Editorial
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AI in Maternal and Neonatal Medicine: Tool, Not Replacement

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ABSTRACT

Artificial intelligence (AI) applications are rising in scientific writing, research, and clinical studies. However, the application of AI in scientific research has both positive and negative aspects. In maternal and neonatal studies, AI algorithms are able to identify complicated patterns and predict the risks of occurrences such as preeclampsia or neonatal sepsis. However, no predictive model or computer program has the ability to replace clinical expertise, experience, or emotional understanding. The issues of ethics and law, which relate to aspects such as data privacy, accountability, and bias, should be addressed. The issue addressed in this editorial pertains to adopting a balanced perspective regarding the use of AI in scientific research.

Editorial

Recently, while assessing submissions for our journal, I have noticed something that keeps coming up: numerous authors—and some reviewers—are utilizing AI tools to write, edit, or analyze their work. Nonetheless, many authors fail to explicitly acknowledge their use of such tools. It seems that using AI is often regarded as "suspicious" or "unethical." However, AI can play a legitimate role in the scientific process—provided it is used transparently, responsibly, and consistently under human oversight.

In maternal, fetal, and neonatal medicine, we find ourselves at a pivotal moment. Algorithms can now identify intricate patterns in ultrasound scans, fetal MRIs, and heart rate monitoring data, and can also forecast risks such as preeclampsia or neonatal sepsis. This represents a meaningful advance; however, no algorithm can substitute understanding

acquired through clinical experience, the subtle decision-making of a physician, or the empathetic insight into a mother's circumstances and her family's requirements. AI serves as a tool, not as a replacement for humans.

At the same time, ethical and legal issues are accumulating. I frequently wonder: when confidential information regarding mothers and babies is fed into a machine learning model, who holds the responsibility for protection? Who takes the blame if the algorithm makes a mistake? How can we guarantee that the data used to train these models accurately represents our population, preventing biased or harmful decision-making?

International frameworks are already providing guidance in this regard. The WHO's 2023 guidance on AI in healthcare and the EU's AI Act (2024) emphasize that AI should be safe, transparent, understandable, and equitable. In Iran, the national ethical guidelines and the Ministry of Health's publication policies emphasize the significance of transparency, data privacy, and human oversight. International editorial organizations, such as COPE, ICMJE, and WAME, have updated their guidelines, emphasizing that AI tools cannot be credited as authors, must be disclosed if used, and should never compromise confidentiality during peer review.

My recent experiences in the journal office has led me to believe that a change in attitude is essential. It is not a matter of completely dismissing AI, nor is it about accepting it without question; rather, it involves a balanced approach: transparent, ethical, and responsible use. In this manner, we protect the originality of research while simultaneously welcoming the opportunities offered by AI. In this issue, we encourage researchers using AI in maternal and newborn health to:

- Disclose their algorithmic techniques transparently.
- Prioritize human decision-making over AI suggestions.
- Manage patient data with the utmost care and ethical responsibility.
- Disclose clearly if AI tools were utilized in writing, analysis, or review.

AI is neither a neither a threat nor a savior. It is just a tool. Used wisely, it can enhance the accuracy, speed, and predictive capability of maternal and infant research. Used carelessly or secretly, it risks eroding trust in science.

I wish for the 13th issue of our journal to ignite a sincere, scientific, and human-centered conversation regarding the actual impact of AI in research and medicine/healthcare.

Sincerely, Dr. Mahta Mazaheri
Editor-in-Chief

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