Editorial

Deep learning during nursing care: An evolving perspective

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To the Editor

In the ever-changing healthcare landscape, technological advancements transform the patient approach care [1]. One of the most significant innovations is deep learning, a subset of artificial intelligence (AI) that has gained much attention. Although it has already been widely used in radiology, pathology, and other medical fields, integrating deep learning into nursing care is an exciting new frontier [2-9]. In the current writing, the authors will explore the evolving role of deep learning in nursing practice, its challenges, and the opportunities.

Meanwhile, deep learning is a type of machine learning that uses neural networks with multiple layers. These networks learn from vast amounts of data, enabling them to identify complex patterns and features for making sophisticated decisions. In the healthcare industry, deep learning algorithms have shown exceptional abilities in image analysis, natural language processing, and predictive modeling [10]. Also, efforts to standardize data collection and improve interoperability are crucial to unleash the full potential of deep learning models, as nursing data can be heterogeneous, fragmented, and sometimes incomplete [11]. Incorporating deep learning can improve clinical decision-making by providing real-time insights. AI-driven tools can assist nurses in patient assessment, risk prediction, and personalized care planning [12]. Additionally, persistent monitoring of vital signs, patient movement, and behavior can prevent adverse events. Deep learning algorithms analyze this data to detect changes and alert nurses promptly [13]. A study by Tunca et al., revealed that deep learning models can analyze gait patterns, sensor data, and patient movement to predict fall risk and nurses can receive alerts and tailor interventions accordingly [14]. In addition, a study by Cicceri et al., has demonstrated that by analyzing skin images and patient positioning, deep learning algorithms can identify early signs of pressure ulcers which nurses can implement preventive measures [15]. Deep learning can assist in medication reconciliation, dosage calculations, and adverse event prediction that nurses can focus on patient education and adherence [16].

Deep learning has potential benefits for nursing staff, but it also presents several ethical issues that must be addressed. Nurses need to gain an understanding of how deep learning algorithms arrive at decisions. This knowledge will help to build trust and promote collaboration between nurses and the algorithms [17]. Additionally, it is essential to ensure that deep learning models do not perpetuate biases based on race, gender, or socioeconomic status. It is important to view AI as a tool that enhances the expertise of nurses rather than replacing it. To achieve the best outcomes, effective collaboration between humans and algorithms is crucial [18].

In sum, as deep learning technology continues to advance, nurses can take advantage of its potential benefits. By adopting this technology, nurses can improve patient care, boost operational efficiency, and contribute to a more data-driven healthcare system. However, achieving these goals requires interdisciplinary collaboration, consistent education, and a commitment to ethical AI practices.

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Ethics approval and consent to participate
Not applicable.

Competing interests
We do not have potential conflicts of interest with respect to the research, authorship, and publication of this article.

Availability of data and materials
The datasets used during the current study are available from the corresponding author on request.

Using artificial intelligent chatbots
None.

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