Can Artificial Intelligence Replace Human Peer Review in Cardiovascular Journals?

Kardiyovasküler Bilimsel Yayınlarda Hakemlik Sürecini Yapay Zeka Üstlenebilir mi?

To the Editor,

In recent years, one of the most pressing challenges facing scientific journals—particularly in high-output fields such as cardiology—has been the difficulty in recruiting competent and willing peer reviewers. The growing volume of submissions, a limited pool of qualified reviewers, the absence of financial compensation, and increasing academic workloads have all contributed to significant delays in the peer-review process. Many editors report prolonged publication timelines due to the unavailability of suitable reviewers. At the same time, some authors are now drafting their manuscripts with the help of artificial intelligence (AI)-powered tools. It is also known that some reviewers are using AI during the evaluation process. These developments raise a critical question: Can artificial intelligence replace human reviewers in academic publishing?

AI applications have demonstrated remarkable progress in recent years. Natural language processing models can improve academic writing, generate summaries, check grammar and style, verify references, and even support statistical analysis.[1] However, peer review is not solely a matter of technical competence. It requires identifying novel hypotheses, evaluating methodological rigor, conducting comparative assessments against existing literature, and interpreting clinical or practical implications—skills that are inherently human. AI is predicted to fall short in such intuitive and context-dependent evaluations.[2] Furthermore, because AI models tend to favor "averages," they may undervalue innovative or unconventional approaches, perceiving them as risky or irrelevant.

International ethical guidelines concerning the use of AI tools in academic writing, editorial evaluation, and peer review processes must also be considered. In this context, the International Committee of Medical Journal Editors (ICMJE) stated in a 2023 report that such tools cannot be listed as "authors," and that scientific and ethical responsibility for the resulting content lies entirely with the human author(s).[3] Similarly, the Committee on Publication Ethics (COPE) emphasized in its guidelines on the use of AI in editorial processes that AI should serve only as a supporting tool, not as a decision-maker.[4] According to COPE, all final decisions in editorial evaluations, particularly regarding the acceptance or rejection of articles, must be made exclusively by human editors. The report also presented examples of how AI can pose ethical risks. Recent studies have demonstrated both the potential and limitations of AI-supported peer review applications. Gao et al.[5] observed that while scientific abstracts generated by ChatGPT exhibit high linguistic fluency, they lag behind those written by human authors in terms of content accuracy and contextual depth.

Recently, in a national cardiology journal where we served as academic referees, we observed that some articles were written with the help of a ChatGPT-like language model, and that the text structures were overly general and lacked references. In such cases, high similarity scores (40%) and repeated content were frequently encountered. If these texts, despite passing systematic similarity checks, go unnoticed by human reviewers, there is a risk that erroneous or weak content may enter the scientific literature.

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Recent evidence underscores the growing ethical scrutiny surrounding the use of generative AI tools in the peer–review process. A 2024 cross-sectional analysis by Li et al.,[6] published in JAMA Network Open, systematically examined the policies of the top 100 medical journals regarding AI use in peer review. The study found that 78% of these journals had explicit policies on the matter, and among them, 59% strictly prohibited the use of AI in peer review, mainly due to concerns about confidentiality, lack of contextual judgment, and accountability.[1] This institutional consensus aligns with our own observations as peer reviewers. In a national cardiology journal, we identified submissions likely written using ChatGPT-like tools, characterized by repetitive content, a lack of references, and high similarity scores. These examples illustrate the risks associated with unchecked AI involvement in academic publishing and underscore the importance of maintaining human oversight in peer evaluation.[6]

In conclusion, a fully AI–based peer review system does not appear feasible at this stage. However, a hybrid model that combines human judgment with AI support could enhance both the speed and quality of the scientific review process. The thoughtful integration of AI into editorial workflows is likely to become an essential component of the future of academic publishing. We believe this short piece may contribute to ongoing discussions about the integration of AI in cardiovascular publishing.

References

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