

## Impacts of artificial intelligence on the production of scientific knowledge in health and nursing

*Impactos da inteligência artificial para a produção do conhecimento científico em saúde e enfermagem*

*Impactos de la inteligencia artificial en la producción de conocimiento científico en salud y enfermería*

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Artificial intelligence (AI) has established itself as a strategic pillar in global and national health policies. The World Health Organization<sup>1</sup> and the Ministry of Health<sup>2</sup> highlight AI as an essential tool for improving care, epidemiological surveillance, and the management of the Unified Health System (SUS). However, AI is not limited to optimizing processes; it redefines the very production, dissemination, and validation of scientific knowledge in health and nursing. This transformation poses theoretical, ethical, and educational challenges that must be discussed by the entire scientific community.

From a theoretical perspective, this debate can be illuminated by different interpretative approaches. On the one hand, digital technologies are seen as enhancers of collective intelligence, whose knowledge is decentralized, networked, and constantly updated<sup>3,4</sup>. On the other hand, AI plays the role of catalyst, especially in the analytical processes that favor the production of evidence for clinical practice<sup>5</sup>. On the other hand, it is known that AI develops according to the predominant logic of performance, efficiency, and continuous acceleration of production flows<sup>6</sup>, whose articulation with nursing can pose risks to researchers, such as the process of constructing scientific production guided by speed and multiplication of metrics, to the detriment of critical reflection. Thus, AI is at the center of a dialectical movement: from the first perspective, it holds emancipatory potential, as it disseminates knowledge; and from the second, it is likely to intensify the logic of scientific and labor hyperproductivity.

It is noteworthy that the aforementioned theoretical approaches, although antagonistic, do not cancel each other out and coexist in a manner that is sometimes complementary, sometimes in conflict. For nursing, this understanding implies recognizing that artificial intelligence can simultaneously optimize knowledge production and pose ethical and epistemological challenges that require constant vigilance and critical reflection. Understanding this confluence is fundamental to developing strategies that maximize the benefits of AI and strengthen the collective of professionals, academics, and students. In this scenario, it is equally imperative that research funding agencies and evaluation agencies in the field revisit their evaluation parameters, incorporating criteria that transcend the purely quantitative and productivist perspective and incorporate the fact that AI is already part of the world of knowledge production.

Regarding ethical aspects, the use of AI in nursing scientific production raises important dilemmas that overlap with technical application. Beyond aspects related to privacy and the protection of sensitive data, the transparency and traceability of algorithms applied to data analysis have been increasingly questioned, as they can generate results without the necessary explainability and depth of analysis, compromising both the quality and reliability of the findings<sup>7</sup>. This risk is particularly exacerbated in nursing, as the scientific knowledge produced is directly connected to clinical practice and human care.

Furthermore, tensions surrounding authorship and responsibility in AI-mediated scientific production are evident. The use of tools that assist in writing articles, reviewing literature, or analyzing data raises debates about the limits of human contribution, originality, and the need to recognize the role of algorithms in this process<sup>8</sup>. In this sense, some international editorial guidelines<sup>9</sup> establish that AI tools cannot be recognized as authors, as they do not meet the criteria of intellectual responsibility and ethical accountability required by scientific practice. This understanding is corroborated by Brazilian legislation<sup>10</sup>, which defines authorship as the prerogative of individuals.

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Ethical challenges associated with the use of AI in nursing scientific production require not only clear regulation but also a critical stance from researchers and institutions to ensure that such technological resources complement, rather than replace, the human dimension of scientific work. And that their contributions are clearly explained in the various productions that are made public.

Regarding the educational process, the clear influence of AI on the development of nursing researchers' skills and abilities is evident. The popularization of digital tools capable of performing bibliographic searches, summarizing texts, and even proposing research designs undoubtedly represents a step forward in democratizing access to scientific knowledge and reducing technical barriers to academic production. However, this same movement carries with it significant risks. As algorithms perform a substantial part of the analysis and writing steps, there is a real possibility of cognitive disengagement, as defined by researchers, which compromises the autonomy and impoverishes the reflective capacity of researchers<sup>12</sup>. It is unacceptable that the production of knowledge be delegated to a technological process that, in its essence, seeks and makes available its products based precisely on the accumulation of knowledge from decades of research and writing work. In this sense, it should be noted that algorithms are not able to distinguish spurious knowledge from legitimately constructed knowledge, since a portion of scientific publications do not have an effective editorial and peer review system.

Nursing production, strongly rooted in interdisciplinary bases, requires that technology be incorporated in a critical, clear and, above all, ethically grounded manner, to enhance the training of research subjects and not transform them into mere operators of algorithmic systems<sup>7</sup>. The formative challenge, therefore, is to ensure that AI strengthens the leading role of nursing as a science and profession, without weakening its analytical, creative, and relational capacity.

The future of artificial intelligence in nursing's scientific production is something already established by technological advancement; however, ethical limitations and regulatory mechanisms must accompany this process. This mainly means improving the critical training of practicing researchers and future investigators. By promoting open and collaborative science that reduces potential algorithmic biases and reinforces the centrality of human care, nursing can ensure that AI is a tool for collective intelligence and empowerment, and not a vector of wear and tear or the reproduction of inequalities.

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## Use of artificial intelligence tools

Authors declare that no artificial intelligence tool was used to compose the manuscript "*Impacts of artificial intelligence on the production of scientific knowledge in health and nursing*".