Chapter 5
Tracing the Development and Influence of Chatbots in Contemporary Healthcare Systems

Aashiq Khan
https://orcid.org/0000-0003-4532-8774
School of Educational Science, Anhui Normal University, Wuhu, China

Irum Zeb
School of Education, Huazhong University of Science and Technology, China

Shuanghu Fang
School of Educational Science, Anhui Normal University, Wuhu, China

ABSTRACT

This chapter explores the transformative impact of chatbot technology in healthcare. It details the evolution from simple scripts to advanced AI systems that improve patient-provider interactions. Chatbots enhance healthcare accessibility, efficiency, and quality by providing services like appointment scheduling, real-time consultations, and patient data management. The text highlights their crucial role during the COVID-19 pandemic in information dissemination and remote patient management. However, challenges such as privacy, security, and ethical concerns are also discussed, with insights on mitigating these risks to ensure ethical technology use. This overview aims are to inform healthcare professionals, technologists, and policymakers about safely integrating AI in healthcare.

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INTRODUCTION

In recent times, there has been a notable surge in the adoption of e-healthcare services, primarily attributed to their user-friendliness and the superior quality of patient care they facilitate (Mbunge et al., 2022; Sharma & Kumar, 2022). These services represent a significant shift in the healthcare sector towards a digitalized framework, utilizing cutting-edge technology and information systems to streamline the interaction and procedural dynamics between patients and medical personnel. E-health, at its core, is an innovative electronic system profoundly reliant on the continual advancements in technological and artificial intelligence domains (Al-Mistarehi et al., 2023; Alshammari et al., 2022). This system encompasses a wide array of tools, including secure storage and management of patient and medication data. It integrates electronic health records (EHRs), telemedicine platforms, mobile health applications, and numerous other digital solutions, all aimed at enhancing patient care and providing tailored services (Shafi et al., 2023).

The evolution of hospital and clinical systems has facilitated more precise diagnoses and the provision of timely medical treatments. The healthcare industry's trajectory is increasingly intertwined with developments in technology and artificial intelligence methodologies (Alabdulatif et al., 2023; Mijwil & Shukur, 2022). This integration has significantly refined the healthcare environment, extending the spectrum of digital services accessible to patients. In the realm of computer science, artificial intelligence has emerged as a particularly prominent field, drawing considerable attention in recent times, especially with the introduction of human-mind-simulating applications such as ChatGPT (Deiana et al., 2023; Wang et al., 2023). It involves complex concepts associated with logic, and learning, and comprises algorithms that undergo training on extensive datasets, which might include an array of images or diverse signal types. This scientific discipline is characterized by its focus on intelligent computational behavior, manifesting in the design of computerized tools that replicate human cognitive functions, encompassing learning, reasoning, and self-correction (Mijwil et al., 2023). Consequently, this enables computers to generate specific decisions based on overarching rules that are shaped by their training in a given environmental context.

The paramount advantage of e-healthcare lies in its exceptional capability to establish a centralized and secure repository containing comprehensive patient data, readily accessible to healthcare professionals and physicians (Tanwar et al., 2020). Electronic health records (EHRs) empower medical staff with real-time access to patient information, enabling them to review patients' medical histories, diagnoses, medications, and treatment plans with utmost accuracy and convenience (Chen et al., 2014). Telemedicine emerges as one of the key offerings of e-healthcare, facilitating remote consultations and monitoring. This transcends geographical limitations,

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