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Review Article

24/7 Healthcare Services with AI-Powered Virtual Assistants: An Update

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A B S T R A C T

The use of Artificial Intelligence (AI) to power virtual assistants in the medical field is examined in depth in this article. Computer programs that employ natural language processing and machine learning techniques are referred to as AI-powered virtual assistants. These programs are designed to communicate with patients, provide assistance to healthcare professionals, enhance patient outcomes. In addition to providing instances of how virtual assistants are being used in India and other countries, the article examines the article analyzes the advantages and limits of using virtual assistants in the healthcare industry. Access to healthcare services around the clock, improvements in patient outcomes, lower overall healthcare expenditures are some of the advantages provided by these virtual assistants. There are, however, certain issues about the accuracy of diagnoses given by these virtual assistants as well as the safety of patient data. In spite of these drawbacks, AI-powered virtual assistants are becoming more widespread in healthcare settings, it is anticipated that their use will continue to expand as technology continues to advance.

Keywords: Ai-Powered Virtual Assistants, Healthcare, Patient Outcomes, Benefits, Limitations

Introduction

The term "Artificial Intelligence" (AI) refers to a kind of technology that has become more important in recent years.[1-4] AI-powered virtual assistants are becoming more commonplace across many industries, the healthcare sector is not an exception. Computer programs that employ Natural Language Processing (NLP) and Machine Learning (ML) techniques are referred to as AI-powered virtual assistants in the healthcare industry.[5-10] These assistants are designed to engage with patients, provide assistance to healthcare workers, enhance patient outcomes. In this review article, we will discuss AI-powered virtual assistants in the healthcare industry, including their advantages and disadvantages as well as their potential applications. The use of Artificial Intelligence (AI) and Virtual Assistants (VAs) in the healthcare industry is becoming more common. These technologies are able to aid with a broad variety of duties, including the scheduling of appointments, the answering of patient inquiries, the provision of fundamental medical advice. We present an overview of the current status of AI-powered virtual assistants in the healthcare industry in this review article that we have written.

Example of AI-powered Virtual Assistants in Healthcare

In recent years, the use of artificial intelligence-driven virtual assistants in the medical industry has seen fast growth. These tools are being used in an increasing number of hospitals and clinics in order to lessen the amount of labor required of medical personnel and to enhance the results for patients. Patients who have chronic ailments may benefit from having virtual assistants manage their

symptoms, check their vital signs, remind them to take their prescription. These technologies may also aid healthcare workers with administrative activities such as arranging appointments, creating reports, maintaining patient data. For example, scheduling appointments. In addition to this, they are able to provide assistance to the process of clinical decision-making by doing data analyses on patients and identifying any dangers.

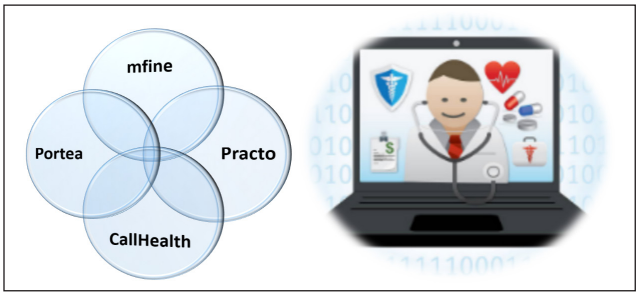

Figure 1.Healthcare services that are supported by AI-based virtual assistants

The First Aid skill for Amazon Alexa, which was developed by the Mayo Clinic, is one example of an AI-powered virtual assistant in the healthcare industry. This application gives users access to reliable and up-to-date medical information on a wide range of issues, including how to treat minor injuries and what to do in the event of a heart attack, amongst others. One other example of this would be the app known as Babylon Health, which use AI to identify and treat common medical conditions including the common cold, the flu, skin disorders.

The following are just a few examples of India's various round-the-clock healthcare services that are supported by AI-based virtual assistants as shown in figure 1. It is reasonable to anticipate an increase in the number of creative approaches taken in the field of healthcare as the relevant technologies continue to advance. A few illustrations are as follows:[11-17]

- **mfine:** mfine is a healthcare platform that gives users the ability to consult with competent physicians and experts through video or chat, as well as obtain individualized health programs. The platform makes personalized healthcare suggestions to patients based on their medical history and symptoms, it is accessible at any time of day or night. The recommendations are generated by machine learning algorithms. The platform uses machine learning algorithms to offer tailored healthcare recommendations based on a patient's medical history and symptoms, is available around the clock
- **Practo:** Practo is a digital healthcare platform that enables users to identify physicians, diagnostic facilities, hospitals, as well as reserve appointments with such establishments. In addition to offering a variety of medical services, such as online consultations, the delivery of medicines and laboratory testing, as well as health exams, Practo also offers a practice management solution for medical professionals. Practo is another AI-driven platform that facilitates connections between patients and medical professionals
- **Call Health:** CallHealth is a healthcare services company that offers a variety of healthcare services like doctor consultations, lab testing, drug delivery, home healthcare services among others. Users of CallHealth may schedule appointments with primary care physicians and specialists using the app or website, they have the option of conducting their visits in-person or remotely. In addition, CallHealth offers in-home healthcare services such as nursing care, physiotherapy, rental of medical equipment. Additionally, the company uses chatbots powered by artificial intelligence to assist patients in managing their medical data
- **Portea:** Portea is a market leader in the provision of home healthcare services, including but not limited to physician consultations, nursing care, physiotherapy, the rental of medical equipment. Portea's platform enables users to schedule appointments and organize visits from healthcare providers, these capabilities are accessible through the platform as well as the mobile app. In addition, Portea provides teleconsultations, home healthcare services, rentals of medical equipment. It is also driven by artificial intelligence and uses chatbots to help patients with appointment scheduling and the administration of their medical records

Despite the many benefits of AI-powered virtual assistants in healthcare, there are some concerns surrounding their use. For instance, there are worries about the accuracy and reliability of diagnoses made by AI-powered tools. There is also concern about the privacy and security of patient data, especially when virtual assistants are used to collect sensitive information.

Benefits of AI-powered virtual assistants in healthcare

There are several advantages to using AI-powered virtual assistants in the healthcare industry. They are able to give access to medical services at any time, day or night, which is among the most important advantages. Patients may utilize these digital assistants to ask inquiries about their ailments, book appointments, obtain medical advice. Patients no longer have to wait for extended lengths of time in order to obtain medical treatments as a result of this.

Another important advantage of using AI-powered virtual assistants in the healthcare industry is that they may aid medical practitioners in bettering the results of their patients' conditions. These virtual assistants are able to

gather data on the conditions of patients, evaluate that data, present medical professionals with ideas that may be put into action. This may assist medical personnel in making choices about patient care that are more informed, ultimately leading to improved results for patients. Virtual assistants powered by AI in the healthcare industry may also contribute to cost savings in that sector. These virtual assistants may free up the time of healthcare professionals so that they can concentrate on more difficult duties by automating basic tasks. This has the potential to contribute to a decrease in the total cost of healthcare services.[18-25]

Limitations of AI-powered virtual assistants in healthcare

Virtual assistants in the healthcare industry that are driven by AI offer numerous advantages, but they also have a number of drawbacks. It is possible that they will not be able to give individualized care, which is one of the most severe constraints. Virtual assistants powered by AI are often developed using algorithms that are derived from data collected from the general population. Because of this, it is possible that they will be unable to give individualized guidance to patients depending on the specifics of their medical history. It's possible that AI-powered virtual assistants in the medical field won't be able to manage complicated medical situations, which is another important restriction of these tools. Virtual assistants powered by AI are capable of providing basic medical advice; but, they are not likely to be able to identify more complicated medical disorders, which need the attention of a trained healthcare practitioner. In conclusion, the use of AI-powered virtual assistants in the healthcare industry may potentially give rise to issues over the privacy and security of patient data. These digital assistants gather information on patients' medical issues, which might be considered private and confidential data. It is the responsibility of healthcare institutions to guarantee that this information is kept private and is not disclosed to unauthorized third parties.[18-20]

Conclusion

In conclusion, AI-powered virtual assistants are becoming more commonplace in healthcare settings. An rising number of hospitals and clinics are deploying these technologies in an effort to enhance patient outcomes and minimize the burden for healthcare workers. These virtual assistants have the potential to provide round-the-clock access to medical services, to aid medical professionals in making better-informed choices on patient care, to save costs in the healthcare industry by automating mundane work. Concerns continue to be raised, however, about their capacity to deliver individualized treatment, their accuracy and dependability in diagnosing complicated medical diseases, as well as issues with data privacy and data security. It is anticipated that as technology continues to advance, more creative solutions will become available in the field of healthcare, with artificial intelligence-powered virtual assistants playing a crucial part in the process of revolutionizing the delivery of healthcare services.

Future Directions

Potential future directions for AI-powered virtual assistants in healthcare are numerous, continued development is key to their success. Here are some potential areas of development:

- Remote patient monitoring is one area that could benefit greatly from AI-powered virtual assistants. As telehealth services become more prevalent, these assistants could be used to monitor patients' conditions from afar and alert healthcare professionals if there are any issues
- Integrating AI-powered virtual assistants with electronic health records (EHRs) is another area of future development. By doing so, healthcare professionals could access patient information more easily, leading to better patient outcomes
- The use of AI-powered virtual assistants in medical research also holds great potential. By analyzing large amounts of patient data, virtual assistants could identify patterns and trends that could lead to new medical discoveries
- Evaluating the effectiveness of AI-powered virtual assistants in various healthcare settings and finding ways to improve their accuracy and reliability is an important focus for future research. Ultimately, these tools have the potential to revolutionize healthcare delivery, making it more efficient, accessible, responsive to patient needs

As technology continues to evolve, we can expect to see more innovative solutions that improve patient outcomes, reduce healthcare costs, enhance the overall quality of healthcare services. The future of AI-powered virtual assistants in healthcare is promising, continued research and development will be crucial in realizing their full potential.

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