Redefining Nursing Practice: Integrating ChatGPT in the Fabric of Healthcare AI

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Abstract

Background: This study explores ChatGPT's innovative application in nursing, assessing its impact on healthcare practices. With Artificial Intelligence (AI)'s emergence as a pivotal tool in healthcare, the research aims to elucidate ChatGPT's utility in nursing, addressing operational efficiency and patient care improvements. Methods: Through a rigorous literature review from November 2022 to June 2023, this research analyzed 16 out of 32 articles that delve into ChatGPT's integration within nursing domains, focusing on its multifaceted roles in healthcare. Results: The analysis highlights ChatGPT's effectiveness in optimizing reporting, documentation, and patient communication, alongside its potential in nursing education and care planning. The study also critically evaluates the ethical considerations and future directions of AI in nursing. Conclusions: Conclusively, the research underscores ChatGPT's potential to augment nursing practices and patient care, advocating for a comprehensive understanding of AI's ethical and practical implications in healthcare settings.

Keywords: Nursing, ChatGPT, HealthTech, Artificial Intelligence (AI), Medical Innovation

Introduction

ChatGPT, an artificial intelligence program, was first launched on November 30, 2022. The pace of technological advancements since the program's initial version has allowed for the rapid development and availability of higher-level paid and free versions. This new technology has had a significant impact on various sectors from the moment it was developed, with the health sector being one of them (1–3). The use of artificial intelligence applications in the health sector has gained significant momentum, especially thanks to tools with comprehensive natural language processing capabilities like ChatGPT (4). It is thought that the use of artificial intelligence technologies in health services, with technical support and the help of professionals in the field, can perform important functions in various areas of health services (5,6). Processes such as complex and time-consuming case analyses, evaluating radiological images, and examining laboratory results have been accelerated thanks to ChatGPT's fast and efficient processing capabilities. This has led to significant progress in vital tasks such as making accurate diagnoses, reducing the risk of patient harm, and creating effective treatment plans. Additionally, the fact that ChatGPT has the capacity to perform the jobs of many people, tools, and devices has resulted in labor and space savings. This has facilitated people's access to information at any time and under any conditions. Nursing is the cornerstone of health services, and the use of ChatGPT in this field can facilitate nurses to more effectively evaluate patients, make accurate nursing diagnoses, and conduct scientific research related to their field. The aim of this study is to compile and analyze how ChatGPT is used in the field of nursing.

Materials and Methods

This review study was designed to examine the use of ChatGPT in the field of nursing in detail. During the study process, literature was reviewed between November 2022 and June 2023. During this literature review, three different academic databases, namely Web of Science, PubMed, and Google Scholar, were used. In the research process, a comprehensive search was conducted using the keywords 'ChatGPT' and 'nursing'. As a result of this search, a total of 32 articles were found. Each of these articles was rigorously reviewed for its relevance to the aims and criteria of the study. At the end of this review process, 16 out of the 32 found articles were included in this review study as they met the set criteria.
Results

ChatGPT and Nursing

Nursing assumes one of the most challenging and critical roles in the health sector. Rapidly advancing technology provides many benefits in the field of nursing while also bringing some challenges. The need for technological innovations in this field stems from fundamental needs such as monitoring patient care, using robot technologies in care processes, and utilizing artificial intelligence applications in care planning. AI programs like ChatGPT help prevent possible errors and overlooked details by holistically evaluating patients. It is of great importance for nurses to benefit from AI programs to quickly adapt to innovations, develop their knowledge and skills, and gain easier access to information (5–8). Moons and colleagues, in their review of the use of ChatGPT in the field of nursing, stated that this technology could assist nurses in providing personalized and effective care to patients. ChatGPT collects and analyzes vital findings and laboratory information, thus saving time for nurses and offering the opportunity for more effective care. It can also support nurses in determining the dosage and methods of application for necessary medications. Moreover, it provides information for nurses who cannot conduct research due to time constraints and helps overcome language barriers with foreign patients (8–10). However, alongside these technological supports, it is important for nurses to critically review the accuracy and completeness of the information provided. A study conducted by O’Connor focused on how nursing education could be supported with AI (11). It emphasized that nursing is a profession that serves humanity and the accuracy and scientific basis of the information in the education process is of critical importance. In this context, it stressed the necessity of following current studies and conducting scientific research. O’Connor stated that using AI programs in nursing education would greatly benefit meeting these requirements (11). In addition to assisting in patient care, ChatGPT has shown promise in training simulations for nursing students, offering interactive and adaptive learning environments.

Evaluations Regarding the Use of ChatGPT in Healthcare

A study conducted in 2023 in Switzerland by Bosbach and his team sheds light on the applicability of ChatGPT in medicine. This study examines the use of ChatGPT in reporting fracture cases. Evaluations by four radiologists on nine criteria reveal that ChatGPT demonstrates high performance in reporting. In particular, the program’s ability to analyze complex cases and facilitate timely intervention highlights ChatGPT as an effective solution (12). A review published by Rahimi and colleagues in 2023 provides a different perspective on the use of ChatGPT in medicine. They note that scientific articles written with ChatGPT can contain meaningless and unrealistic statements. This situation emphasizes that ChatGPT needs to be used carefully in processing scientific data (1). Singh and his team, in a study they conducted in 2023, examined the potential role of ChatGPT in compiling and organizing surgery notes in the field of ophthalmology. Twelve cases evaluated by three surgeons demonstrated the high data processing capability and potential of ChatGPT in this field (2). A review by Corsello and Santangelo in 2023 in the field of pediatrics offers a different perspective on the use of ChatGPT in this field. In this study, it is mentioned that ChatGPT could be used in predictive modeling, image analysis, child development tracking, discovery and use of new drugs, and clinical decision-making abilities. However, they state that issues such as accepting all kinds of information as correct, data reliability issues, complete dependence on technology, and ethical concerns also need to be considered (13).

Clinical Resources

The versatile applications of ChatGPT in the medical field extend beyond basic functionalities, venturing into complex and specialized cases. Its efficacy in generating and evaluating medical texts is evident in varied scenarios, such as handling intricate invasive pneumococcal meningitis articles, analyzing cochlear implant cases after sudden hearing loss, compiling methods to alleviate respiratory viruses in children post-Covid-19, and reporting on 3-year-olds with septic hip conditions. These instances underscore ChatGPT’s adeptness at summarizing and analyzing diverse medical topics (3,14–16). Furthermore, a 2023 review by Temsah and colleagues delves into ChatGPT’s widespread utilization in healthcare. This review critically evaluates ChatGPT’s employment in health-related studies, scientific research, medical writing, ethical and diagnostic decision-making processes, public health, and automatic medical tasks. It highlights the importance of understanding ChatGPT’s capabilities and limitations in the healthcare sector to ensure its ethical and effective use in clinical and research settings (4).
Conclusions

The adaptation of artificial intelligence applications to the healthcare sector is gaining momentum. Especially advanced language processing tools like ChatGPT have the potential to improve health services across a wide range. However, in light of current research, it appears that this technology is not yet sufficiently utilized in some areas such as nursing. Nevertheless, the widespread acceptance and general use of ChatGPT herald an era in which people can perform many functions even from home. While the use of ChatGPT in the health sector is seen to be concentrated more in areas such as reporting and summarizing, it also shows potential for use in more specific areas like medical education. However, it is a fact that the use of ChatGPT is considered unethical by some publishers. This situation could be the biggest obstacle to fully integrating ethical and reliable use of ChatGPT in the healthcare sector. However, when progress is made towards resolving ethical concerns, it is anticipated that ChatGPT could be used much more effectively in the health sector. In particular, its use in the analysis of radiological imaging and laboratory results is expected. Specifically in nursing, while it is predicted that it will play an effective role in the planning and implementation of patient care, making care plans for nursing-related cases with ChatGPT could be considered an important step that needs to be taken to further integrate technology into the healthcare sector. As ChatGPT continues to evolve, further research is needed to explore its long-term impact on nursing education and patient care.


Funding Statement: This research did not receive external funding.

Ethical Committee Statement: The study was conducted following the Helsinki Declaration. As this study did not involve human participants, animal experiments, or identifiable human data, an ethics committee approval was not required.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Acknowledgments: In this section, we would like to acknowledge the support of our respective institutions: Faculty of Health Sciences, Department of Nursing, Aralik University, Kilis, Turkey; Faculty of Health Sciences, Department of Nursing, Hasan Kalyoncu University, Gaziantep, Turkey; and Faculty of Health Sciences, Department of Nursing, Bozok University, Yozgat, Turkey.

Conflict of Interest: The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

References