

Ethics in scientific research and the use of artificial intelligence

Mariane Carolina Faria Barbosa¹  | Jéssica Madeira Bittencourt¹  | Mauro Henrique Nogueira Guimarães de Abreu¹  | Marina Gonçalves Dias²  | Aline Araújo Sampaio¹ 

¹Faculdade de Odontologia, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brasil.

²Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brasil.

The word “ethics” originates from the Greek term “Ethikos,” which pertains to good customs and character. It is not a rigid code of rules dictating what is right or wrong but rather a dynamic and continuous process of questioning social practices and norms, which must evolve in accordance with scientific and technological advancements. Over the centuries, ethics has become a fundamental component across various fields of knowledge, particularly in science, as it ensures that methods and practices are safe, respect human rights, and consider social and environmental implications. Scientific production is a collaborative process involving multiple actors who share responsibilities and trust, from the planning of knowledge production to the dissemination of results and their application in society.

Research ethics, as we understand it today, is the result of historical achievements and remains in constant evolution. The Declaration of Helsinki, developed by the World Medical Association, established guidelines to protect research participants’ rights, ensuring their voluntary and informed participation. In Brazil, the implementation of the National System for Ethical Evaluation of Research, the CEP/CONEP System, has been essential in safeguarding these rights since 1996¹. However, in recent years, certain changes have taken place. With the enactment of Law 14.874/2024 in Brazil², the CEP/CONEP System underwent reforms, with the argument that reducing bureaucracy could contribute to scientific progress. Nevertheless, the end of ethical obligations may represent a setback in protecting research participants, necessitating careful reflection on balancing scientific advancement with maintaining ethical standards that ensure the well-being of those involved^{1,2}.

Furthermore, with technological advancements and the increasing use of artificial intelligence (AI) in science and technology, new ethical concerns have emerged. More recently, there has been a significant rise in the number

of publications mentioning AI in their titles and abstracts, reflecting its growing presence in research. AI has the potential to transform scientific research by enhancing researchers’ productivity and enabling the analysis of large volumes of data, impacting research quality, safety, and cost reduction. However, a high degree of uncertainty and unpredictability persists regarding its use, particularly concerning the lack of transparency of AI tools^{3,4}. In many cases, researchers do not fully understand the rationale behind the results generated by AI tools, which can lead to negative consequences such as the spread of misinformation, copyright violations, and the perpetuation of discriminatory biases in datasets, thereby compromising public trust in science. Thus, transparency becomes a fundamental ethical requirement in using these technologies. Researchers must clearly detail how AI has been utilized in their studies and conduct rigorous analyses of the data produced⁴.

The use of AI in scientific research is not merely a matter of technical regulation but also one of social and economic transformation. Generative AI, which autonomously produces texts, images, and data, raises serious concerns regarding the ethical boundaries of its application, particularly in academic writing and production. Countries worldwide have adopted measures to regulate AI use, recognizing both its potential and risks. In Brazil, discussions on AI regulation began in 2019⁴, and the country has sought to ensure that its use does not override fundamental ethical principles. Responsible AI usage and the maintenance of a robust ethical system are crucial for science to continue contributing to the advancement of knowledge in an ethical and sustainable manner. Therefore, the scientific community must remain vigilant regarding technological advancements and the new ethical challenges they present. The journal *Arquivos em Odontologia* is committed to ensuring that ethical research principles and the responsible use of AI are integral to all its editorial processes.

ORCID

Mariane Carolina Faria Barbosa: <https://orcid.org/0000-0002-2870-8364>

Jéssica Madeira Bittencourt: <https://orcid.org/0000-0002-4350-0828>

Mauro Henrique Nogueira Guimarães de Abreu: <https://orcid.org/0000-0001-8794-5725>

Marina Gonçalves Diniz: <https://orcid.org/0000-0002-4212-1172>

Aline Araújo Sampaio: <https://orcid.org/0000-0002-8704-5994>

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