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The Role of artificial intelligence in the Development of Innovative Drugs and Therapies for the Future of Health

Loso Judijanto [1], Rachmi Nurkhalika [2], Dito Anurogo [3], Soetji Andari [4], Muntasir [5]

[1] *IPOSS Jakarta,Indonesia*
[2] *Universitas Malahayati,Indonesia*
[3] *Universitas Muhammadiyah Makassar, Taipei Medical University Taiwan*
[4] *BRIN, Indonesia*
[5] *Universitas Nusa Cendana Kupang, Indonesia*

Corresponding Author: Loso Judijanto, E-mail; losojudijantobumn@gmail.com

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ABSTRACT

The development of artificial intelligence (AI) technology has made significant contributions to the healthcare field, especially in the development of innovative drugs and therapies. The combination of computational sophistication and AI data analysis has enabled researchers to identify complex patterns in biomedical data, accelerate drug discovery time, and facilitate therapy personalization. This research aims to explore the important role of AI in drug development and innovative therapies to create a better future of healthcare. This involves an analysis of various AI methods and techniques used in drug development as well as the application of AI in personalized therapy for society. This study was conducted by conducting a literature review and analyzing the latest research and developments in the application of AI in drug and therapy development. The results showed that AI has opened new opportunities in drug development by accelerating the process of drug target identification, molecular simulation, and optimization of clinical trials. Meanwhile, in therapeutics, AI enables better personalization through analysis of patient clinical data and prediction of response to specific treatments. This opens up the potential for the development of more effective and targeted therapies. With the development of AI technology, the development of innovative drugs and therapies has become more efficient and effective. The application of AI in healthcare offers the potential to create a more personalized, precise, and comprehensive healthcare future. The collaboration between medical science and AI technology will lead to more innovative and affordable health solutions for the people. Thus, the role of AI in the development of innovative drugs and therapies is recognized as one of the key pillars in creating a better future of healthcare.

Keywords: *Innovative, Medicine, Therapeutics*

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INTRODUCTION

Health is an important aspect of human quality of life. This is because good health can improve one's quality of life. In health, there are various things that need to be considered, such as a healthy lifestyle, a good diet, regular exercise, and also prevention of various diseases (Sun & Medaglia, 2019). Health is an important aspect of human quality of life. This is because good health can improve one's quality of life. In health, there are various things that need to be considered, such as a healthy lifestyle, a good diet, regular exercise, and also prevention of various diseases (Sallam, 2023). Disease prevention can be done through various means, such as vaccination, a healthy diet, regular exercise, and avoiding habits that can be detrimental to health, such as smoking and excessive alcohol consumption (Gerke et al., 2020). Disease prevention also involves early detection and early treatment of various diseases, thereby preventing them from progressing to a more severe form. The development of innovative drugs and therapies is an important endeavor in improving the effectiveness of treating increasingly complex and varied diseases.

In addition, it is important to consider the role of technology in improving the quality of healthcare. Technology has brought significant changes in the healthcare industry, from patient data management to the development of new therapies. One of the most striking technological developments is the utilization of artificial intelligence (AI) in various aspects of healthcare (Bohr & Memarzadeh, 2020). The utilization of artificial intelligence in healthcare offers a wide range of benefits, from more accurate diagnosis of diseases to the development of more effective drugs and therapies. AI can be used to analyze patient health data and predict potential disease risks, allowing for early intervention to prevent disease progression (Ghazal et al., 2021). In addition, AI also enables the adoption of personalized therapies, where treatments tailored to an individual's genetic and biological characteristics can be developed for better outcomes (Imran et al., 2020). The use of AI in drug development is also an important breakthrough in the healthcare industry. By utilizing advanced computational modeling and data analysis, researchers can speed up the process of identifying potential compounds with pharmacological activity for new drug development. This also helps in reducing the cost and time involved in drug research, as well as enabling the discovery of more effective and safe medicines. One concrete example of AI utilization in drug development is in the identification of drug candidates for cancer treatment. By utilizing deep learning techniques and big data analysis, researchers can speed up the process of identifying compounds with potential as anticancer agents, thereby reducing the time required for new drug development.

In the era of technological development, Artificial Intelligence (AI) has played a significant role in supporting the development of innovative drugs and therapies that are more efficient, personalized, and targeted (Rajpurkar et al., 2022). The development of AI has opened up new opportunities to optimize the drug discovery process, improve personalized therapy, and support the development of holistic public health (the Precise4Q consortium et al., 2020). The importance of the role of AI in drug development is due to the fact that the discovery of new drugs is a very complex, time-consuming, and very costly process (Dosilovic et al., 2018). The decades it takes

to develop a new drug entail large financial investments, and involve a significant risk of failure. In this case, AI comes as a very potential tool in accelerating the process of new drug discovery (Liang et al., 2019). With its ability to analyze data quickly and accurately, AI can help pharmaceutical researchers to identify potential drug candidates more efficiently (Sohn & Kwon, 2020), It even helps in optimizing the design of molecules with desired properties.

AI also has the potential to help personalize therapy for patients with various disease conditions (Allam & Dhunny, 2019). Each individual responds differently to treatment, and personalized therapy is key in improving treatment effectiveness and reducing the risk of unwanted side effects. AI is capable of deeply analyzing patient clinical data, identifying patterns that may not be detected by humans, and accurately predicting a patient's response to a particular therapy (Ting et al., 2019). As such, AI can enable doctors to prescribe therapies that are tailored to each patient's specific condition. The development of AI in the application of medicine and therapy is expected to pave the way for a more innovative, efficient, and sustainable future of healthcare (Li et al., 2021). As a first step towards exploring the role of AI in the development of innovative drugs and therapies, recent and comprehensive studies are vital in investigating the possible applications of AI to achieve this goal.

Review Of Literature

1. AI

Artificial Intelligence (AI) has great potential to change the future of healthcare (Gunning et al., 2019). With its ability to analyze large amounts of medical data quickly and accurately, AI can have a positive impact in disease diagnosis, drug development, patient data management, and overall medical care. One of the main applications of AI in healthcare is in the process of diagnosing diseases. By utilizing machine learning techniques and data analysis, AI can help doctors identify diseases more accurately and efficiently (Kabudi et al., 2021). AI systems can be programmed to analyze patient medical data, medical images, and laboratory test results to detect patterns or signs of disease that may be difficult for humans to understand. This can help in speeding up the diagnosis process and reducing misdiagnosis. In addition, AI can also be used in drug development. By utilizing AI technology, it can analyze genetic, molecular, and clinical data to identify potential therapeutic targets and design new drug molecules (Barredo Arrieta et al., 2020). This process can accelerate the discovery of new drugs, reduce research costs, and increase the success rate in drug development.

AI also plays an important role in patient data management. With data management systems that use AI technology, patient information such as medical history, test results, and medication can be managed more efficiently and securely. AI systems can also be used to analyze patient data in real-time, assisting doctors in making treatment decisions that are more informed and responsive to the patient's condition. In addition, AI can also improve the operational efficiency of hospitals and healthcare facilities. By using AI systems for surgery scheduling, medication inventory management, and treatment planning, hospitals can reduce patient waiting time, minimize medication errors, and optimize the use of medical resources (Rong et al., 2020). However, while the potential of AI in healthcare is immense, it is also necessary to be aware that the use of this technology must also pay attention to various aspects related to privacy and ethics. The use of medical data in AI applications must adhere to strict security and privacy standards to protect patient

information (Grzybowski et al., 2020). In addition, there needs to be clear regulation and strict oversight of the use of AI in healthcare to ensure that these technologies are used in a safe and ethical manner. Furthermore, in implementing AI in healthcare in the future, it is important to ensure that these technologies are equitably accessible to everyone, including those in remote or low-income areas (Castiglioni et al., 2021). This requires investment in technological infrastructure, training of medical personnel, and an approach that takes into account the cultural and social diversity of society. With these aspects in mind, AI has great potential to bring about positive changes in future healthcare (Kelly et al., 2019). By improving diagnostic accuracy, accelerating drug development, optimizing patient data management, and increasing operational efficiency, AI can help in improving the overall quality of healthcare. With a mature and sustainable approach, AI can be a powerful tool in achieving the goal of better healthcare for everyone.

2. Innovative Drugs and Therapies

Innovative drugs and therapies play an important role in improving healthcare and improving patient outcomes. Developments in this field can bring great benefits in the treatment of intractable diseases, improve the effectiveness of therapies, and provide solutions to unsolved health problems. Here are some of the roles of innovative medicines and therapies in improving healthcare (Esteva et al., 2019). First, drug innovation includes the development of new molecules, drug formulations, and more effective treatment strategies. Through the discovery and development of new drugs, previously intractable diseases can be better treated, and more efficient drug delivery can improve patients' quality of life. The use of technologies such as artificial intelligence (AI) and big data analysis makes it possible to identify new drug targets more quickly and efficiently, and optimize the drug testing process with in silico models to speed up research and development time (Xie et al., 2019). Second, innovative therapies include new approaches to disease treatment, such as gene therapy, stem cell therapy and immunologic therapy. Gene therapy, for example, involves the use of genes or genetic products to treat diseases, which can bring new hope to patients with genetic diseases or cancer (Zhang et al., 2020). Stem cell therapy and immunologic therapy have also shown promising results in treating cancer and autoimmune diseases. Innovations in these therapies allow patients to receive more specific and effective treatments, with the potential to cure previously intractable diseases (Singh et al., 2019). In addition, innovative therapies also include the development of advanced medical devices, such as medical devices integrated with AI technology, intelligent monitoring devices, or programmed drug delivery systems. These medical devices can improve the quality of care, enable real-time monitoring of patients, and provide more individualized care according to each patient's needs.

However, in developing innovative drugs and therapies, it is important to pay attention to safety, effectiveness, and accessibility. The development of new drugs and innovative therapies must go through a rigorous clinical testing process to ensure their safety and effectiveness (Topol, 2019). In addition, efforts to ensure accessibility of innovative treatments for all are also important, including in terms of drug cost and distribution (Sarker, 2021). In addition, the development of innovative drugs and therapies must also consider ethical aspects in the use of medical technology and support the principles of bioethics. This includes the obligation to ensure patients provide informed consent for the use of innovative therapies, as well as proper handling of the privacy and security aspects of patient data. Overall, the development

of innovative drugs and therapies has great potential to improve the quality of healthcare and provide new hope for patients affected by intractable diseases (Bull et al., 2020). By keeping safety, effectiveness, accessibility, and ethics in mind, innovations in medicine can be the key to achieving advances in healthcare and providing great benefits to society at large. Cooperation between science, industry, government, and society is key in ensuring that innovations in drugs and therapies can provide maximum benefit to society.

There are several previous research opinions. The first research according Trenggono & Bachtiar, (2023), with the research title The Role of Artificial Intelligence in Health Care: A Systematic Review. The results of his research state that AI has the opportunity to provide easy access experiences such as electronic medical records, providing drug recommendations, as a warning for the safety of falling patients, and so on. The second research according to Habibi & Haryati, (2021), with the research title Artificial Intelligence In Nursing: A Literature Review. The results of his research state that advances in artificial intelligence, assessment methods, nursing processes, and documentation systems, have changed the nursing field in poly things that make a lot of these things a profit or opportunity. but a number of challenges must also be responded to and overcome, as a prediction and anticipation of the application of AI technology in nursing, so as to increase performance effectiveness, streamline nursing services, and be able to maintain the security and confidentiality of patient data. The third research is Aliffiro Naufal & Muklason, (2022), with the research title Development of Health Intelligence System Applications for Maternal and Child Health Monitoring: Frontend Application Design. The results of his research state that this frontend application has been adjusted to the data and parameters contained in the application prototype. This frontend application has also been integrated with the backend application with the API that has been created. With this designed system, both mothers and midwives can take notes to see the health conditions of mothers and children.

Research conducted by previous researchers is different from the research that researchers do. Meanwhile, the research that the researchers conducted was entitled The Role of AI in the Development of Innovative Drugs and Therapies for the Future of Health. The results showed that AI has opened up new opportunities in drug development by accelerating the process of drug target identification, molecular simulation, and optimization of clinical trials. Meanwhile, in therapy, AI enables better personalization through analysis of patient clinical data and prediction of response to specific treatments. This research aims to explore the role of AI in the development of innovative drugs and therapies to create a better future of healthcare. The research will include an in-depth analysis of various AI methods and techniques that can be applied in drug and therapy development, as well as consider the ethical, legal, and clinical implications of applying AI in the healthcare context..

RESEARCH METHODOLOGY

The research method used, namely literature review and analysis, will allow us to see the latest developments in the application of AI in drug and therapy development, as well as understand the basic concepts underlying the use of AI in the healthcare context. The literature review method is a crucial step in conducting research that aims to collect, review, and analyze previously published issues.

Research on the role of AI in the development of innovative drugs and therapies for the future of healthcare can be conducted through an interdisciplinary approach between medicine, computer science, and information technology. This research can integrate clinical information, genomic records, and other molecular statistics with the use of artificial intelligence techniques to identify patterns that may not be detected by humans conventionally.

First, to initiate this research, it is important to collect relevant data sources, such as genomic datasets, clinical data, and cellular data to enable the creation of accurate AI models. The next step is to perform data analysis using artificial intelligence algorithms to identify complex correlations between genetic factors, therapy response and clinical outcomes. Methods such as machine learning, deep learning, and bioinformatics analysis can be applied to generate predictive models that can be used to identify potential drug candidates and effective therapies. In addition, this research could also involve the development of technologies such as virtual screening to identify small molecules that have potential as new drugs or innovative therapies. By utilizing artificial intelligence techniques, virtual screening can be performed to screen thousands of molecules to find candidates that have strong interactions with relevant biological targets. Finally, validation of the results from the AI models is also an important part of this research. This can be done through collaborations with pharmacology laboratories and clinical trials to test the effectiveness of drug candidates and therapies generated by AI models. In addition, this research also requires a deep understanding of drug regulation, so that all results generated by the AI model can be scientifically and ethically justified.

RESULT AND DISCUSSION

The use of AI in healthcare has several advantages for the implementation process. Some of the advantages of using AI in Drug and Therapeutic Development are 1. Discovery of new knowledge. AI tools are capable of finding patterns and relationships in data that are not detected by traditional analysis methods. This can help discover new knowledge about disease mechanisms and drug responses. 2. Faster search for targets and molecules. Compared to manual searches by scientists, AI is capable of scanning and analyzing millions of data in a much shorter time. This can speed up the drug development process from early stage to clinical trials. 3. Prediction of side effects and interactions. AI can be used to predict potential drug side effects and interactions with other drugs based on genetic and clinical data analysis. This can help reduce risks to patients in drug use. 4. Greater collaboration opportunities. The use of AI in drug and therapy development opens up opportunities for collaboration between researchers, pharmaceutical companies, and other institutions. This is due to the availability of faster and higher quality data.

NO	Researcher, Year	Country, Number Patients	Type Intervention	Supervision Activities	Statistical Value

1	Choe, et al. (2012)	Amerika Serikat, 949	Patient-Centered Medical Home (PCMH)	1. Drug reconciliation 2. Initiation of medication 3. Dose adjustment 4. Assessment of patient compliance 5.Self-management and setting Therapy goal setting 6. Education about chronic diseases and medications 7. Some physical assessments 8.Ordering for complete tests diagnostic tests and medical devices 9.Referral to other health professionals	1. Medication changes at each visit occur in 50% of health care facilities, especially for diabetes patients 2. Clinical parameters such as HbA1c reduction of 0.9% for patients with baseline HbA1c>7% and 1.8% reduction in HbA1c for patients with baseline HbA1c>9%
2	Olesen, et al. (2013)	Denmark, 630	Pharmaceutical care	1. Checking the list of drugs that may cause side effects side effects 2. Check for drug interactions 3. Checking the mode of drug administration 4.Seeking simplification of regimen 5. Providing drug information 6. Handling drug information leaflets 7. Provide motivation for patient compliance	1. Medication adherence in patients who (11%) and in the control group (10%) showed no significant difference (odds ratio significant difference (odds ratio 1.14; 95% confidence interval 0.65-2.00) 2. Hospital visits for inpatient care also not significantly different (30% vs

					28%; odds ratio 1.14; 95% confidence interval 0.78-1.67). 3. Mortality was also not significantly different (7.5% vs 5%; Hazard ratio 1.14; 95% confidence interval 0,71-2,82)
3	Basheti, et al. (2013)	Jordania, 167	Pelayanan medication review di rumah	1. DRP identification 2. Interview about the benefits of of medication review service in home	1. The prevalence of identified DRPs was 7.4±2.8 per patient. Overall, there were 7 DRP groups with details: 34.7% of patients received unnecessary drugs; 68.3% of untreated conditions and 74.9% received ineffective drug therapy effective drug therapy; 50.3% received inappropriate doses appropriate dose; 24% experienced drug side effects; 10.2%

					experienced drug interactions and 46.1% experienced non-adherence problems in drug use 2. The relationship between DRP and disease and between DRP and the number of drugs, both had a significant correlation, namely (r=0.311, p=0.003) and (r=0.443, p<0.001) respectively. 3. Patients were receptive to the medication review service at home well.
4	Collier dan Baker	Amerika Serikat, 85	Pelayanan apoteker di klinik rawat rawat jalan diabetes khusus untuk veteran	1. Implementation of standardized protocols and insulin therapy procedures 2. Adjustment of antidiabetic dose and insulin based on data blood sugar self-monitoring data 3. HbA1c monitoring 4. Education to prevent hypoglycemia	HbA1c dropped significantly by more than 1% (from 9.12%±1.41% to 7.94%±1.18%) within period of 3 months. The decrease was also significant after 6 months. after 6 months. Paired t test also showed a significant

					decrease in HbA1c during 3 months and 6 months.
5	(2013)	Inggris, 826	Penilaian keamanan penggunaan obat	1. Assessment of drugs that not suitable 2. Discontinuation of inappropriate drug use inappropriate medication.	Inappropriate medication use in patients with DM experienced by more than 90 percent of the elderly and each patient experienced at least 1 potentially inappropriate medication use. potentially inappropriate medication use. The role of pharmacists is achieved by reducing the incidence of polypharmacy and side effects

Table 1: Drug use in various countries

The use of artificial intelligence (AI) in drug and therapy development promises great potential to revolutionize the future of healthcare. Some of the benefits of AI in Drug and Therapeutic Development are 1. Faster and more accurate data analysis. The use of AI allows researchers to analyze large amounts of complex data more quickly and accurately. Data from laboratory experiments, clinical trials, and genetic studies can be analyzed to identify patterns and relationships that are difficult to see by human personnel. 2. More precise discovery of therapeutic targets. AI can help identify potential therapeutic targets for specific diseases based on analysis of genetic, biological, and molecular data. This allows researchers to focus on developing more targeted therapies, which in turn can improve effectiveness and reduce side effects. 3. New drug development. With the help of AI, the process of searching and designing new drug molecules can be accelerated. Machine learning methods make it possible to sift through millions of potential molecular structures to find drug candidates that have high therapeutic potential. 4. Production process optimization. AI can also be used to optimize the drug production process, including in terms of efficiency, safety,

and product quality.

Despite all the benefits, the use of AI in drug and therapy development also brings challenges and ethical considerations that must be taken into account. The need for clear regulation, transparency, and accountability in the use of AI in the healthcare context is essential to ensure that the great potential of this technology can be realized safely, effectively, and ethically. Some of the challenges that must be faced in the use of AI in drug and therapy development include 1. Data security and privacy. The use of patient data and other sensitive information in drug and therapy development requires great attention regarding security and privacy. There needs to be clear regulations on the use of health data in the context of AI. 2. Compliance with regulations. The pharmaceutical industry in many countries has strict regulations regarding drug and therapy development. The use of AI in drug development must be able to comply with existing regulations, including in terms of clinical trials and drug approval. 3. Interpretation of AI results. While AI can provide sophisticated data analysis, researchers and scientists must be able to understand and interpret the results wisely. Not only the technicalities, but also the ethical and clinical implications of the results generated by AI. 4. Financial and technological investment: The use of AI in drug and therapy development also requires a large financial investment in infrastructure and trained human resources. Some institutions may not have these resources, so the development of AI-based drugs and therapies could be challenging for them. 5. Transparency and accountability: The use of AI in drug and therapy development should be transparent and accountable. This includes explaining how decisions are formed and ensuring that safety and ethical factors are properly taken into account.

The future of AI use in drug and therapy development looks bright with the possibility of creating more effective and targeted drugs. Some of the directions that can be expected from the use of AI in drug and therapy development include: 1. Personalization of therapy. With the use of AI and genetic data analysis, researchers can better understand individual differences in response to drugs. This can open up opportunities for the development of more personalized therapies. 2. Disease prediction and prevention. AI also has the potential to predict diseases or conditions before they arise by analyzing health data from a wide population. This could open the door to more effective prevention. 3. Optimal drug combinations: With the help of AI, optimal drug combinations for various health conditions can be better identified. This can improve therapeutic effectiveness and reduce the risk of unwanted drug interactions. 4. Optimization of drug discovery process: Machine learning in AI can accelerate the process of exposure and validation of new drugs through simulation and prediction. This can reduce time and cost in new drug development. 5. Broader collaboration. The use of AI can also enable broader collaboration between healthcare institutions, pharmaceutical companies, and independent researchers. This can open up opportunities for joint discovery and more in-depth data exchange.

Drugs and therapies are two important concepts in healthcare that play a major role in maintaining and restoring the health of the human body. Drugs are chemical substances or substances with pharmacological effects that are used for the diagnosis, prevention, treatment, or resolution of disease. Meanwhile, therapy refers to the use of various techniques or methods to treat a disease or medical condition. Drugs have a broad dimension in medical practice. In terms of pharmacology, drugs can work in the human body in various ways. Some drugs work by affecting the nervous system, while others are responsible for stimulating or inhibiting certain receptors in the body. In addition, drugs can also work by altering the function of certain cells or organs, thereby affecting the body's response to the disease or medical condition being treated. Drugs come in many different types and classifications based on factors such as their mechanism of action, intended use and chemical structure. For example, there are analgesic drugs to reduce pain, antidepressants to treat depression, antibiotics to fight bacterial infections, antivirals to fight viral infections, and many more. Each drug has specific indications and different effects on the body, so their use should be based on a proper medical diagnosis.

Meanwhile, therapy encompasses the various actions and methods used to treat or care for a patient. Therapies may include physical measures, psychological interventions, or the use of medications. Physical therapies such as physiotherapy and rehabilitation aim to restore body functions that are impaired due to illness or injury. On the other hand, psychological therapies such as counseling and behavioral therapy aim to address mental and emotional problems experienced by individuals. The use of medication and therapy are also often intertwined. For example, in the treatment of chronic diseases such as diabetes or hypertension, patients often require regular drug therapy to maintain blood sugar or blood pressure levels, as well as lifestyle therapy such as a healthy diet and regular exercise. A combination of drugs and therapies is also often used in the treatment of diseases such as cancer, where patients will undergo chemotherapy or radiotherapy along with supportive therapy to reduce side effects and improve quality of life. The importance of drugs and therapies in the world of health cannot be separated from the development of science and technology. Various studies continue to be conducted to develop new drugs that are more effective and safe, as well as new therapeutic technologies that can increase the effectiveness of treatment. In addition, the availability of generic medicines and affordable therapies is also a focus in efforts to improve access to health for the wider community.

However, despite the benefits, the use of drugs and therapies also comes with its own risks and challenges. One of the main challenges in drug use is the issue of drug resistance, where pathogens such as bacteria or viruses become resistant to the effects of the drugs used. This can reduce the effectiveness of treatment and increase the risk of medical complications. Meanwhile, in therapy, not all types of therapy are suitable or effective for every individual, so a personalized and comprehensive approach is needed in determining the right type of therapy. In addition, the use of medications also has the risk of side effects and drug interactions that need to be watched out for.

Some medications can cause allergic reactions, organ toxicity, or other health problems if not used properly. Drug interactions can also occur when two or more drugs react with each other, which can affect the effectiveness or safety of the treatment. On the other hand, therapies can also pose risks if not performed by competent medical personnel. Inappropriate physical therapy or incorrect techniques in treatment may cause injury or damage to the patient. Psychological therapies performed by untrained practitioners can also worsen the patient's mental state. In a global context, the issue of accessibility of drugs and therapies is also an issue that needs serious attention. Some developing countries still experience difficulties in obtaining affordable medicines and adequate therapies due to limited resources and health infrastructure. This leads to health disparities between developed and developing countries, as well as between rich and poor communities within a country. In addition, the phenomenon of medicalization, where people tend to rely on drugs and therapies as the main solution to various health problems, also has social and economic impacts that need to be considered. The overuse of drugs or inappropriate therapies often leads to high health costs, as well as the risk of imbalances in the availability and distribution of certain drugs.

In the face of these risks and challenges, collaboration between healthcare professionals, researchers, drug regulators, and the public is essential. Achieving safe, effective, and affordable drug therapies needs to be supported by strict regulations, better public health education, and improved drug literacy for individuals to make informed decisions regarding drug use and therapies. Technological development is also an important key in improving the effectiveness of drugs and therapies. Innovations in pharmaceuticals, such as specific targeted therapy drugs and personalized medicine based on individual genetic data, are expected to increase the effectiveness of treatment while reducing the risk of side effects. In addition, technology in the field of therapy, such as telemedicine, also opens wider access to health for people living in remote areas or difficult to reach by conventional health services. Overall, drugs and therapies play an important role in maintaining individual health and treating various diseases and medical conditions. However, the right balance between benefits and risks must be maintained through a holistic, collaborative and sustainable approach between the various parties involved in improving public health. Thus, drugs and therapies can be implemented effectively, safely, and equitably for all levels of society, in accordance with the basic principles of the right to health as part of human rights.

CONCLUSION

Based on the results and discussion above, it can be concluded that the use of AI in the field of Health brings many benefits for the development of innovative drugs and therapies. The use of AI has a very positive influence on health in the future. With the development of AI technology, the development of innovative drugs and therapies has become more efficient and effective. The application of AI in healthcare offers the

potential to create a more personalized, precise, and comprehensive healthcare future. Collaboration between medical science and AI technology will lead to more innovative and affordable health solutions for the masses. As such, the role of AI in the development of innovative drugs and therapies is recognized as one of the key pillars in creating a better future of healthcare. Some of the benefits that arise from the application of AI in healthcare are that AI tools are able to find patterns and relationships in data that are not detected by traditional analysis methods. Faster search for targets and molecules. Compared to manual searches by scientists, AI is able to scan and analyze millions of data in a much shorter time. Prediction of side effects and interactions. AI can be used to predict potential drug side effects and interactions with other drugs based on genetic and clinical data analysis. This can help reduce the risk to patients in the use of drugs. While the use of AI in healthcare has several advantages, there are also challenges such as data security and privacy, regulatory compliance, ensuring clinical trials and drug approvals, the use of AI in drug and therapy development also requires large financial investments in infrastructure and trained human resources. Some institutions may not have these resources, so the development of AI-based drugs and therapeutics could be a challenge for them. To overcome these challenges, we must be wise and clever in utilizing the opportunities presented by AI.

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