Nursing Education in the Era of ChatGPT: Implications and Opportunities

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Article

Abstract

ChatGPT is a generative pre-trained transformer language model developed by OpenAI. ChatGPT is designed to generate conversational, human-like text responses and has been trained with diverse textual data to provide coherent and contextually relevant answers to user queries. This article highlights the advantages of using ChatGPT in nursing education, emphasizing the benefit of enhancing teaching and learning experiences, supporting critical thinking, and providing personalized learning opportunities. The article also discusses barriers to use of ChatGPT, such as limited access to technology and concerns about information accuracy. Discussion of ethical concerns related to AI, including biases, data privacy, transparency, and other psychosocial concerns is also included, along with an overview of efforts to address these potential dilemmas. The article concludes by providing recommendations for best practices to responsibly integrate artificial intelligence products into nursing education, emphasizing the need for educators to become informed about AI technologies and guide cautious and ethical use of AI within nursing education. The work herein underscores the importance of transforming nursing curricula to equip future nurses with digital and data literacy skills necessary for working in today's increasingly AI-driven environments.

Key Words: Artificial intelligence, ChatGPT, Nursing education, ethics

ChatGPT (OpenAI, 2022) is a generative pre-trained transformer language model. This artificial intelligence (AI) product is designed to generate conversational, human-like text responses and has been trained with data to provide coherent and contextually relevant answers to user queries. This article highlights the importance of using ChatGPT in nursing education, emphasizing how it can enhance teaching and learning experiences, support critical thinking, and provide personalized learning opportunities.

Brief Overview of ChatGPT

ChatGPT refers to a language model developed by OpenAI (2022). The letters GPT stand for generative pre-trained transformer. ChatGPT is globally referred to as a generative artificial intelligence (AI). Herein AI and ChatGPT are used interchangeably. There are several generative AI programs available, such as Microsoft BING (2024) and Google Gemini (formerly Google BARD; n.d.). Using deep learning techniques, ChatGPT has been trained with a vast amount of diverse textual data to promote

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understanding and generation of coherent and contextually relevant responses to user queries and prompts. It can engage in interactive conversations, provide information, answer questions, assist with tasks, and simulate human-like interactions.

ChatGPT is by far more intelligent than many human nursing instructors on basic to moderate-level topics (Miao & Ahn, 2023). The estimated cost of training a model such as ChatGPT is close to US $5 million (Miao & Ahn, 2023). According to the popular press, there are over 200 million active users worldwide; by some estimates 58% of the population have heard about ChatGPT. However, less than 15% of the population have interacted with ChatGPT.

ChatGPT in Nursing Education

Advantages to Using ChatGPT in Nursing Education

There is considerable skepticism and wariness when AI is mentioned for use in nursing education. These sentiments are not unfounded (Kiryakova & Angelova, 2023). Add to these concerns about plagiarism, breaches of academic integrity, and theft of intellectual property and there are well-supported reasons to proceed with caution (Sun & Hoelscher, 2023). However, this new groundbreaking technology can enhance our teaching, and free nurse faculty from more mundane activities such as curriculum planning and course activities. This time allows them to focus on more student-centric activities, such as greater face time with learners to teach empathy and communication skills.

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Today's nursing curriculum is saturated with content (Giddens & Brady, 2005, Repsha et al., 2020) or as Ironside (2005) called it additive. Faculty members attempt to include all relevant material necessary for graduation. Changes are needed to decrease content overload, increase critical thinking, and improve clinical reasoning skills (Amber, 2021, Ironside, 2005). Additionally, as in many professions, nurse faculty are called to do more with less (Lee & Wilson, 2017). Having an interactive assistant at the ready can save time and move us beyond the tried-and-true activities such as PowerPoint lectures, case studies, and end-of-the-semester summative examinations to perhaps a more refreshing and innovative approach to teaching specific content or topic areas. The following are a few recommendations identified by ChatGPT. At a higher level, AI provides immediate access to information and resources. There is debate about the accuracy of the content and there are well-known drawbacks which I will discuss later in this manuscript. As of August 2024, ChatGPT is current to October 2023. This means that users may not have the most up-to-date information. This is an opportunity for learners to fact-check and investigate current guidelines. This leads to improved critical thinking and decision-making skills.

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ChatGPT can be used in a nursing curriculum in several ways to support learning and enhance the educational experience. The following recommendations were provided by ChatGPT (OpenAI, 2022).

1. **Clarifying Concepts**: Nursing students can use ChatGPT to seek clarification about complex nursing concepts, procedures, or terminology. They can ask questions related to anatomy, physiology, pharmacology, or specific nursing practices, and ChatGPT can provide clear and concise explanations.

2. **Case Studies and Scenarios**: ChatGPT can assist students to analyze and interpret nursing case studies or scenarios. Students can present patient scenarios to ChatGPT and receive guidance on assessment, diagnosis, and appropriate nursing interventions. They can then determine whether or not this information is appropriate based on their knowledge from other sources.

3. **Drug Information and Interactions**: ChatGPT can provide information about medications related to indications, contraindications, side effects, and potential drug interactions. Nursing students can inquire about specific drugs or seek guidance on safe administration of medications.

4. **Best Practices and Evidence-Based Nursing**: ChatGPT can assist students to understand and potentially even synthesize evidence-based nursing practices and guidelines. Students can inquire about the latest research, nursing protocols, or recommendations for specific patient populations.

5. **Professional Development and Career Guidance**: ChatGPT can provide information and guidance regarding nursing career paths, specialization options, professional development opportunities, and resources for continuing education.

As you can see the recommendations put forth by ChatGPT are reasonable, appropriate, and useful. These findings are similar to those of Sun and Hoeschler's (2023) exploration of the use of ChatGPT in the academic setting. The authors added that activities such as those as noted above promote academic integrity and foster independent thinking and critical reasoning. ChatGPT can be employed as a virtual tutor to assist students with queries and offering study materials (Abujaber, et al., 2023).

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ChatGPT can provide personalized learning experiences by adapting to specific needs and learning styles of individual students. It can offer tailored explanations, examples, and practice exercises based on the student's level of understanding and progress. This personalized approach can enhance engagement and improve learning outcomes (Abujaber, 2023). ChatGPT can foster active learning and engagement by promoting interactive conversations. For example, students can ask questions, engage in discussions, and explore different perspectives. This dynamic exchange can stimulate critical thinking, problem-solving skills, and a deeper understanding of concepts.

ChatGPT can foster active learning and engagement by promoting interactive conversations.

The round-the-clock availability of ChatGPT ensures that students can access educational support beyond traditional classroom hours. Its use can accommodate different time zones and schedules, allowing students to seek assistance at their convenience. This accessibility promotes continuous learning and bridges gaps in understanding. ChatGPT can assist students to improve language skills by providing feedback on grammar, vocabulary, sentence structure, and style. Through interactive conversations with ChatGPT, students can practice and refine communication skills, including reading, writing, and speaking (Sun & Hoeschler, 2023).

ChatGPT can offer support to students with special needs, such as those with learning disabilities or language barriers. Abujaber et al., (2023) completed a SWOT (i.e., strengths, weaknesses, opportunities, and threats) analysis on the strengths of using ChatGPT in nursing and concluded that ChatGPT is a valuable tool for nursing educators. As with any new technology, there are caveats. The challenge with ChatGPT is to know when to trust the content.

Barriers to Using ChatGPT in Nursing Education

The challenge with ChatGPT is to know when to trust the content.

When using ChatGPT there are inherent barriers, such as limited access to the technology and the internet. Accuracy and reliability of the information generated can be a barrier to adoption (Sun & Hoeschler, 2023). Mitigating concerns about the accuracy and reliability of information provided by ChatGPT is important to ensure that users can trust the responses they receive. Dağci et al. (2024) found that ChatGPT-generated nursing care plans exhibited moderate reliability, quality of nursing care information, and overall quality. The authors agreed that there is an onus on the user of any of these generative AI technologies to critically evaluate the information provided.

Bear in mind that ChatGPT generates responses based on patterns learned from a vast amount of training data, but the technology may not always have access to the most up-to-date or context-specific information (Abujaber et al., 2023). There are several ways to address this barrier, such as:

- Encourage users to cross-reference and verify information with other reliable, authoritative sources and consult subject matter experts when needed.

- Encourage users to independently validate facts, statistics, and important details provided by ChatGPT before relying on them in practice.

- Promote the use of trusted references, academic publications, official guidelines, or reputable websites for accurate information.

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In sum, AI is not an expert on all things and is only as accurate as the information it consumes.

We must educate nursing students by providing guidelines and resources on information literacy, fact-checking techniques, and critical thinking skills. By promoting critical thinking, source verification, and user feedback, users can better navigate the information provided by ChatGPT and make informed decisions about its reliability and accuracy. Combining AI tools with human judgment and trusted sources can address concerns and improve the overall quality of information obtained through ChatGPT.

Ethical Concerns and ChatGPT

The development and deployment of ChatGPT and other AI technology, in general, raises several ethical dilemmas and considerations. In this section I discuss some notable ethical concerns associated with AI, such as potential biases, user privacy, transparency, and psychosocial considerations, and actions planned or in progress to address them. It is important for nurse educators considering the use of AI technology in curricula to have awareness of these concerns and possible actions to mitigate them in practice (Ronquillo et al., 2021).

Potential Biases

AI models like ChatGPT can inadvertently perpetuate biases. If the data contains biased information or reflects societal prejudices, the AI system may generate biased or discriminatory responses (Kasneci et al., 2023). These systems have the potential to generate "hallucination" misinformation that seems credible and can be used to purposefully create false information (GAO, 2023). Ensuring that AI systems are designed to prioritize accurate information and prevent malicious use is an ongoing ethical challenge (Kasneci et al., 2023). It should be noted that the incidence of hallucinations is decreasing with continued use and user feedback. Addressing and mitigating bias in AI models is a crucial ethical concern to ensure fairness and equal treatment for all.

Breaches of User Privacy

Protecting user privacy and ensuring proper data handling practices are vital. Ethical dilemmas may arise when user data are collected and used without informed consent. Also, AI systems may inadvertently disclose personal information.

> **Ensuring that AI systems are designed to prioritize accurate information and prevent malicious use is an ongoing ethical challenge**

Lack of Transparency

AI systems like ChatGPT may generate responses that are difficult to explain or justify. Lack of transparency can lead to challenges in understanding the decision-making process of AI models. Ensuring accountability for AI systems and providing transparency in how they operate and make decisions are important ethical considerations. The ability of ChatGPT to generate human-like responses raises concerns about potential deception. If users are not made explicitly aware that they are interacting with an AI system, they may mistakenly perceive ChatGPT as a human interlocutor. Users may find they anthropomorphize ChatGPT by referring to it as he or she or even saying please and thank you.

> **Ethical guidelines should prioritize transparency and disclosure to counteract deceptive practices.**

Psychosocial Considerations

Growing dependence on AI systems has the potential to influence human autonomy and decision-making. As this technology evolves and usage increases, essential tasks and decision-making procedures might erode human agency, ultimately weakening individual capacity to engage in critical thinking and exercise independent judgment. Moreover, excessive reliance on AI may lead to a gradual decline in reliance on wisdom, intuition, and tacit knowledge (Abdulai & Hung, 2023).

AI advancements have the potential to automate certain tasks, leading to concerns about job displacement and socioeconomic implications. Ethical considerations in this context involve managing the impact of AI on employment, retraining affected workers, and ensuring a just transition (Healthcare Information and Management Systems Society [HIMSS], n.d.). Interacting with AI systems like ChatGPT may have psychological and emotional effects on users (Pelau, et al., 2021). The ethical challenge lies in promoting responsible AI use, considering potential risks, and addressing the well-being of users who may develop emotional connections or rely heavily on AI for emotional support.

> **Growing dependence on AI systems has the potential to influence human autonomy and decision-making.**

Actions to Address Ethical Concerns

In light of the above-mentioned ethical concerns, leaders in artificial intelligence are making efforts to create what are referred to as guard rails or safety bumpers. Similar to creating a guardian when using virtual reality, guardians are also needed in the AI world. The United Nations Educational, Scientific and cultural organization ([UNESCO], 2023) is leading a campaign to ensure AI has ethical guardrails that promote fairness and equity and do not perpetuate systemic racism and bias. UNESCO has developed the ten core principles for human-centered AI. These include a 'do no harm' clause, as well as the right to privacy and data protection. In addition, other important considerations are transparency, explainability, human oversight, and determination.

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Addressing these ethical dilemmas requires a collaborative approach that involves AI developers, policymakers, researchers, and society as a whole. Ongoing discussions, transparency, robust governance frameworks, and adherence to ethical guidelines can help everyone to navigate these challenges and ensure the responsible development and deployment of AI technologies such as ChatGPT. Recently the Federal Trade Commission (FTC) opened an investigation into OpenAI the research and deployment company of ChatGPT. The investigation centered around whether AI chatbots can harm individuals through their collection of data and publication of false information (Kang & Metz, 2023). This is the first of what this author believes will be many regulatory investigations launched in the United States (US). The U.S. Government Accountability Office has announced that it will conduct a review of the potential harm caused by generative AI tools such as ChatGPT (GAO, 2023). The National Institute of Standards and Technology ([NIST], n.d.) has made trustworthy and responsible AI a research priority. NIST will explore areas important to use of AI, such as reliability and validity, security, and fairness with mitigation of harmful bias.

Recommendations for Best Practice

There is an ethical imperative for nurse educators to have a minimum, basic understanding of how AI tools are developed, what informs them, and the implications of using such tools for clinical judgment and decision-making (Ronquillo et al., 2021). The following recommendations may be helpful:

> **Be prepared to adjust and adapt as AI technology evolves.**

- Ensure that all learners have access to reliable technology and internet service.

- Develop guidelines for faculty and learners that frame AI use in the classroom. Consider a student-led committee to make recommendations and examine student issues and ethical dilemmas.

- Plan presentations each semester for new and returning students to share concerns and expectations when using AI for learning. Consider adopting a Code of Ethics such as the one from the Society for Simulation in Healthcare (Park et al., 2018). While the SSH Code of Ethics is specific to simulation, many of the tenets are aligned with the ethical use of AI such as integrity, transparency, mutual respect, professionalism, accountability, and results orientation.

- Utilize the embedded ChatGPT comment feature. This feature embedded in ChatGPT allows the user to confirm the information. This feature also referred to as Reinforcement Learning with Human feedback or (RLHF) gives agents the ability to learn from external human advice. This action helps inform and train the data (Lliu, 2023).

Transformation of nursing curricula will be necessary to ensure that future nurses are equipped with the required competencies in digital and data literacy to work in environments that increasingly use AI and machine learning (Buchanan et al., 2021). Above all, acknowledge that this is a new era with many uncertainties. Be prepared to adjust and adapt as AI technology evolves.

Conclusion

There are many reasons to embrace AI and an equal number of reasons to proceed with caution. Despite this trepidation and uncertainty, today's nursing students have been exposed and the horse is out of the proverbial barn. As educators, we need to become informed and familiar with AI technology; even if we do not espouse its use in the classroom, our learners will be using it. Without guardrails in place, learning may be flawed, biased, and dangerous. We owe it to our students to embrace forward-thinking, to collaborate, and to explore the use of AI in the classroom.

> There are many reasons to embrace AI and an equal number of reasons to proceed with caution.

AI will continue to be dynamic and iterative. There is little doubt that using AI technology such as ChatGPT can lessen preparation time for class and offer creative ways to engage students. However, a responsible AI user is also fact-checking, and ensuring that information is reliable and valid. Attempts are underway to ensure the validity and accuracy of AI generated information (GAO, 2023; NIST, n.d.). The future is now, and nurse educators must keep pace with new developments in these innovative technologies.

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Dr. Gonzalez is the Vice President of Healthcare Innovation at Sentinel U®. She is the immediate past president of the International Nursing Association for Clinical Simulation and Learning (INACSL) and a recognized simulation expert. She holds the prestigious advanced certified healthcare simulation educator (CHSE-A) certification. In the fall of 2020, Dr. Gonzalez was recognized by the prestigious American Academy of Nurses as a Fellow (FAAN). She is also a fellow of the Academy of Nurse Educators (ANEF). Her nursing career focuses on advancing the science of nursing education through the use of simulation and its impact on learner outcomes. Dr.Gonzalez has a very specific body of work that has resulted in over 20 data-based manuscripts in peer-reviewed journals, and one clinical skills textbook. She is a seasoned nurse educator with experience teaching across the curriculum including live, hybrid, online, and synchronous delivery methods. Her recent work has been exploring AI to identify best practices and to increase learner engagement.

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