EDITORS' PAGE

JACC Journals' Pathway Forward With AI Tools

The Future Is Now

Valentin Fuster, MD, PHD, *Editor-in-Chief, Journal of the American College of Cardiology*
Biykem Bozkurt, MD, PHD, *Editor-in-Chief, JACC: Heart Failure*
Y. Chandrashekhar, MD, DM, *Editor-in-Chief, JACC: Cardiovascular Imaging*
Julia Grapsa, MD, PHD, *Editor-in-Chief, JACC: Case Reports*
Bonnie Ky, MD, *Editor-in-Chief, JACC: CardioOncology*
Douglas L. Mann, MD, *Editor-in-Chief, JACC: Basic to Translational Science*
David J. Moliterno, MD, *Editor-in-Chief, JACC: Cardiovascular Interventions*
Kalyanam Shivkumar, MD, PHD, *Editor-in-Chief, JACC: Clinical Electrophysiology*
Candice K. Silversides, MD, *Editor-in-Chief, JACC: Advances*
Justine Varieur Turco, MA, *Divisional Vice President, American College of Cardiology*
Jian'an Wang, MD, PHD, *Editor-in-Chief, JACC: Asia*

Overtly or covertly, advanced software computational technologies, such as artificial intelligence (AI), are now influencing many aspects of life. This includes health care and science, where the pillar of evidence-based medicine is being affected by technologies ranging from machine learning to extended reality. So, too, in the domain of scientific publishing, the list of AI technologies to assist authors in improving the preparation and quality of their original manuscripts submitted to journals is increasing markedly. The acceptable use of AI technologies in the preparation of original research manuscripts includes, but is not limited to, software programs that offer suggestions for improving writing style and for correcting grammar, as well as for statistical analysis. However, the recent introduction of open-access, large-scale natural language models, such as ChatGPT, has created some concerns related to the publication of original research papers that journals have not had to previously face.

To address the emerging issues regarding the use of AI and language models in the writing of original scientific manuscripts, the Editors-in-Chief of the *JACC* family of journals (**Figure 1**) are developing a uniform set of updated policies related to publishing in the *JACC* journals. The consensus among the Editors-in-Chief is that:

- AI-enabled technologies are here to stay and will be used increasingly in the conduct of research, as well as the publication of research findings.
- The exponential increase in the variety and applicability of AI-assisted research will result in currently unforeseen risks as well as benefits. Thus, journals will have to establish appropriate mechanisms to ensure that the core integrity and quality of underlying scientific publications remains robust.
- Guidelines regarding the use of AI-based technologies will need to be revised as the sophistication and scope of AI-based technologies evolve. A corollary to this statement is that it may not be possible to develop a one-size-fits-all policy for the entire family of *JACC* journals, and that there may be a need going forward to individualize guidelines for specific *JACC* journals (eg, *JACC: Cardiovascular Imaging*; *JACC: Basic to Translational Science*).

Based upon the aforementioned consensus statements, the instructions to authors for the entire

FIGURE 1   *JACC* Journals' Editors-in-Chief

family of *JACC* journals will be updated to include the following guidelines.

AUTHORS

The *JACC* family of journals adheres to the published guidelines of the International Committee of Medical Journal Editors (ICMJE).[1] As such, the *JACC* Journals' family prohibits the naming of large-scale language tools as authors of scientific papers, insofar as these tools do not fulfill the ICMJE criteria for authorship.

If nonhuman AI models are used to generate content in the manuscript, the authors must disclose this information in the cover letter to the editor and include the following statement: "The authors take full responsibility for the data integrity and the authenticity of all the content that was generated by artificial intelligence and machine learning models." The cover letter should also specify the AI model that was used, the version, and the manufacturer, as well as the nature of the contribution that was provided. This could include design, performance, analysis, writing, and reporting of the work. Authors should

report the use of nonhuman AI models to create or assist in content in the Methods section and/or the Acknowledgment section of the submitted paper, depending on the nature of the tool's contribution. This information will be published with the final paper.

DATA INTEGRITY

All data and figures published in *JACC* Journals must accurately represent the original data and findings. Misrepresentation of data acquisition and/or postacquisition processing is not acceptable (as is currently stated in our instructions). Henceforth, the use of images created by AI tools or similar technologies is not permitted without first engaging in a discussion with the Editor-in-Chief and obtaining explicit permission from the Editor-in-Chief to include these data in the manuscript submission.

The *JACC* Journals' Editors-in-Chief recognize that new technologies, such as AI-based language models, present exciting, new opportunities to enhance cardiovascular science and expand the

depth and breadth of scientific publishing. However, these novel technologies also pose risks and threats to the integrity of science that we publish. The updated policies in this document represent the first step toward addressing the latest concerns raised by AI-based language models in scientific publishing.

ADDRESS FOR CORRESPONDENCE: Dr Valentin Fuster, The Zena and Michael A. Wiener Cardiovascular Institute, Icahn School of Medicine at Mount Sinai, One Gustave L. Levy Place, New York, New York 10029, USA. E-mail: valentin.fuster@mountsinai.org.

REFERENCE

1. International Committee of Medical Journal Editors. Defining the role of authors and contributors. Accessed March 2023. https://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html