



Artificial Intelligence (Ai) & Its Implications In Nursing

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INTRODUCTION

Automating tasks that currently require human intelligence is the aim of the large field of artificial intelligence, or A.I. Recent developments in artificial intelligence include systems that automatically adjust hardware to specific user requirements and digital medical diagnosticians.

Artificial intelligence (AI) refers to modern computational approaches that include algorithms designed to handle and analyze a wide range of data kinds, including written text, audio, and visual information such as images or videos. By quickly evaluating massive volumes of digital data, these algorithms generate mathematical models that predict the likelihood of specific occurrences.

These prediction models lay the groundwork for more sophisticated digital technologies, such as chatbots that mimic human speech and mental processes.

The five main issues that artificial intelligence addresses are perception, manipulation, reasoning, communication, and learning.

Creating representations of the real world from sensory data (visual, aural, etc.) is the focus of perception. The goal of manipulation is to move appendages (such as mechanical arms or locomotion devices) in order to achieve a desired condition in the real world.

Reasoning encompasses higher order cognitive activities such as diagnosing, planning, designing, and drawing conclusions from a world model. Communication addresses the problem of understanding and expressing information through language.

CHANGES FOR ARTIFICIAL INTELLIGENCE IN NURSING CARE

Because technology is developing at an exponential rate, artificial intelligence (AI) has the potential to completely transform the following aspects of healthcare:

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	Patient charting	Since all the required data is currently being collected by computerized health records, artificial intelligence could readily mimic this operation.
	Medication administration	Given that some hospitals currently use robots to deliver prescription drugs, artificial intelligence might potentially perform this duty.
	Wound care	Taking care of wounds, which involves washing and treating them, is another routine duty for nurses. Given that there are currently a number of robot helpers built specifically for this function, artificial intelligence may also be able to mimic this task.
	IV insertion and removal	Additionally, nurses give patients IVs and take them out. Given that there are currently a number of robot helpers built specifically for this function, artificial intelligence may be able to imitate this task.
	Patient transport	Transporting patients between hospital areas is a common task for nurses. Given that there are currently a number of robot helpers built specifically for this function, artificial intelligence may be able to imitate this task.
	Patient education	When it comes to educating patients about their conditions and how to manage them, nurses are crucial. Given that there are currently a number of robot helpers built specifically for this reason, artificial intelligence could be able to reproduce this task.

Figure:Changes for Artificial Intelligence in Nursing Care

THE CHALLENGES OF AI

AI has the potential to revolutionize our world by providing solutions to long-standing problems in many fields, including healthcare. However, with great power comes great responsibility. AI is not without its challenges, including:

- **Decline in employment:** The possibility of widespread decline in employment due to AI is just one of the primary barriers it presents. Automation across a range of occupations is anticipated to rise as artificial intelligence (AI) develops. If machines start performing tasks that humans presently do, an important percentage of humans may lose their employment as a result of this.
- **Inequality:** There's a chance that as automation grows, the people with cash will stand to gain the most. On the other hand, workers who are replaced by automation will make less money. Social upheaval and rising

inequality could result from this issue.

- **Risks to security:** Because thieves may utilize artificial intelligence-powered tools and systems to launch crimes, artificial intelligence (AI) also presents dangers to security. Autonomous weaponry has the potential to strike essential facilities or civilian targets. Moreover, artificial intelligence has the ability to fabricate facts and sway the public's mind.
- **Dilemmas of morality:** artificial intelligence (AI) raises certain moral concerns as well. As artificial intelligence (AI) technology advances, there is a possibility that it will be utilized for immoral purposes, such as discrimination or monitoring. Furthermore, there's a chance that "superintelligent" systems that pose an imminent danger to humanity could be made via artificial intelligence (AI).
- **Effect on the natural environment:** The environment is impacted by the advancement



and application of artificial intelligence (AI). For instance, the energy and resources needed to manufacture powered by artificial intelligence products may result in pollution. Furthermore, employing AI-powered cars may result in more traffic and congestion, which would be bad for the environment.

GENERATIVE AI

The term "generative artificial intelligence," or "generative AI," describes the use of AI to the production of fresh text, graphics, audio, video, and music. The base model (big AI model) that drive generative AI are capable of multitasking and doing custom tasks like categorization, answers to questions, synthesis, and many. Furthermore, basis models can be tailored for specific use cases utilizing limited sample data and minimal training.

Nursing Education with Generative AI

AI is only now beginning to be used in nursing education. According to a recent analysis by O'Connor (2022), artificial intelligence (AI) was being utilized to forecast degree and rate of achievement, failing academically rates, and the loss of students from courses in nursing. It's possible that ChatGPT and other generative AI tools are already being used by nurse educators and students worldwide for instruction, learning, and evaluation. They might, however, be reluctant or unwilling to employ these new resources, particularly if they don't fully comprehend how they operate and the potential issues they could raise. Recommendations for the use of these AI technologies should be developed in order to assist nursing students, medical mentors, and instructors in a medical facility, university, and community-based settings (Koo, 2023; O'Connor & ChatGPT, the year 2023).

GENERATIVE AI TOOLS: BENEFITS AND LIMITATIONS

BENEFITS -

- Quickly process vast volumes of text, picture, audio, and video data while finding relationships and patterns that may be hard human beings to notice mistakes in.
- React rather well to human cues, producing written content, digital photos, audio data, or video that resembles human.
- Furthermore, as the tool gains further input, it may be able to learn from user feedback

and modify its replies to actual users over time, perhaps becoming more precise and efficient.

LIMITATIONS -

- Is dependent on dealing with human beings and the caliber of the data used for training. Low-quality information could lead to confusing or erroneous words, pictures, sounds, or video results that could have a negative impact on many social groups.
- May, even with expert prodding, create or "confabulate" findings that are not based on its training data.
- It is known as "black box AI" when experts are unable to completely comprehend the operation of certain algorithms and prediction models.

NURSING EDUCATION

- It's critical to keep up to date on current technological advances as the nursing field develops, hence artificial intelligence (AI) is a worthwhile area of study. Gaining a grasp of artificial intelligence (AI) capabilities might be essential to your professional future if you are thinking about becoming a nurse or if you are currently employed in the field.

- The profession of nursing education is one that is always developing, giving prospective nurses the skills and information they need to be successful in a meaningful career. There has never been a greater need for highly trained nurses due to the advancing age of the population's greater need for healthcare personnel and the global pandemic. Students are taught how to effectively provide high-quality, scientifically proven treatment across a range of healthcare settings, such as hospitals, medical centers, and long-term care institutions, is the main goal for contemporary nursing education. Students who study nursing are equipped to manage an ever-evolving and demanding healthcare sector by an integration of instruction in the classroom, hands-on training, and clinical practice. Nursing education is a sector that is always changing to meet the demands of students and patients. The introduction of artificial intelligence (AI) into nursing education is changing how students study and get ready for their futures in the healthcare industry. Artificial intelligence (AI) technologies are used nowadays for many



different purposes, such as evaluating and modeling health situations and giving each learner individualized feedback. With the use of AI-powered resources, nursing students can

improve their ability to make clinical choices and critical thinking abilities while also getting real-time feedback and assistance.

MULTIDISCIPLINARY TOOLS FOR NURSING EDUCATION USAGE

i-Human Patients	<i>A virtual patient encounter platform called i-Human Patients simulates patient cases using artificial intelligence. It provides a realistic and engaging setting for nursing students to experiment with clinical analysis, examination, and making decisions.</i>
Shadow Health	<i>Artificial intelligence (AI) virtual patient simulations are provided by Shadow Health. Through these simulations, nursing students can hone their clinical and interpersonal competencies in a safe, engaging online setting.</i>
NurseThink® for Students	<i>NurseThink® for Students is a customizable learning platform that adapts instructional materials to the needs of specific students through the application of artificial intelligence. To assist nursing students in understanding important topics, it provides case studies, tests, and other interactive resources.</i>
Cognitive Tutoring Systems	<i>AI is used by cognitive tutoring systems, like Carnegie Learning, to deliver individualized education and feedback. By adjusting to the learner's performance, these technologies support nursing students in deepening their comprehension of particular subjects.</i>
SimMan 3G and SimJunior	<i>AI is used in SimMan 3G and SimJunior, two high-fidelity patient simulators, to replicate different patient situations. Nursing students can hone their clinical abilities, critical thinking, and decision-making in a safe setting by using these simulators, which provide realistic settings.</i>
DecisionSim	<i>A simulation platform with AI for healthcare education is called DecisionSim. Nursing students can make judgments and observe the results in a risk-free setting thanks to the realistic clinical scenarios it offers.</i>
Osso VR	<i>AI is used by the virtual reality platform Osso VR to improve surgical and procedural training. Its applications may extend to nursing education, providing realistic and immersive teaching settings, despite its initial concentration on surgical abilities.</i>

Note: The subject of artificial intelligence in education is dynamic and continuously growing, so it is important to look for the most recent updates, papers, or case studies linked to its implementation in nursing education while using or citing these tools.

CONCLUSION

Artificial intelligence (AI) is a constantly growing field, with new generative AI tools and applications continually being published. There is a lot of controversy about whether the nursing profession should employ these newly developed digital technologies in their early stages. In reality, kids have access to AI tools, thus attempting to ban them would be futile. Moreover, nurses must be aware of technological advancements because patients and medical professionals may begin to use them. Modern education in these new digital technologies is critical during this critical transition because they are here to stay and will only improve over time.

When learning about artificial intelligence tools, instructors and students should approach the topic with interest, prudence, and collaboration. They should focus on developing digital literacy and critical thinking skills while maintaining academic integrity. Nursing students may be better prepared for a career in which AI tools are commonly utilized

by nurses, patients, and other professionals to improve patient health outcomes if AI technology is brought to nursing education in a responsible manner.

KEY POINTS

- Digital technologies powered by artificial intelligence generate written material, photos, and video content.
- Artificial intelligence-powered technologies have the potential to change the training of nurses.
- Tools for generative artificial intelligence could support teachers in their instruction and evaluation.
- Nurse educators ought to assist learners in learning about digital literacy and artificial intelligence instruments.
- The use of artificial intelligence technologies in education should be examined by the nursing profession in terms of its advantages, disadvantages, and hazards.

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