

Exploring the future of nursing: Insights from the ChatGPT model

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Abstract

This editorial aims to provide a comprehensive overview of the future of nursing through the lens of the ChatGPT model, a state-of-the-art language processing artificial intelligence (AI) developed by OpenAI. The edited chat transcripts with ChatGPT may offer key trends and developments in nursing, such as the increasing use of technology and digital tools, the integration of AI, and the use of robotics in patient care, as well as insights into the implications of these changes for nurses, patients, and the healthcare system as a whole. However, the future of nursing is continuously evolving. Therefore, nurses need to keep abreast of the latest developments and adapt to them while remaining committed to providing quality care.

Keywords

ChatGPT; OpenAI; artificial intelligence; future of nursing; robotics; state-of-the-art language processing

Introduction

ChatGPT (Generative Pre-training Transformer), a chatbot launched by OpenAI on 30 November 2022 (OpenAI, 2022), has gained widespread popularity. The model is considered one of the most advanced language generation models available to the public and is used to generate text for a wide range of applications. It was trained on a diverse set of internet text and is able to render text in various styles and formats, including human-like conversation, poetry, and news articles (O'Connor, 2022; OpenAI, 2022).

However, the impressive ability of ChatGPT has raised the question of whether we have reached a point in technology's evolution where an AI-driven chatbot can write, or assist in writing, an article on the "Future of Nursing." This editorial presents the edited transcript of chats with ChatGPT Jan 9 Version on 18 January 2023.

The Chats

Joko Gunawan (JG): Provide an introduction to ChatGPT.

Explain that this article was written by ChatGPT in response to prompts from JG.

ChatGPT: ChatGPT is a large language model developed by OpenAI. It has been trained on a diverse range of internet text and can generate human-like responses to a variety of prompts. This article was written by ChatGPT in response to prompts provided by JG. It is important to note that the information provided by ChatGPT may be limited by its knowledge cutoff and may not be entirely accurate or up-to-date.

JG: Tell me what nursing is

ChatGPT: Nursing is a healthcare profession dedicated to providing care to individuals, families, and communities in order to help them achieve, maintain, or regain optimal

health and high quality of life. Nurses assess patient needs, develop and implement nursing care plans, and evaluate patient outcomes. They also collaborate with other healthcare professionals to provide comprehensive care. Nurses may work in a variety of settings, such as hospitals, clinics, nursing homes, and schools. They may also specialize in specific areas of healthcare, such as pediatrics, oncology, or critical care. Nurses play a vital role in promoting health and well-being, preventing illness and injury, and managing chronic conditions.

JG: Summarize the history of nursing

ChatGPT: The history of nursing can be traced back to ancient times when religious orders and individuals provided care for the sick. In the 19th century, Florence Nightingale, a British nurse, established the first professional nursing school and developed modern nursing principles (Matthews et al., 2020). Her emphasis on cleanliness, organization and proper nutrition in hospitals helped reduce patient mortality rates.

During the Civil War in the United States, nurses such as Clara Barton and Dorothea Dix played a significant role in the organization and provision of nursing care for soldiers (Woodward, 1991). This led to the formation of the United States Army Nurse Corps, which helped establish nursing as a respected profession. In the late 19th and early 20th centuries, nursing education shifted from apprenticeships to formal educational programs, and the scope of practice expanded to include public health and community-based care. In the mid-20th century, nursing continued to evolve with the introduction of advanced technology and new areas of specialization, such as pediatrics, gerontology, and psychiatric nursing. The nursing profession also became more diverse, with an increasing number of men and minorities entering the field.

Today, nursing continues to adapt to changing healthcare needs and advancements in technology. Nurses are key members of healthcare teams and play an essential role in patient care and outcomes.

JG: Speculate the future of nursing

ChatGPT: The future of nursing is likely to involve a continued emphasis on preventative care and patient-centered care. With the aging population and increasing rates of chronic conditions, there will likely be a greater need for nurses who specialize in gerontology and chronic disease management. In addition, nursing practice is likely to become more technology-driven, with the use of electronic health records, telehealth, and other digital tools becoming more prevalent. This will enable nurses to access patient information more easily and provide care remotely, which can improve access to healthcare for patients in remote or underserved areas. This is in line with [Marzilli \(2022\)](#) in discussing the future of nursing.

There may also be an increased focus on nursing education, with a greater emphasis on evidence-based practice and interprofessional collaboration. This will help ensure that nurses have the knowledge and skills necessary to provide safe and effective care in an ever-changing healthcare environment. In addition, the nursing profession will probably continue to become more diverse, with an increasing number of men and minorities entering the field. This will provide patients with more culturally competent and sensitive care.

Overall, the future of nursing is likely to see a greater emphasis on “preventative care,” “technology integration,” and “interprofessional collaboration,” with the goal of improving patient outcomes and promoting the health and well-being of the population (see [Figure 1](#)).

JG: Speculate the future of nursing on preventative care

ChatGPT: In the future, nursing is likely to play an even greater role in preventative care as healthcare systems shift towards a more proactive, population-based approach. Nurses will likely be involved in identifying and addressing health risks in the community, such as providing health education and screenings for chronic conditions such as diabetes and hypertension.

Nurses will also be instrumental in promoting healthy lifestyles and behaviors, such as encouraging physical activity, healthy eating, and smoking cessation. They may also be involved in providing care for patients with mental health conditions, such as depression and anxiety, which can be risk factors for chronic diseases.

Telehealth, telenursing, and telemedicine technology will probably be used more frequently to provide remote care, enabling nurses to monitor patients with chronic conditions, provide education and support, and adjust treatment plans as needed ([Gunawan et al., 2022](#)). This will help improve access to healthcare for patients in remote or underserved areas.

The use of big data and analytics will also be important in preventative care, as nurses will be able to identify trends and patterns in health data that can help identify and target populations at high risk of certain conditions, helping to prevent the onset of the condition.

Overall, the future of nursing in preventative care is likely to see a greater emphasis on “community-based care,” “technology integration,” and “evidence-based practice,” with the goal of improving the health and well-being of the population.

JG: Speculate the future of nursing on technology integration

ChatGPT: In the future, nursing is likely to become increasingly technology-driven as technology continues to advance and become more integrated into healthcare delivery.

Nurses will likely use electronic health records (EHRs) more frequently, which will enable them to access patient information more easily, provide more accurate and up-to-date care, and collaborate more effectively with other members of the healthcare team. In addition, Telehealth and telemedicine technology will probably become more prevalent, enabling nurses to provide remote care and monitor patients with chronic conditions, such as diabetes and hypertension. This will improve access to healthcare for patients in remote or underserved areas and allow for more efficient care coordination.

Nurses will also be able to use wearable technology, such as smartwatches and fitness trackers, to monitor patients' vital signs and activity levels, and provide real-time feedback and support.

Robotics, artificial intelligence, and machine learning will also be integrated more into nursing, for example, in tasks such as triage, patient monitoring, and medical diagnosis. These technologies will allow nurses to perform more complex procedures, such as administering medication and will help improve efficiency and accuracy in care delivery.

Overall, the future of nursing in technology integration is likely to see a greater emphasis on the use of digital tools and technologies, with the goal of improving patient outcomes, increasing efficiency, and reducing errors in care delivery.

JG: Speculate the future of artificial intelligence in nursing

ChatGPT: The future of artificial intelligence (AI) in nursing is likely to involve the integration of AI-powered tools and technologies into various aspects of nursing practice, such as patient diagnosis, treatment planning, and care delivery.

AI-powered diagnostic tools, such as computer-aided diagnosis (CAD) systems, will probably be used more frequently in nursing practice, enabling nurses to make more accurate and efficient diagnoses and provide more timely treatment. These systems can process large amounts of data from multiple sources, such as images, lab results, and patient history, and can identify patterns and anomalies that might be missed by human practitioners.

AI-powered treatment planning tools will also become more prevalent, helping nurses to develop personalized care plans for patients based on their individual needs, preferences, and medical history. These tools can also help nurses to monitor the progress of patients over time, adjust treatment plans as needed, and identify potential complications.

AI-powered care delivery tools, such as robotic assistants and virtual nurses, will also become more common in nursing practice, helping nurses to perform routine tasks more efficiently and allowing them to spend more time with patients. These technologies can assist with tasks such as administering medication, monitoring vital signs and providing patient education.

AI-powered decision support systems will also be used more frequently in nursing practice, helping nurses make more informed patient care decisions by providing real-time access to evidence-based guidelines and best practices.

Overall, the future of AI in nursing is likely to involve the integration of AI-powered tools and technologies into various aspects of nursing practice, with the goal of improving patient outcomes, increasing efficiency, and reducing errors in care delivery.

JG: Speculate the future of robotics in nursing

ChatGPT: In the future, robotics technology is likely to become more prevalent in nursing practice as healthcare systems look for ways to improve efficiency and patient outcomes.

One potential application of robotics in nursing is the use of robotic assistants to perform routine tasks such as administering medication, monitoring vital signs, and providing patient education. These robots could be programmed to carry out specific tasks, such as taking vital signs and could be remotely controlled by a nurse. This could free up nurses' time to spend more time with patients and focus on more complex care. [Betriana et al. \(2022\)](#) and [Tanioka et al. \(2021\)](#) provide examples of the communication between Pepper robots with patients.

Another potential application of robotics in nursing is the use of telepresence robots, which allow nurses to remotely monitor patients, provide education and support, and adjust treatment plans as needed. This could improve access to healthcare for patients in remote or underserved areas.

Robotics technology could also be used to perform more complex procedures such as wound care, IV insertion, and other procedures that require dexterity and precision. Additionally, robots could be used to assist with patient lifting and transferring, helping to reduce the risk of injuries to nurses and patients. Overall, the future of robotics in nursing is likely to involve the integration of robotic assistants and telepresence robots into nursing practice, with the goal of improving patient outcomes, increasing efficiency, and reducing errors in care delivery.

JG: Will robots replace nurses in the future?

ChatGPT: It is unlikely that robots will completely replace nurses in the future. While robots and other forms of automation can help improve efficiency and reduce errors in care delivery, nurses play an important role in providing patient-centered care, which is difficult to replicate with technology. This is in line with [Aunguroch and Gunawan \(2019\)](#) emphasizing that, despite the prevalence of technology and robotics in this rapidly changing era, nurses, with their unique personal and caring skills, will not be replaced by technology.

Robots can assist nurses in performing routine tasks, such as administering medication, monitoring vital signs, and providing patient education, but they cannot replace the emotional and social support that nurses provide to patients. Nurses also play a key role in patient assessment, treatment planning, and care coordination, which are critical components of care delivery.

Furthermore, nurses are also responsible for educating patients and providing emotional and psychological support, which machines and robots can't replace. Instead, it is more likely that robots will augment the work of nurses by performing routine tasks, allowing nurses to focus on more complex care and spend more time with patients. This will enable nurses to provide better and more efficient care to patients. Overall, while robots and other forms of automation can help improve efficiency and reduce errors in care delivery, nurses will continue to play an important role in providing patient-centered care in the future.

JG: Speculate the future of nursing on inter-professional collaboration

ChatGPT: In the future, nursing is likely to involve even greater collaboration with other healthcare professionals, as healthcare systems focus on interprofessional teams to provide comprehensive and coordinated care.

Nurses will likely work closely with physicians, physician assistants, and other healthcare providers to develop and implement patient care plans and share information and insights to improve patient outcomes. Nurses will also be working with other non-healthcare professionals, such as social workers, case managers, and community health workers, to provide a holistic approach to patient care, addressing not only the medical needs but also the social and economic determinants of health.

Education and training for interprofessional collaboration will be emphasized more in nursing programs, preparing future nurses to effectively communicate and collaborate with other healthcare professionals and to understand and appreciate the unique contributions and perspectives of each profession. Telehealth and telemedicine technology will also enable nurses to collaborate more effectively with other healthcare providers, regardless of location, and to provide more coordinated care for patients.

Overall, the future of nursing in interprofessional collaboration is likely to see a greater emphasis on teamwork, communication, and shared decision-making, with the goal of improving patient outcomes and enhancing the efficiency of care delivery.

JG: Speculate the future of nurse image

ChatGPT: It is possible that the nurse image could change in the future as nursing practice and technology continue to evolve. One possibility is that the traditional white uniform will be replaced by more functional and comfortable clothing, such as scrubs or other forms of protective clothing. This could be driven by the increasing use of technology and digital tools in nursing practice, which may require nurses to move around and use their hands more frequently.

Another possibility is that the nurse image will become more diverse, reflecting the increasing diversity within the nursing profession. This could include more male nurses, as well as nurses from different cultural and ethnic backgrounds, wearing different types of clothing that reflect their cultural identity.

The use of personal protective equipment (PPE) may become more common in the future, as nurses may be required to work in situations where infection control is a concern. This may include the use of gowns, gloves, goggles, and face shields. In addition, the use of technology such as augmented reality (AR) and virtual reality (VR) may also change the nurse's image, as nurses may be seen wearing AR/VR headsets or other types of technology that enable them to access patient information and other resources more easily.

Overall, the nurse image of the future is likely to be shaped by advances in technology, changes in healthcare delivery models, and increasing diversity within the nursing profession.

JG: Is a nurse an assistant to a medical doctor?

ChatGPT: A nurse is not an assistant of a medical doctor.

Rather, nurses are healthcare professionals who work

collaboratively with physicians and other healthcare providers to provide comprehensive and coordinated care for patients.

Nurses have their own scope of practice and education and are responsible for administering medication, monitoring patients' vital signs, performing routine diagnostic tests, and providing patient education. They also play a key role in patient assessment, treatment planning, and care coordination. In some cases, nurses may work under the direct supervision of a physician, but in other cases, they may work independently or as part of a healthcare team.

Nurses also have different levels of education and training. Nurses usually have a diploma, associate's degree, or bachelor's degree in nursing, while medical doctors have a medical degree (MD or DO) and have completed a medical residency.

In summary, nurses are independent healthcare professionals who work collaboratively with physicians and other healthcare providers to provide comprehensive care for patients. They have a different scope of practice, education, and level of autonomy compared to medical doctors.



Figure 1 Six depictions of the “Future of Nursing” as envisioned by the AI-powered DALL-E 2 image generator (OpenAI) (<https://openai.com/dall-e-2/>)

JG: Speculate the future of male nurses

ChatGPT: In the future, it is likely that the number of male nurses will continue to increase. Historically, nursing has been a female-dominated profession, but over the last few decades, the number of men entering the field has been

growing. This trend is likely to continue as more men become aware of the opportunities and rewards of a career in nursing (Gunawan, 2018).

One factor that may contribute to the increased presence of male nurses in the future is the growing

demand for healthcare services. As the population ages and the prevalence of chronic conditions increases, there will be a greater need for healthcare professionals, including nurses. This will create more opportunities for men to enter the profession.

Another factor that may contribute to the increased presence of male nurses in the future is the changing perceptions of the nursing profession. Historically, nursing has been seen as a "female" profession, but this perception is changing as more men enter the field and as the public becomes more aware of the valuable contributions that male nurses make to the healthcare system. The education system will probably continue to support the increasing presence of men in nursing by offering more male-focused recruitment campaigns and more flexible schedules and options for men to pursue a career in nursing.

Overall, the future of male nurses is likely to involve an increased presence in the profession, driven by growing demand for healthcare services, changing perceptions of the nursing profession, and a more supportive education system.

JG: Thank you for answering my questions

ChatGPT: You're welcome! I'm glad I could help. If you have any other questions, feel free to ask.

Conclusion

In summary, the future of nursing is a dynamic and rapidly evolving field that is driven by new technologies and changes in healthcare delivery models. Key trends shaping this future include the growing use of technology, digital tools, and artificial intelligence, as well as the incorporation of robotics in patient care. These advancements offer numerous benefits to the healthcare system and patients but also present new challenges and opportunities.

The ChatGPT model may provide valuable perspectives on the impacts of these changes on nurses, patients, and the healthcare system holistically. However, it is essential to keep in mind that while technology and robots can aid nurses in completing routine tasks, they cannot replace the personal and emotional support that nurses provide to patients and the vital role that nurses play in patient assessment, treatment planning, and care coordination. As a result, the future of nursing is likely to involve integrating technology and robots into nursing practice to improve patient outcomes, increase efficiency, and reduce errors in care delivery.

For nurses, it is crucial to stay informed and adapt to new technologies and developments in the field; this not only benefits the patients but also enhances the nurses' skills and knowledge, making their work easier and more efficient.

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Author's Contribution

This editorial was generated using OpenAI's ChatGPT language model. It is important to note that the responses provided by the model are generated based on the data it was trained on, and any errors or inaccuracies in the reactions are not the responsibility of OpenAI. JG provided the prompts to guide ChatGPT in generating the texts and added citations/references in line with the contents/texts.

Author's Biography

Joko Gunawan, S.Kep.Ners, PhD is Managing Editor of *Belitung Nursing Journal*.

Ethical Consideration

Not applicable.

Data Availability

Not applicable.

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