Review Article

10.5281/zenodo.8104919

Artificial intelligence in the medical world

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**2023 Published by
Ulus Medical Journal.**

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Abstract

Artificial intelligence (AI) refers to the use of technology and computers to replicate intelligent behavior and critical thinking that is comparable to that of a human being. In this illustrative essay, artificial intelligence in medicine was discussed in general, including vocabulary and concepts as well as existing and potential applications. Psychological treatments involve the use of artificial intelligence. By giving therapists and patients real-time or almost real-time recommendations based on the patient's response to treatment, AI approaches can enhance psychotherapy. The article attempts to increase primary care physicians' awareness of and comfort with AI. Although AI has the potential to revolutionize the practice of medicine in previously unimaginable ways, many of its practical applications are still in their infancy and require further research and development. For better healthcare delivery to the general public, medical practitioners need to comprehend and familiarize themselves with these advancements.

Keywords: artificial intelligence, technology, medicine

Introduction

The two categories of artificial intelligence (AI) in medicine are virtual and physical (1). Applications like electronic health record systems and neural network-based therapeutic decision-making are examples of the virtual part. The physics section focuses on geriatric care, robotic surgery assistants, and intelligent prosthetics for disabled people.

The foundation of evidence-based medicine is the development of relationships and patterns from the already-existing collection of data to produce clinical correlations and insights. Before, we relied on statistical techniques to identify these patterns and relationships. Through flowcharts and database approaches, computers can learn how to diagnose patients.

The history-taking process, in which a doctor asks a series of questions and then combines the reported symptom complex to arrive at a probable diagnosis, is translated using the flowchart-based technique. Given the wide diversity of symptoms and disease processes encountered in everyday medical practice, this necessitates sending a lot of data into machine-based cloud networks. Because the robots are unable to see and gather cues that can only be viewed by a doctor during patient interaction, the results of this approach are restricted.

The database technique, on the other hand, makes use of the deep learning or pattern recognition concept, which entails teaching a computer to recognize particular groups of symptoms or specific clinical or radiological pictures through repeated computations.

Since 2018, Buoy Health and the Boston Children's Hospital have been working together to develop an artificial intelligence system that is accessible via a web interface and offers guidance to parents who are caring for a sick kid by responding to queries on drugs and determining whether or not the child's symptoms need a trip to the pediatrician (2). The National Institutes of Health (NIH) has developed an app called AiCure that allows patients to have their medication use monitored through their smartphone webcams. These help to lower the number of patients who do not comply with their treatment plans (3).

Discussion

AI is expanding into the public health field and will have a significantly impact all facets of primary care. Primary care providers will be better equipped to recognize patients who need extra attention and deliver individualized regimens for each individual with the aid of AI-enabled computer programs. AI can be used by primary care doctors to take notes, evaluate patient conversations, and upload necessary data into Electronic Health Record (EHR) systems. These programs will gather and examine patient information and give primary care doctors knowledge of the patient's medical requirements.

Clinical trials used to find and develop pharmaceutical treatments for a particular ailment take years and cost a fortune. To give a current example, AI was employed to speed up the years-long process of screening existing drugs that could be utilized to combat the growing Ebola virus threat (4). AI would enable us to embrace the novel idea of "precision medicine."

In the research, it has been shown that AI systems are more accurate at classifying worrisome skin lesions than dermatologists (5). Because AI systems can learn more from subsequent cases and be exposed to many of them at short notice, considerably more examples than a physician could review in a mortal lifetime. Given the numerous constraints on the availability of mental health care resources (e.g., lengthy waiting lists in public health systems and insufficient resources), extensions and innovations of psychotherapy, such as treatments enhanced by AI, have been developed recently (6). The function of the psychotherapist is not intended to be replaced by AI,

despite the fact that it is a fantastic way to increase effectiveness and make psychotherapy more accessible (7,8). The goal of incorporating AI in the field of psychotherapy is to increase reach (i.e., reach more people in need) and to give therapists information on symptom progression over the course of psychological interventions so that they can quickly detect and respond to potential problems that may arise during interventions (for example, recovery trajectories that do not follow expectations during psychotherapy). AI is a supplement tool for the treatment process as a result (9).

Conclusions

In the future, AI would be a crucial component of medicine. Thus, it is essential to teach the new generation of medical students the ideas and applications of AI, as well as how to interact effectively with machines in the workplace for increased efficiency, while also developing soft skills like empathy in them. The objective should be to create a delicate, mutually advantageous balance between primary care physicians' human strengths and judgment and the efficient use of automation and AI.

Contributions

Research concept and design: **OK, MBÖ**
Data analysis and interpretation: **OK, MBÖ**
Collection and/or assembly of data: **OK, MBÖ**
Writing the article: **OK, MBÖ**
Critical revision of the article: **OK, MBÖ**
Final approval of the article: **OK, MBÖ**

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