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EDITORIAL

Nurses and Artificial Intelligence Implementation

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The application and/or implementation of Artificial Intelligence **(**AI) is a double-edged sword with advantages and disadvantages. It is necessary to explore the issue to determine best practices for future AI application and/or implementation. The question is not will AI be integrated into the nursing profession, but *how?* How will AI affect the nurse's role? AI is an invention, not different from electricity's introduction and development. Both are innovative and transformative. We lived and worked differently before electricity. We also lived and worked differently before AI.

The development and research of AI systems in healthcare increased over the past decade, highlighting AI's strong potential to improve healthcare quality. The current challenge is to transform the technology into something for the patients' benefit *via* more accurate, effective, efficient, economical, and *personalized* care.

John McCarthy, professor of Computer Science at Stanford University, coined the term "artificial intelligence" and offered the following definition of AI: It is the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI does not have to confine itself to biologically observable methods (McCarthy, 2007).

In healthcare, AI is fundamentally a computer's ability to autonomously (independently) convert data into knowledge - knowledge to guide decision-making precisely. The definition of AI in the healthcare profession is not as straightforward as in the computer-science profession.

Therefore, the scope of the technology in healthcare; namely nursing, is limitless, and the possibilities are endless. In nursing, AI is an umbrella term for several methodologies and technologies contributing to the healthcare system's advancement.

AI in healthcare is *not* new; it is used in countless ways. The purpose and use of AI in healthcare have been the focus of exploration for years. Still, it is being implemented more effectively, contributing to the system's efficiency and lowering costs. AI offers several advantages over what is referred to as the traditional methods of healthcare, including-but not limited to- the ability to collect a large volume of data, accurately flag the patients considered to be most at-risk and monitor the patients following discharge.

With AI and nurses**,** it is necessary to establish (and communicate) the need for AI. In addition, it is essential to distinguish between the role of AI and the role of a nurse. The roles need to be separated to determine the delivery of appropriate care. Nurses may be apprehensive about integrating AI, but nurses currently use AI tools daily. These AI tools include-but are *not* limited to- diagnostic assessments, targeted treatments, virtual health assistants, etc. This kind of AI is regarded as *narrow* or *weak* AI. However, there is a significant evolution in AI happening, and the tools are developing at a rate unprecedented in the history of medicine. AI is becoming *stronger*. Therefore, nurses need effective and professional training.

Nurses need more than a basic understanding of weak AI, so that they may be as capable and as informed as possible and, eventually, be able to contribute to

future technology development. Ideally, nurses should be involved in developing and implementing the technology to best serve the patients in their care (Higgins et al., 2023).

Implementing AI has several advantages for nurses and patients. AI technology in healthcare possesses the potential to improve and, therefore, offer more access to high-quality healthcare. The improvements include providing individualized and/or personalized healthcare and monitoring the patients with a reduced rate of error and at a lower cost.

Additionally, AI technology can improve care, reducing time-consuming tasks that do not require a nurse's knowledge and/or skill set. While a nurse can traditionally perform risk assessment, a nurse's assessment has a limited number of variables. AI tools can "learn" to be more accurate, a significant advantage in healthcare.

Consequently, AI, in comparison, can analyze more data points, including data that is not easily accessible (and/or available) in the patient's Electronic Health Record (EHR), which allows nurses to be free to provide more *direct*, one-on-one care to patients. EHR is the electronic version of a patient's health history, as maintained by the patient's care provider over a period of time. EHR is now a common practice wherein healthcare databases digitize and store patients' data. The databases organize existing information for easy access, allowing nurses to save time in completing administration-related tasks and, instead, allow more time for the care of patients, thereby improving the nurse-patient relationship. AI can enhance healthcare quality regarding access (as mentioned above) and efficiency and safety through collaboration, communication, and coordination between healthcare professionals, especially nurses, and the patients. AI can lessen (or simplify) the nurses' workload, significantly increasing (or maximizing) the quality of care provided by them to the patients.

Despite the impressive advantages (possibilities), implementing AI in healthcare presents several barriers (or limitations). But to transform the nursing profession, we must address these barriers (limitations) in adopting AI, and we must do so with the input of the healthcare professionals who are asked to implement the technology. AI is a human invention, and therefore, it is reasonable to foresee that the biases (shortcomings) of the creator will undoubtedly become the biases (shortcomings) of the creation. This is unavoidable, because we (human beings) are not perfect, and therefore, the technology which we create is *not* ideal. There is, thus, a risk that the AI technology implemented will have been systematically embedded with existing and persisting biases, which may cause the results to be less than accurate (Robert, 2019). Not accounting for (or inaccurately accounting for) factors, such as age, race, or sex, for example, can lead to inaccurate outcomes in the healthcare setting, affecting how data is used and how care is provided by nurses to patients. Nurses require high-quality data to best serve the patients in their care. Unsurprisingly, an AI system requires high-quality data, if not the *highest-quality* data, to function.

However, due to data fragmentation, privacy is a common, recurring theme associated with implementing technology in healthcare. The addition of AI merely exaggerated the issue. Privacy, or a lack thereof, is a significant concern. The patient's data, such as-but *not* limited to- the data available *via* the patient's EHR, consists of highly sensitive Personally Identifiable Information (PII) protected under the Health Insurance Portability and Accountability Act (HIPAA) guidelines.

Therefore, the adoption of AI in healthcare is hindered by the sizable amount of data necessary for the AI system to function, because with increased collected data, the possibility of data leakages increases. The possibility of a data breach is a genuine fear for the patients and the healthcare system.

Conclusion

AI is being developed, tested, and applied to healthcare systems worldwide, but with the limited input of nurses across different settings. But, for the technology to become more accurate, effective, efficient, and economical, nurses should be allowed to engage in all stages of the development process.

The following is of significance. The implementation of AI is not a perfect science. Success in implementation will require the input of healthcare professionals, especially nurses, because they are responsible for nurturing a close and trusted relationship with the patients in their care.

AI is helping to improve patient care and the nurse-patient relationship by allowing nurses to enhance the decision-making process and streamline the workflow, thereby allowing nurses more time to give to the patients in their care.

AI now is viewed as a game changer. AI is transforming the world, how we live, and how we work. In nursing and healthcare, AI is improving healthcare quality and expanding access to healthcare. Despite the presence of some limitations, AI can transform the nature of the nursing profession to improve the healthcare system, enhancing the relationship between the nurse and the patient, thereby improving the patient's health.

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