balanced viewpoint considering both the limitations and potential of AI allows for a nuanced understanding of the areas within the healthcare industry likely to experience significant impacts from these technologies in the near future (Chennu, 2017).

The present paper aims the following objectives:

1. To analyse perception on the incorporations of AI in healthcare.
2. To highlight the challenges encountered in implementing AI.

2.MATERIAL METHOD

The researcher applied exploratory methodologies for the study and based on doctrinal sources. The study conducted through both primary and secondary sources of data. Primary data collected from the 5 hospitals and approached 10 healthcare representatives from each and secondary data collected from books, article and published research papers.

3.RESULT AND DISCUSIION

3.1 Incorporation of AI in healthcare

The potential roles of AI techniques in healthcare delivery and medical research are

International Journal of Research in Engineering and Applied Sciences(IJREAS)
Available online at http://euroasiapub.org/journals.php
Vol. 13 Issue 03, March- 2023
ISSN(O): 2249-3905, ISSN(P) : 2349-6525 | Impact Factor: 8.202 |
Thomson Reuters ID: L-5236-2015

increasingly apparent, as underscored by various studies.

Researcher highlighted, the responses of 50 healthcare representatives on incorporation of AI as shown in table below:

Table: 1.1 Perception on AI incorporation in healthcare

S.no.	***Statement***	***Responses***				
		Strongly Disagree	***Disagree***	***Neutral***	***Agree***	***Strongly Agree***
1.	AI technologies have the potential to significantly improve diagnostic accuracy in healthcare.	2	5	10	25	8
2.	The integration of AI in healthcare has led to improved patient outcomes.	1	3	12	20	14
3.	AI applications are effectively addressing challenges in managing and analysing large volumes of healthcare data.	4	6	8	22	10
4.	The implementation of AI technologies has streamlined administrative processes in healthcare organizations.	3	4	15	18	10
5.	The consideration for data security and patient privacy promotes responsible adoption of AI in healthcare.	2	8	10	18	12

Source: *Created by researcher from questionnaire responses*

The analysis of the responses from 50 healthcare representatives provides valuable insights into their perceptions regarding the incorporation of AI in healthcare.

International Journal of Research in Engineering and Applied Sciences(IJREAS)
Available online at http://euroasiapub.org/journals.php
Vol. 13 Issue 03, March- 2023
ISSN(O): 2249-3905, ISSN(P) : 2349-6525 | Impact Factor: 8.202 |
Thomson Reuters ID: L-5236-2015

1. *AI's Diagnostic Potential:* Regarding AI's diagnostic potential, a majority (53%) agrees or strongly agrees that AI technologies hold significant promise in improving diagnostic accuracy. A notable portion (20%) expresses a neutral stance, suggesting a need for additional information or clarification.
2. *Patient Outcomes Improvement:* In terms of patient outcomes, a substantial majority (68%) agrees or strongly agrees that the integration of AI in healthcare has led to improved patient outcomes. This overwhelming positive response indicates a widespread acknowledgment of the positive impact AI can have on patient care.
3. *Effectiveness in Data Management:* Concerning the effectiveness of AI in data management, 58% of respondents agree or strongly agree that AI applications are effectively addressing challenges in managing and analysing large volumes of healthcare data. However, around 18% remain neutral, indicating a segment with reservations or uncertainties about AI's role in data management.
4. *Administrative Process Streamlining:* The perception of AI streamlining administrative processes in healthcare organizations is slightly mixed. While 54% agree or strongly agree with this statement, about 30% express a neutral stance or disagreement. This suggests varying opinions among respondents regarding the extent to which AI contributes to administrative efficiency.
5. *Data Security and Patient Privacy Consideration:* The consideration for data security and patient privacy in AI adoption is generally well-received, with 58% agreeing or strongly agreeing. However, approximately 20% express a neutral stance, highlighting a segment that may have reservations or concerns about privacy implications.

In summary, the analysis indicates an overall positive perception among healthcare representatives regarding the potential benefits of AI in healthcare, with some variations in opinion on specific aspects such as data management and administrative efficiency. This underscores the importance of ongoing communication and education to address any reservations and ensure a well-informed and positive reception of AI technologies in the healthcare sector.

3.2 Challenges in AI Implementation

Despite the rapid progress and substantial investment in AI and related innovations, caution is warranted due to considerable hyperbole. The full realization of many AI applications' potential is still pending, with technical limitations and distinct challenges in effectively applying AI techniques in healthcare delivery, especially compared to human abilities in vision, language processing, and context-specific reasoning (Taddy, n.d).

Foremost among the considerations in the integration of AI applications is the medico-legal framework (Marcus, 1981). Within existing medical regulations, defining lines of responsibility becomes unclear, especially when AI 'agents' assume supportive or autonomous roles in healthcare (Kingston, 2016). Determining liability for system utilization requires careful consultation between regulatory authorities, legal entities, and diverse stakeholders in health services, including clinicians and software developers.

Another crucial aspect is ensuring comprehensibility of AI agents' clinical decisions, addressing the challenge of transparency in advanced algorithms known as the 'black box' problem. Clinicians should play a central role in AI service development, scrutinizing training data and retaining significant responsibility in overseeing AI utilization (Amato et al., 2013).

A growing concern is the potential bias introduced by AI programs, particularly when algorithms undergo inappropriate sampling and training. Workforce resistance to AI implementation may arise, stemming from both misconceptions and a deep understanding of patient care. As electronic health records adoption faces challenges, change management strategies empowering stakeholders are crucial. Access to context-specific patient data is vital for AI program training and accuracy enhancement (Phillips, 2018). Recent incidents emphasize the sensitivity of health services sharing data with AI developers, emphasizing the need for involvement of clinicians, policy specialists, and patient representatives in crafting protocols for responsible data use and service design.

Clinicians, traditionally cautious in adopting new technology, may resist AI-enabled applications, even with regulatory approval. Active engagement of clinicians in the design

and testing phases is crucial. This involvement builds trust and ensures that applications do not add burdens. User-friendly interfaces and seamless integration with existing health information technology systems are equally important for successful adoption (Alscher and Schmit, 2018).

4.CONCLUSION

In conclusion, the incorporation of artificial intelligence (AI) in healthcare presents a paradigm shift with significant potential benefits, revolutionizing diagnostics, treatment, and overall patient care. The analysis of responses from healthcare representatives reveals an overall positive perception of AI integration in healthcare. The majority recognizes AI's potential for improving diagnostic accuracy and enhancing patient outcomes. While some express confidence in AI's effectiveness in managing healthcare data, opinions on its contribution to administrative efficiency are more varied. Despite variations, responses appreciate the consideration for data security and patient privacy in AI adoption.

However, this transformative journey is not without challenges. Ethical considerations, data privacy concerns, and the imperative for continuous validation and improvement underscore the need for a cautious and responsible approach. Clinician adoption, potential biases in AI algorithms, and the explain ability of machine learning models represent hurdles that demand careful navigation.

While the continuous advancements in AI promise a future of personalized and efficient healthcare, it is crucial to prioritize ethical standards, patient welfare, and responsible development for the successful integration of AI technologies in the evolving healthcare landscape.

5.REFERENCES

Innes G. Sorry—we' re full! Access block and accountability failure in the health care system. CJE 2015; 17: 171–179.

Diprose W and Buist N. Artificial intelligence in medicine: humans need not apply? N Z Med J 2016; 129: 73–76.

Wells J. Canadian Health System, like UK, ‘‘Stretched To Max Capacity’’. American Council

on Science and Health. See https://www.acsh.org/news/2017/08/28/ canadian-health-system-uk-stretched-max-capacity11753.

Xiao C, Choi E and Sun J. Opportunities and challenges in developing risk prediction models with electronic health records data: a systematic review. J Am Med Informatics Assoc 2018; 25: 1419–1428.

Amato F, Lo´pez A, Pen˜a-Me´ndez EM, Van˘hara P, Hampl A and Havel J. Artificial neural networks in medical diagnosis. J Appl Biomed 2013; 11: 47–58.

Ramesh AN, Kambhampati C, Monson JRT and Drew PJ. Artificial intelligence in medicine. Ann R Coll Surg Engl 2004; 86: 334–338.