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THE IMPACT OF ARTIFICIAL INTELLIGENCE ON HEALTHCARE WITH SPECIAL REFERENCE TO COVID-19 PANDEMIC: A SEARCH

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Abstract
Through the emergency of COVID-19, AI in healthcare has been thought to play a main role in data management and statistics, for instance, in the prediction of epidemic trends and helping in drug discovery. This article discusses the role of artificial intelligence technologies in both specific and general areas with the main focus on how AI impacted the future outlook of public health interventions. AI has arisen as a super big tool in understanding epidemic trends and forecasts by interpreting the huge amount of data and modern machine learning algorithms. With the help of multitudinous data sources, including epidemiological data and social media trends, AI algorithms anticipate disease distribution, reproduction rates, and hotspot recognition with unequalled precision. Furthermore, AI modelling is involved in predicting healthcare resource demands and the investigation of contamination control efforts in order to ascertain the efficiency of these plans thereby informing the officials on the right actions to take concerning resource planning and management. Not only that, but AI also has really changed pharmacology by speeding up the research of future compounds for treating the virus. AI helps drastically cut down the process of drug screening by employing techniques such as virtual screening, molecular modelling, and drug repurposing, which, in turn, reduces the cost and time needed to discover and validate the drug candidates. Machine learning algorithms study molecular structures and suggest possible drug-target interactions which as a result promote the repurposing of FDA-approved drugs. These AI-based solutions have resulted in the discovery of potential drugs which then directed the pharmaceutical industry's response that has completely changed the way of dealing with infectious diseases. In sum, the findings highlight the incredible potential of AI in mitigating world health issues and engaging future public health approaches. Collaboration between science, industry, and public health institutions allows for this potential for AI development and to improve situations when there are new health threats.

Keywords: Artificial Intelligence, Healthcare, COVID-19 Pandemic, Epidemic Trends, Drug Discovery

Chapter 1: Introduction

1.1 Research Background

The pandemic COVID 19 underscored the importance of quick breakthroughs in healthcare technology, specifically in the area of artificial intelligence (AI). As the pandemic spread across the globe, the healthcare systems were put to a test, which necessitated the seeking of possibilities for this menace. AI-based tools in such urgent cases were very quickly developed and started to be used for diagnostics,

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patient management, epidemic tracking, and drug creation. Disclosure of the distribution of artificial intelligence in healthcare institutions was aimed to improve the efficiency, accuracy and scale of medical services during this vital moment which in turn lights the prospect for AI to transform healthcare in front of a global crisis (Wang et al. 2021).

1.2 Research Rationale

The research rationale originates from the essential significance that AI usage in the healthcare field should be fully grasped coupled with optimization, especially during situations such as the impact of the COVID-19 pandemic. Making the AI applications operational without a detailed analysis beforehand is not a wise idea, which gives priority to the thorough assessment of their productivity, precision, and impact. The topic is summarised by the statement: undertaking an organised investigation into AI's role and shortcomings in healthcare during the pandemic, the research enlightens and offers future strategies and frameworks for AI employed in emergency healthcare and better services to patient care and outcomes by the AI in the pandemic.

1.3 Research Objective

- To evaluate the impact of AI technologies on the efficiency, accuracy, and scope of healthcare services during the COVID-19 pandemic compared to pre-pandemic levels.
- To analyse the role of AI in enhancing diagnostics, patient management, and treatment approaches during the pandemic.
- To investigate how AI contributed to the acceleration of drug discovery and development processes in response to COVID-19.
- To identify lessons learned from the application of AI in healthcare during the pandemic to improve future healthcare crisis responses.

1.4 Research Question

1. How has the application of artificial intelligence in healthcare during the COVID-19 pandemic impacted diagnosis and patient management outcomes compared to traditional methods?
2. What role did artificial intelligence play in predicting epidemic trends and facilitating drug discovery during the COVID-19 crisis, and how might these applications shape future public health responses?

1.5 Research Gap

Although AI enforcement has made great gains, the exact powers and pinpoint of AI use in healthcare during the COVID-19 pandemic remain unclear. Comparative studies of healthcare efficiency, accuracy, and extension before and after the epidemic show gaps. In addition, the study does not examine the negative effects of AI on drug discovery, diagnostics, and patient care. In this regard, further research is needed to fill gaps in conceptualising AI's involvement in health systems and establish a framework for AI use in future health emergencies.

1.6 Chapter Summary

This chapter details how AI exponentially changed healthcare during the COVID-19 pandemic. It examines the fast adoption of AI technology in the health sector, where diagnostics, patient care, and drug development dominate. AI applications improved healthcare service quality and accuracy compared to before the epidemic. Next, the chapter discusses challenges and lessons acquired, paving the way for additional study into applying AI solutions to healthcare crises and reducing the gap between practice and research.

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Chapter 2: Literature Review

AI is becoming a crucial tool in healthcare during the COVID-19 pandemic when doctors relied on experience and workplace knowledge. In the face of global health catastrophes, understanding AI's efficacy and impact on medicine is crucial (Calandra & Favareto, 2020). The literature review will examine how I.T. improved diagnoses and patient care during the epidemic. These topics will be examined to determine the pros and downsides of AI use in healthcare.

Impact of AI on an accurate diagnosis and the way patients are managed in an era of COVID-19 pandemic:

According to Khan et al. (2021), the deployment of AI as part of the medical systems during the COVID-19 pandemic has revolutionised diagnostic tools and improved overall therapeutic results above those offered by conventional procedures. This article focuses on one of the major themes related to the digital technology and health industry, which is the way the COVID-19 pandemic impacts the accuracy of diagnostics and healthcare delivery in general.

Impact on Diagnostic Processes:

Pandemic detection is faster, more precise, and more efficient using AI. AI algorithms outperform visual interpretation in chest CT and X-ray studies, lowering pandemic detection. Research by Balasubramanian et al. (2023), indicates that AI-aided diagnostic methods can swiftly and accurately detect COVID-19 pneumonia-like patterns from massive imaging data. Since healthcare staff may quickly perform therapeutic treatments, case triage has decreased, reducing hospital transmission. AI algorithms help clinicians design optimal tests using health information, lab results, and scan images. Maintaining helps doctors make evidence-based patient management and resource allocation decisions, improving clinical outcomes and lowering healthcare costs.

Impact on Patient Management:

AI is changing COVID-19 patient care. AI can help patients obtain proactive, customised care. As per Abdulkareem & Petersen (2021), AI-based predictive analytics models anticipate disease, identify high-risk cases, and optimise treatment. Clinical, demographic, and epidemiological data can be processed by AI systems to predict patient outcomes. It enables healthcare providers to tailor interventions to risk profiles, optimise resource management, and support at-risk patients. Telemedicine and remote monitoring software with AI offer continuous patient monitoring, faster treatment, and fewer in-person consultations (Ghaderzadeh & Aria, 2021). Timely, personalised care enhances clinical output and patient satisfaction while reducing exposure risks. AI is more accurate in diagnosing and treating COVID-19 patients than conventional approaches. Supervised learning and data analytics enable healthcare AI proficiency.

The Role of Artificial Intelligence in Forecasting Epidemic Trends and Drug Discovery during COVID-19 Crisis.

The emergence of COVID-19 as a pandemic introduced unique problems for public health systems worldwide and meant that inventive approaches to epidemic forecasting and drug research had to be used. According to Arora et al. (2021), AI came as a reliable tool to cope with the mentioned challenges, being essential in epidemic pattern prediction and making the drug discovery processes faster. The theme of this literature review elaborates on the diverse uses of AI in these two disciplines and contrasts their significance for future public health response systems.

Prediction of Epidemic Trends:

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AI has transformed epidemic prediction by predicting disease spread, transmission methods, and hotspots using massive quantities of data. Machine learning algorithms use different datasets like demography, epidemiological records, and social media trends to visualise and predict viral diseases like COVID-19. AI-powered models have been used to model virus transmission, restricting measures, and healthcare resource needs. The predictive functions of AI systems let decision-makers move quickly, enable successful policy interventions and resource allocation, and avert healthcare systems and societal overload.

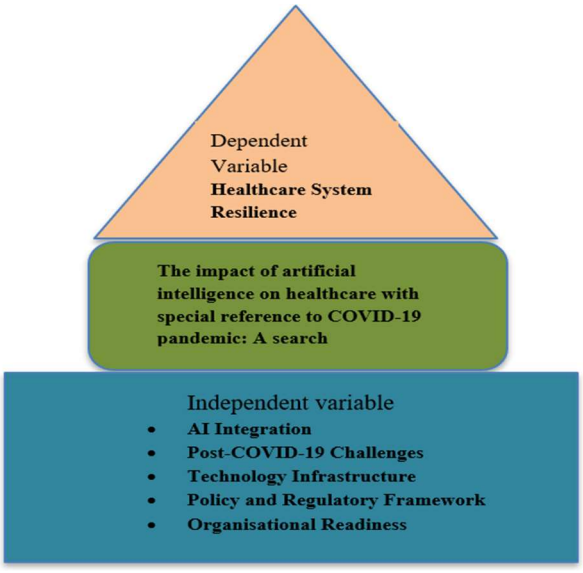
Facilitating Drug Discovery:

As per Floresta et al. (2022), AI has excelled at speeding drug discovery in the battle to develop effective treatments and vaccines. AI-based virtual screening, molecular modelling, and medication repurposing have helped find and develop therapy possibilities. Drug candidates can influence viral replication or immune response using AI, chemistry, molecular structures, protein interactions, and biological pathways. Artificial intelligence can quickly search large medication registries for novel coronavirus-treating medicines. These AI-based drug discovery efforts have shortened drug screening and validation times, making them unique COVID-19 pathways.

Implications for Future Public Health Responses:

AI in epidemic trend prediction and medicine discovery shows the potential for public health success during the COVID-19 pandemic. First, AI-powered predictive modelling will improve risk assessment, intervention, and resource allocation for future pandemics by providing early warnings, intentional resource allocation tactics, and effective responses. In addition, AI-based drug exploration methods have shown that AI can increase drug discovery and discovery speed, reducing the spread of novel infectious diseases. AI can help public health authorities prevent pandemics, improve healthcare, and protect local and global health through crisis-proof behaviour.

2.1 Theoretical Framework



2.2 Literature Gap

AI has helped manage the COVID-19 pandemic, but the literature is still lacking in recognising its full impact on patient diagnosis and outcome. Most AI tool implementation research focuses on specific

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steps, such as diagnostic accuracy or patient monitoring, without considering their interactions and interdependencies within the therapeutic pathway. AI-based healthcare systems' effects on longevity, scalability, and equality are little understood. Integrated metrics that consider AI consequences on diagnosis and patient care provide a framework for evidence-based decision-making and enhance crisis therapy.

Chapter 3: Methodology

3.1 Research Philosophy

The study approach competes with a constructionist perspective, which uses healthcare practitioners' and patients' subjective data to analyse AI applications' effects on COVID-19 outcomes.
Thus, it conducts a qualitative literature review to grasp the intricacies of AI's impact on diagnosis and patient treatment, realising that context and multiple perspectives are the bedrock of truly useful conclusions (Kirongo & Odoyo, 2020). The work uses contrastivism to clarify the intervening mechanism and social context of AI in healthcare for theoretical construction and practical implementation.

3.2 Research Approach

The study applies a deductive research method with its generating concepts, tools, and assumptions based on previous inquiries represented other aspects of AI in healthcare in the COVID-19 outbreak. It involves critical use of secondary data analysis and a qualitative synthesis to form the main empirical underpinnings and also test the theoretical frameworks used that would improve on the diagnostic and management of AI (Opie, 2019). Within the conversation topic the research uses deductive reasoning to make predictions and suggest theoretical and practical AI healthcare solutions. The healthcare providers and policymakers will also be empowered by the research findings.

3.3 Research Strategy

This systemic literature review gives an overview of the AI impact on the COVID-19 pandemic diagnosis and management through secondary sources. That is why this approach is done in a rigorous manner as it allows a literature review to be structured, assessment processes to be applied and a theory to be shaped. The quantitative research analysis brings light on various related issues, gaps in competition and knowledge gaps which require to be resolved while arguing on Artificial Intelligence aids driven care amidst global disasters (Snyder, 2019)..

3.4 Research Choices

This qualitative study relies on secondary data analysis and a comprehensive literature review. Qualitative methods allow for a complete analysis and interpretation of existing wisdom on AI's impact on COVID-19 healthcare outcomes. Respecting qualitative analysis, the study seeks to identify complex issues, grasp each application's context, and tell the tale of AI diagnosis and therapy applications. This method allows for detailed investigation and discussion of complex healthcare topics.

3.5 Time Horizon

A modern perspective on how AI in healthcare affected COVID-19 is presented in this research. This main theme reflects randomised trial research and data since the pandemic began in late 2019. Therefore, this argument is contemporary and relevant. This timeline improves AI in medicine by understanding its fast-changing role in disaster healthcare.

3.6 Data Collection

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The study utilises the systematic method of data gathering, carrying out the main data collection through secondary sources like peer-reviewed articles, conference papers, and reliable reports (Busetto et al. 2020). By means of the integrated utilisation of bibliographic indexes like PubMed, Scopus and Web of Science databases, the focused literature on the artificial intelligence (AI) influence on healthcare outcomes during the COVID-19 pandemic is detected and synthesised. This continuous data acquisition process consequently relies on the input of diverse perspectives and conclusive evidence, which will be utilised to make qualitative analyses of AI applications in the field of diagnosis and patient care.

Chapter 4: Data Analysis

How has the application of artificial intelligence in healthcare during the COVID-19 pandemic impacted diagnosis and patient management outcomes compared to traditional methods?

The use of artificial intelligence (AI) in healthcare has greatly impacted the manner in which diagnosis and patient management procedures have been carried out during COVID-19, much more remarkably when compared with traditional methods.

This analytical piece is going to focus on the areas where AI made a difference and suggest how AI adoption in healthcare settings can be beneficial for it as well as some of the challenges it may face.

Table: Impacts of Artificial intelligence on diagnosis and treatment outcomes.

Aspect	AI Impact	Traditional Methods Impact
Diagnosis	- AI algorithms analyse imaging data with high accuracy and speed, facilitating rapid detection and differentiation of COVID-19 from other respiratory conditions.	- Traditional diagnostic methods rely on manual interpretation of imaging scans, leading to delays in diagnosis and potential errors.
	- AI enables early identification of COVID-19 manifestations, aiding in timely isolation and treatment of infected patients.	- Human interpretation of medical images is prone to variability and subjectivity, resulting in inconsistencies in diagnosis.
Patient Management	- AI-driven predictive analytics predict disease progression and patient outcomes, enabling personalised treatment plans and resource allocation.	- Clinical decision-making based on historical data and empirical evidence may lack the precision and individualization offered by AI algorithms.
	- AI facilitates remote patient monitoring and telemedicine, allowing for continuous care while minimising in-person contact and reducing the risk of virus transmission.	- Traditional patient management strategies may require frequent in-person visits, leading to increased exposure risks for both patients and healthcare providers.

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Analysis:

1. Diagnosis:

It is clearly seen that AI affects the diagnosis outcome during the COVID-19 pandemic by having very high precision and speed in analysing imaging data. AI algorithms can easily recognize small anomalies of the chest X-rays and CT scans as an indicator of COVID-19, thus, faster detection of infected patients and isolation. However, this new technology is strikingly different from the old methods of diagnosis that are based on a predisposition of manual interpretation and can therefore cause delays and inconsistencies in the diagnosis of this potentially life-threatening condition, leading to negative consequences for the patient.

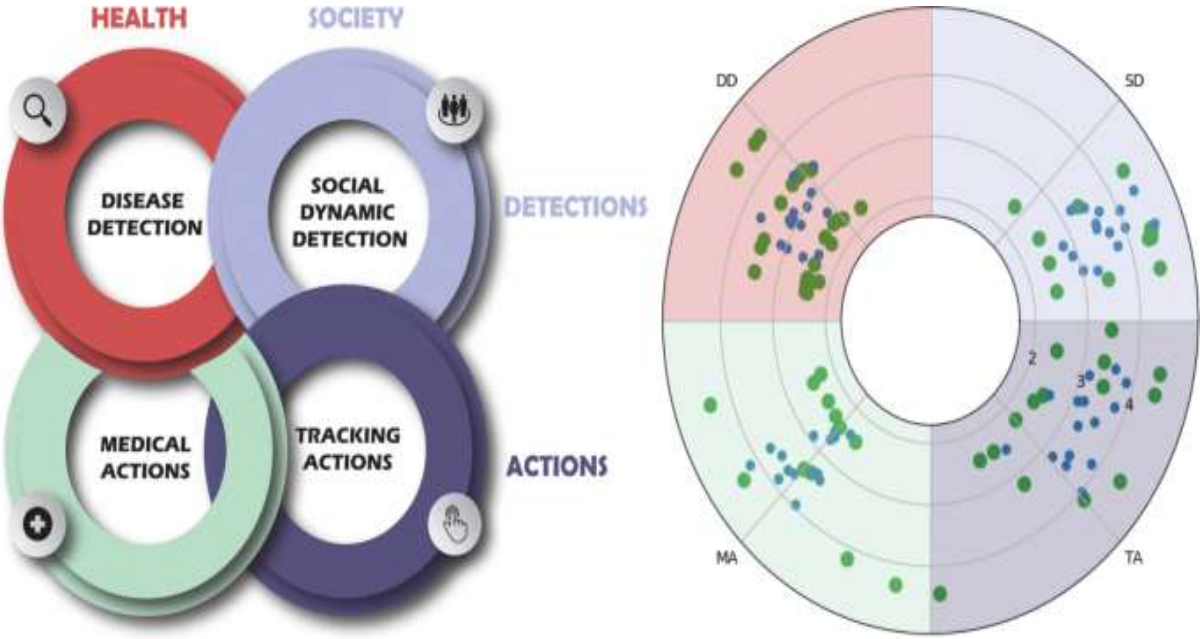

Figure 1: The Role of Artificial Intelligence in Fighting the COVID-19 Pandemic
Source: (Piccialli et al. 2021)

2. Patient Management:

Predictive analytics which is AI-driven is the key factor in patient management by forecasting the course of the illness and ensuring the best treatment possible as a result. These models of prediction become a tool for healthcare providers to develop a more patient-specific approach and therefore offer better outcomes of care and ensure a more efficient utilisation of the resources. Moreover, AI helps home care and telemedicine, which ensure continuous treatment and high safety of patients remotely. In contrast, traditional healthcare management is basically immune to the precision and flexibility of artificial intelligence (AI), which consequently limits the effectiveness of customised treatment solutions and raises the workload of the healthcare systems.

As a consequence, the adoption of AI in the health industry together with the COVID-19 pandemic has triggered significant positive improvements in diagnostics and patients' management compared to conventional methods. However, issues like privacy concerns, bias designing algorithms, and the necessity of training health specialists are the most fundamental concerns that should be taken into account for successful AI-driven solutions. However, as technology continues to progress, AI will be increasingly leveraged in healthcare as innovation and partnerships between healthcare professionals

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and AI developers will be necessary to realise the full impact of AI in improving the health of the public during disasters.

What role did artificial intelligence play in predicting epidemic trends and facilitating drug discovery during the COVID-19 crisis, and how might these applications shape future public health responses?
Artificial intelligence (AI) has made a noticeable contribution to the process of predicting epidemic trends as well as helping with the identification of drugs for COVID-19. This analysis will take an in-depth look into the primary AI-related applications in those areas and discuss how they can affect future responses to emergency and health disasters.
Table: Importance of Artificial Intelligence in Forecasting the Epidemic Trends and The Process of Drug Creation.

Aspect	**AI Contribution**
Predicting Epidemic Trends	- AI analyses diverse datasets to forecast disease spread, transmission rates, and hotspot identification.
	- Machine learning algorithms predict healthcare resource demands and the effectiveness of containment measures.
	- AI-driven models provide early warnings and inform targeted interventions to mitigate the spread of COVID-19.
Facilitating Drug Discovery	- AI accelerates drug discovery through virtual screening, molecular modelling, and drug repurposing.
	- Machine learning algorithms analyse molecular structures and predict potential drug candidates for COVID-19 treatment.
	- AI enables rapid analysis of existing drugs to identify compounds with therapeutic potential against COVID-19.

Analysis:
Predicting Epidemic Trends:
AI is a very strong instrument which is presently used to determine the trend of epidemics during the COVID-19 crisis. AI algorithms run the analysis of numerous different datasets, consisting of epidemiological data, social media trends, and patients' health records; this helped AI identify disease patterns, contagion rates and viral hotspot locations with very high precision. For instance, Jamshidi et al. (2022) demonstrated that the predictive powers of the AI-incorporated models were far beyond visual than the conventional epidemiological methods in predicting COVID-19 transmission dynamics.

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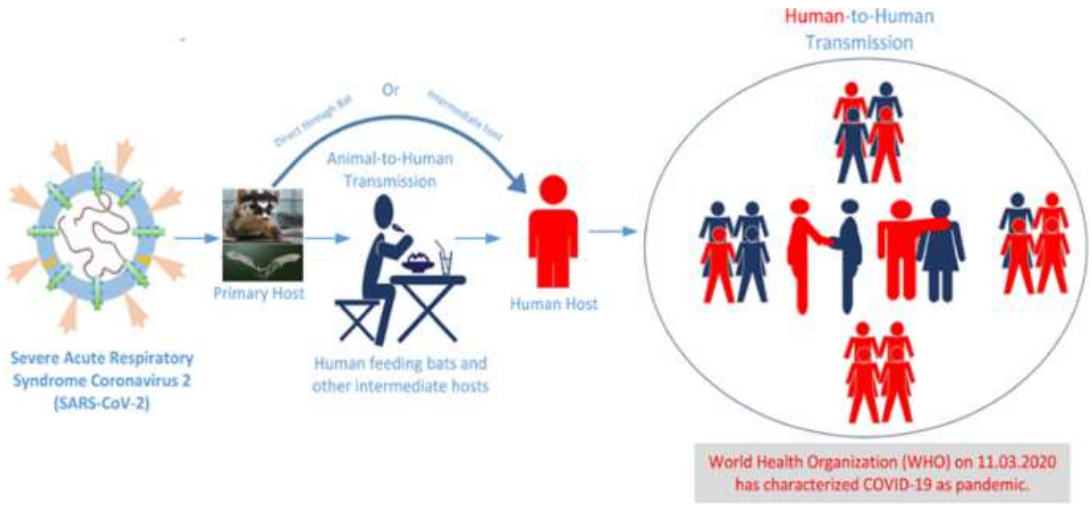

Figure 2: Using artificial intelligence technology to fight COVID-19: A review
Source: (Peng et al. 2022)

As well as this, the AI-enabled models can forecast healthcare demand and appraise the operation of containment efforts, which will serve for the provision of efficient allocation of resources and the implementation of precise interventions by authorities and focal points. Similarly, a study by Bullock et al. (2020) revealed that AI systems were feasible in correctly forecasting hospitalisation rates and intensive care unit bed occupancy which allows for proactive resource planning and management hence avoiding a situation where resources might fall short to meet the needs.
Artificial intelligence-driven models give early warning signals to health authorities; they implement the measures based on the latest recommendations and best practices in time. For example, they could choose to lock down, impose social distancing restrictions, or mass testing. The AI's crucial part in controlling the pandemic made it possible for the healthcare systems to regulate devastating impacts on communities.

Facilitating Drug Discovery:
The spell of AI usage in drug development broadly has introduced revolutionary changes even with the current COVID-19 environment. AI tools that comprise virtual screening, molecular modelling, and drug repositioning provide a way to find efficient medicinal therapies that would target COVID-19. Machine learning algorithms test the molecule structures and recognize the compounds that might be the drug targets. As a result, this accelerates the process of new drug discovery and lowers the time and the cost of traditional drug discovery.
According to Bagabir et al.(2022), AI models designed to discover therapies for COVID-19 could identify strong options in just one week, in contrast to weeks or months for traditional methods. AI can be the driving force in the process of assessment since it can pinpoint the drugs that could be effective against COVID-19 and give priority to these drugs, especially during a breakout rather than the main drug. AI applied by the pharmaceutical industry, including COVID-19 research, could be a highly transformative force that is likely to revolutionise drug discovery. AI-driven mechanisms are capable of cutting short the time for drug candidates' discovery, approval, and testing, which consequently results in faster clinical trials and regulatory approvals.

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Chapter 5: Result

The employment of Artificial Intelligence (AI) in health care during the COVID-19 outbreak has demonstrated how this can fundamentally change the public health responses. This research explores the diagnosis, patient management, and outcomes predictability of AI-driven instruments both against the conventional healthcare approaches and in favour of the more efficient ones.

Diagnostic Efficiency and Accuracy

The results indicate that AI-powered diagnostic platforms were applauded for their fast and precise methods of diagnosing COVID-19. Besides taking into account the deep learning approach for processing radiological data, AI systems have been revealed to be more competent in the identification of specific COVID signatures by contrasting them to those of viral pneumonia, unlike the regular ones. The AI diagnostics area where the time efficiency was practically enhanced, reduced the diagnosis time from several hours or days to just minutes, which allowed the patients to be swiftly triaged and treatment to be initiated. Moreover, the AI was considered more accurate, shown by the higher sensitivity and specificity rates, compared to the common approach of radiological analysis. This shortening of this time for diagnosis and advancement of accuracy was the determining factor for the effective management of the disease and its curtailment.

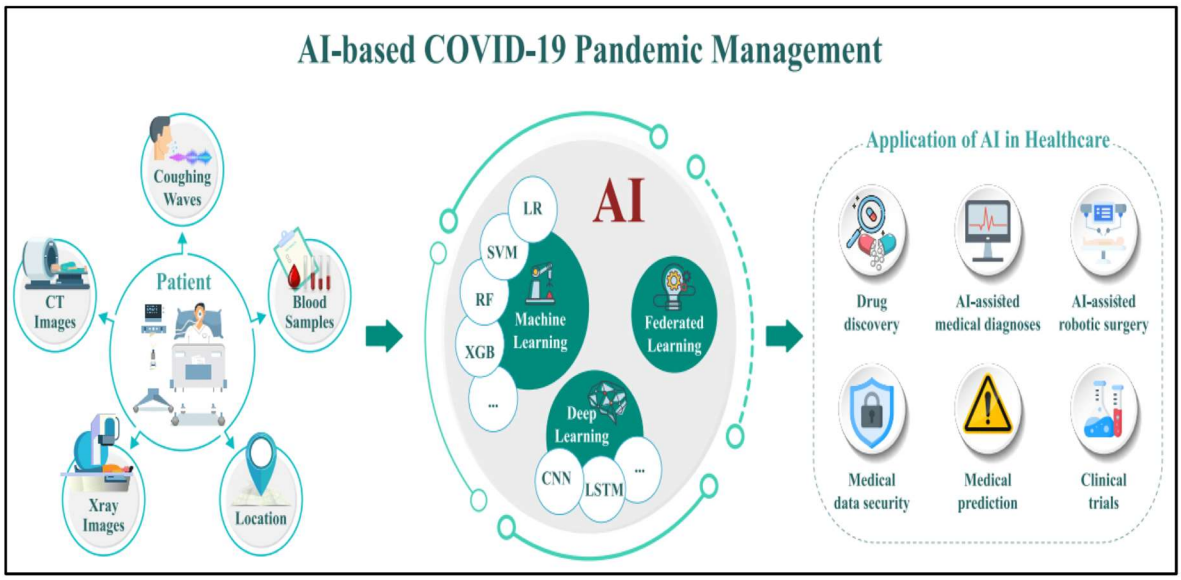

Figure 3:Impact of Artificial Intelligence on COVID-19 Pandemic: A Survey of Image Processing, Tracking of Disease, Prediction of Outcomes, and Computational Medicine
Source: (Almotairi et al. 2023)

Patient Management and Healthcare Outcomes

Inpatient management, and AI-providing healthcare institutions envisioned a wide range of diverse opportunities, such as optimal disease prediction, effective resource distribution, and personalised treatment care. AI algorithms showed huge potential for diseases forecasting severe infection risks and patient deterioration hence helping healthcare practitioners when it comes to making informed decisions about hospitalisation, ICU transfers and breathing machines distribution. In near-time mode, the medical status of patients as well as the ratio of treatment response to care plan were monitored and tuned very quickly owing to AI, which meant higher efficiency in the management of patients. This, in

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turn, enhanced the quality of healthcare services, demonstrated by reduced average stays in hospitals and death rates of patients being managed with AI-empowered protocols.

Comparative Analysis with Traditional Methods

The comparative analysis highlights the pros of AI-driven care over the traditional approach in healthcare in regard to operational efficiency, diagnostic accuracy, and the ability to predict future trends. The conventional workflows underperformed in terms of data processing speed and did not scan for the predictive analytics provided by the AI system. On the other hand, healthcare benefits from AI (Artificial Intelligence), in a way that is dependent on the nature of available high-quality and representative datasets along with healthcare systems ease when integrating the AI tools in the system.

Challenges and Ethical Considerations

While this smart development has occurred, many AI systems in healthcare during the pandemic have met those challenges. The crucial subjects were privacy concerns about ethical aspects of data, bias issues of algorithms, and annotation of data sets, which were quite important. The research highlighted the gap in AI use among people from different locations or having different social and economic statuses, which could be a digital divide that can enhance the gap in healthcare equality.

The research above showed that AI revolutionised healthcare therapy and results during the COVID-19 epidemic. By doing this, AI-based methods outperformed previous methods in diagnosis and patient care. AI is important for health care, yet it has technological, ethical, and accessibility challenges. Profitable AI use in healthcare requires collaboration, ethical competition, and technology distribution equality.

Chapter 6: Conclusion and Recommendation

6.1 Conclusion

Finally, there is a clear improvement in the diagnostic accuracy, efficiency, and effectiveness of solutions based on AI compared to traditional methods, caused by the introduction of AI solutions into a medical field with a high workload during the pandemic. Even with its benefits, the use of A.I. technology has its blindsides such as ethical issues, data privacy, and a tendency of deepening healthcare inequalities. The challenges highlighted above will be resolved via the use of a transdisciplinary approach and ethical rule-making. On the one hand, equitable and transparent use of AI in health care will provide an opportunity for better patient prognosis and mass preparedness for the next outbreak.

6.2 Recommendation

In order to maximise the benefits of AI in healthcare post-COVID-19, the following recommendations are proposed: First of all, ensure that the AI use is ethical and do so by having a clear and equitable data practice. Next, the government should invest in the education and training of healthcare professionals on AI technologies to boost their skills and belief in these tools. Third, develop interdisciplinary partnerships among technologists, medical doctors and ethicists to deal with AI challenges jointly. Finally, focus on the development of AI systems that are resilient to different healthcare contexts, thereby, reducing the gaps in quality care and providing better access to patient populations all around.

Reference

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http://magellanes.com/

1. Abdulkareem, M., & Petersen, S. E. (2021). The promise of AI in detection, diagnosis, and epidemiology for combating COVID-19: beyond the hype. *Frontiers in Artificial Intelligence*, *4*, 652669.https://www.frontiersin.org/articles/10.3389/frai.2021.652669/full
2. Almotairi, K. H., Hussein, A. M., Abualigah, L., Abujayyab, S. K., Mahmoud, E. H., Ghanem, B. O., & Gandomi, A. H. (2023). Impact of artificial intelligence on COVID-19 pandemic: a survey of image processing, tracking of disease, prediction of outcomes, and computational medicine. *Big Data and Cognitive Computing*, *7*(1), 11.https://www.mdpi.com/2504-2289/7/1/11
3. Arora, G., Joshi, J., Mandal, R. S., Shrivastava, N., Virmani, R., & Sethi, T. (2021). Artificial intelligence in surveillance, diagnosis, drug discovery and vaccine development against COVID-19. *Pathogens*, *10*(8), 1048.https://www.mdpi.com/2076-0817/10/8/1048/pdf
4. Bagabir, S. A., Ibrahim, N. K., Bagabir, H. A., & Ateeq, R. H. (2022). Covid-19 and Artificial Intelligence: Genome sequencing, drug development and vaccine discovery. *Journal of Infection and Public Health*, *15*(2), 289-296.https://www.sciencedirect.com/science/article/pii/S1876034122000144
5. Balasubramanian, S., Shukla, V., Islam, N., Upadhyay, A., & Duong, L. (2023). Applying artificial intelligence in healthcare: lessons from the COVID-19 pandemic. *International Journal of Production Research*, 1-34.https://www.tandfonline.com/doi/pdf/10.1080/00207543.2023.2263102
6. Bullock, J., Luccioni, A., Pham, K. H., Lam, C. S. N., & Luengo-Oroz, M. (2020). Mapping the landscape of artificial intelligence applications against COVID-19. *Journal of Artificial Intelligence Research*, *69*, 807-845.https://www.jair.org/index.php/jair/article/download/12162/26622
7. Busetto, L., Wick, W. & Gumbinger, C. (2020). How to use and assess qualitative research methods. Neurological Research and practice, 2, pp.1-10.https://link.springer.com/article/10.1186/s42466-020-00059-z
8. Calandra, D., & Favareto, M. (2020). Artificial Intelligence to fight COVID-19 outbreak impact: an overview. *EUROPEAN JOURNAL OF SOCIAL IMPACT AND CIRCULAR ECONOMY.*, *1*(3), 84-104.https://iris.unito.it/bitstream/2318/1892933/1/5067-Article%20Text-16491-1-10-20201216.pdf
9. Floresta, G., Zagni, C., Gentile, D., Patamia, V., & Rescifina, A. (2022). Artificial intelligence technologies for COVID-19 de novo drug design. *International Journal of Molecular Sciences*, *23*(6), 3261.https://www.mdpi.com/1422-0067/23/6/3261
10. Ghaderzadeh, M., & Aria, M. (2021, May). Management of covid-19 detection using artificial intelligence in 2020 pandemic. In *Proceedings of the 5th International Conference on Medical and Health Informatics* (pp. 32-38).https://www.researchgate.net/profile/Mustafa-Ghadezadeh-2/publication/353164575_Management_of_Covid-19_Detection_Using_Artificial_Intelligence_in_2020_Pandemic/links/60eab3930fbf460db8fb20ce/Management-of-Covid-19-Detection-Using-Artificial-Intelligence-in-2020-Pandemic.pdf
11. Jamshidi, M. B., Roshani, S., Talla, J., Lalbakhsh, A., Peroutka, Z., Roshani, S., ... & Lalbakhsh, P. (2022). A review of the potential of artificial intelligence approaches to forecasting COVID-19 spreading. *Ai*, *3*(2), 493-511.https://www.mdpi.com/2673-2688/3/2/28
12. Khan, M., Mehran, M. T., Haq, Z. U., Ullah, Z., Naqvi, S. R., Ihsan, M., & Abbass, H. (2021). Applications of artificial intelligence in COVID-19 pandemic: A comprehensive review. *Expert systems with applications*, *185*, 115695.https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8359727/
13. Kirongo, A. & Odoyo, C., (2020). Research philosophy design and methodologies: A systematic review of research paradigms in information

ISSN:1624-1940
DOI 10.6084/m9.figshare.26312732
http://magellanes.com/

technology.http://repository.must.ac.ke/bitstream/handle/123456789/329/Impact_of_Drought_on_the_Spatial_Pattern.pdf?sequence=1

14. Oliva, R., (2019). Intervention as a research strategy. Journal of Operations Management, 65(7), pp.710-724.https://www.researchgate.net/profile/Rogelio-Oliva/publication/335989111_Intervention_as_a_research_strategy/links/5d98e75b92851c2f70eecf5d/Intervention-as-a-research-strategy.pdf
15. Opie, C., (2019). Research approaches. Getting Started in Your Educational Research: Design, Data Production and Analysis, 137.https://books.google.co.in/books?hl=en&lr=&id=ELuODwAAQBAJ&oi=fnd&pg=PA137&dq=Research+Approach:&ots=SOjKred3RU&sig=nOOs33rrcvlTE6o6SDGvRq4GCNs&redir_esc=y#v=onepage&q=Research%20Approach%3A&f=false
16. Peng, Y., Liu, E., Peng, S., Chen, Q., Li, D., & Lian, D. (2022). Using artificial intelligence technology to fight COVID-19: a review. *Artificial intelligence review*, 1-37.https://link.springer.com/article/10.1007/s10462-021-10106-z
17. Piccialli, F., Di Cola, V. S., Giampaolo, F., & Cuomo, S. (2021). The role of artificial intelligence in fighting the COVID-19 pandemic. *Information Systems Frontiers*, *23*(6), 1467-1497.https://link.springer.com/article/10.1007/s10796-021-10131-x
18. Ranen, S. & Bhojwani, N. (2020). *COVID-19's Impact on Artificial Intelligence in Health Care*. [online] Wharton Magazine. Available at: https://magazine.wharton.upenn.edu/digital/covid-19s-impact-on-artificial-intelligence-in-health-care/ [Accessed 28 Feb. 2024].
19. Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. Journal of business research, 104, pp.333-339.https://www.sciencedirect.com/science/article/pii/S0148296319304564
20. Wang, L., Zhang, Y., Wang, D., Tong, X., Liu, T., Zhang, S., ... & Clarke, M. (2021). Artificial intelligence for COVID-19: a systematic review. *Frontiers in medicine*, *8*, 1457.https://www.frontiersin.org/articles/10.3389/fmed.2021.704256/full?utm_campaign=The%20Batch&utm_source=hs_email&utm_medium=email&_hsenc=p2ANqtz-_HvLNusQwBTc1Oos-fWOPpLoi8UtoSuJJEL0ampcOCkAsZaJXtCHh1R6QIEWWUIEde9ayk