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The Need to Reconsider Nursing Theories in the Era of Artificial Intelligence

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Over recent decades, nursing theories have provided fundamental conceptual frameworks for explaining the nature of care, nurse–patient relationships, human needs, and the objectives of nursing interventions (1). Theories grounded in humanistic caring, self-care, interpersonal relationships, and adaptation have each emphasized different dimensions of human-centered care, therapeutic interactions, patient autonomy, and adaptation to health-related conditions. However, many of these theoretical frameworks were developed in contexts in which direct human interaction and face-to-face clinical assessment constituted the primary foundations of the care process (2). Today, with the growing integration of intelligent systems, the clinical care environment has evolved beyond a structure comprising primarily patients, nurses, and physical environmental factors. Health data, intelligent algorithms, predictive systems, and communication technologies have increasingly become influential components in shaping and guiding care delivery (3). This transformation highlights the growing need to reconsider the underlying assumptions of nursing theories and expand their explanatory capacity to address emerging health care realities.

A systematic review by Martinez-Ortigosa et al. demonstrated that applications of artificial intelligence in nursing encompass a broad range of activities, including early detection, clinical decision support, patient monitoring, workflow optimization, and nursing education (4). Similarly, in their systematic review, O'Connor et al. highlighted the potential of artificial intelligence to transform nursing and midwifery practice (5). Accordingly, reconsidering nursing theories is not merely a response to technological advancement; rather, it is a scientific necessity for maintaining the relevance of theoretical knowledge to evolving clinical environments and emerging care needs.

1. Applications of Artificial Intelligence in Enhancing the Quality of Nursing Care

One of the most important potential benefits of artificial intelligence in nursing is its ability to improve the accuracy of clinical assessment and facilitate the early identification of changes in patients' health status (6). Machine learning algorithms can simultaneously analyze data from vital signs, laboratory results, electronic health records, and physiological indicators, thereby supporting the identification of patients at risk of clinical deterioration, sepsis, falls, and other potential complications. Leveraging these capabilities may strengthen nursing practice by improving patient prioritization, facilitating more effective resource allocation, and supporting clinical decision-making (7).

In the care of patients with chronic diseases, artificial intelligence also offers considerable potential to enhance self-care and continuity of care through longitudinal data analysis, remote monitoring, and feedback tailored to individual patients' conditions. Furthermore, generative artificial intelligence tools may support clinical documentation, the retrieval and organization of scientific evidence, the development of educational materials, and professional communication (8, 9). In this regard, the 2026 systematic review by Hardie et al. examined the applications, attitudes, and ethical considerations associated with generative artificial intelligence in nursing

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education (10). Nevertheless, the success of these technologies should not be evaluated solely in terms of speed, cost reduction, or increased productivity. Their impact on patient safety, the quality of patients' care experiences, clinical outcomes, and the preservation of human dignity should be the primary criteria for evaluation (11).

2. Reinterpreting Classical Nursing Theories Within the Context of Intelligent Care

Digital transformation provides an opportunity to reinterpret classical nursing theories in light of the capabilities and challenges associated with intelligent technologies. The principles of humanistic caring can provide a theoretical and ethical foundation for defining the boundaries and responsibilities associated with the use of artificial intelligence in care delivery. Similarly, self-care theory offers a conceptual basis for understanding how intelligent systems can empower patients and strengthen their active participation in health management. Adaptation theory may also provide a framework for understanding patients' responses to digital care environments and the changes resulting from their interactions with technology. Furthermore, concepts related to interpersonal relationships may be extended to explain therapeutic communication within digital platforms and remote care settings (12, 13).

In this context, Nashwan and Kunjavara (14), who focused specifically on reconsidering nursing theories in the age of artificial intelligence, proposed the conceptual framework of AI-Enhanced Caring Adaptation Theory. Within this framework, artificial intelligence is regarded as an enabling and collaborative component of the care process rather than a replacement for the human role and professional responsibilities of nurses (14). This perspective suggests that the development of nursing theories in the digital era should be grounded in the integration of technological capabilities with the fundamental principles of human-centered care.

3. The Need for Transformation in Nursing Education, Research, and Leadership

Achieving this transformation will not be possible without revisiting nursing education and professional development systems. In addition to clinical competencies, nursing students and practicing nurses must develop essential capabilities, including artificial intelligence literacy, health data interpretation, evaluation of algorithmic outputs, information protection, and adherence to principles of digital ethics. Nursing education should extend beyond teaching the operational use of intelligent tools and should also strengthen critical thinking, the ability to recognize technological limitations, the evaluation of algorithmic recommendations, and the preservation of independent clinical judgment. Recent research in nursing education emphasizes the importance of responsibly integrating artificial intelligence into educational curricula while maintaining professional values and students' cognitive and critical-thinking competencies (10, 15).

Moreover, nursing leaders and healthcare policymakers should facilitate nurses' active participation in the design, evaluation, and implementation of intelligent systems and in developing standards for these systems. Insufficient nursing involvement in these processes may lead to the development and implementation of technologies that, despite their advanced technical capabilities, are inadequately aligned with patients' actual needs, the complexities of clinical environments, and the fundamental values of the nursing profession. Therefore, the future of intelligent care requires collaboration among nurses, technology specialists, researchers, healthcare administrators, and policymakers.

Footnotes

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