Availability of guidelines for the use of artificial intelligence (AI) tools across a selection of biomedical journals

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Most journals surveyed had guidelines on the use of AI in the development of peer-reviewed manuscripts, however, there is a need for harmonisation in the guidance between journals

Background

- The use of AI tools in the development of biomedical publications is expected to increase rapidly with the recent introduction of ChatGPT, Bard and other AI technologies. These tools have the potential to improve the communication of scientific research; however, there is a need to ensure that the use of these new tools in the development of publications is transparent and appropriate in order to maintain the integrity of the publication process
- The International Society for Medical Publication Professionals (ISMPP) AI Task Force recently released a position statement to guide professionals within medical publishing and communications and a call to action for ISMPP members[1]
- The Healthcare Communications Association also released a position paper. This AI Roadmap sets out the initial and future considerations for integrating AI into healthcare communications[2]
- Both the World Association of Medical Editors (WAME) and Committee on Publication Ethics (COPE) have shared recommendations for the use of AI tools in publications[3,4]

Objective

- Here we review the availability and consistency of AI-related guidelines across a range of biomedical journals

Methods

Journals were identified for screening using PubsHub™ (ICON plc, Dublin, Ireland)
Search date: 26 September 2023

Journals from four major therapy areas (oncology, neurology, respiratory and cardiology) were screened for inclusion in this analysis

60

Five top-, middle- and low-tier journals from each therapy area were identified for inclusion based on impact factors*,†

Journal websites were reviewed for guidelines/recommendations regarding AI tools. Journals with at least one specification relating to AI tools were considered to have such guidelines, and permitted use of AI was also assessed‡

*Based on the top five journals based on impact factors (oncology: 50.171–286.13; neurology: 15.255–59.935; respiratory: 9.102–102.642; cardiology: 27.203–49.421), bottom five journals based on impact factors above 1 (oncology: 1.17–1.416; neurology: 1.14–1.885; respiratory: 1.761–2.339; cardiology: 1.023–1.738), and the middle five journals between the top and bottom journals (oncology: 3.738–3.955; neurology: 3.692–3.972; respiratory: 3.921–4.3; cardiology: 3.593–4.039), for each respective therapy area.

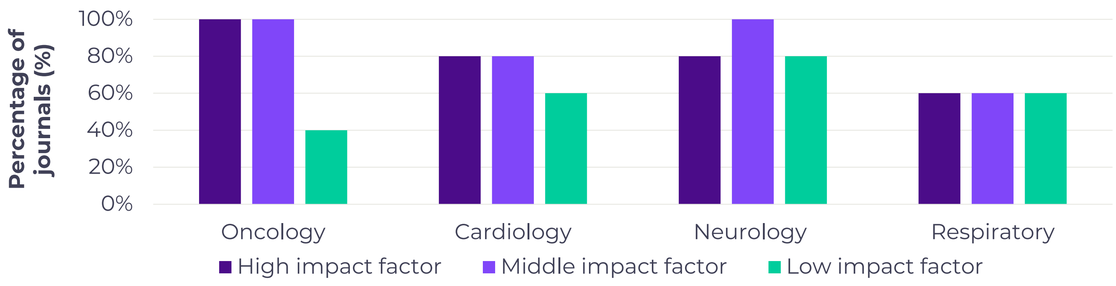
†Non-therapy-area-specific, local and non-English language journals were excluded.

‡Websites were reviewed between 26 September 2023 and 19 December 2023.

Results

- Overall, 45/60 (75%) journals across 26 publishers/publishing groups provided guidelines on the use of AI tools
- The number of journals with guidelines across therapy areas ranged from 60% (respiratory) to 87% (neurology), with journal tiers ranging from 60% (low) to 85% (middle) (Figure 1)

Figure 1. *Journals with guidelines on the use of AI tools by therapy area and impact factor*



- WAME and COPE AI recommendations were stated in 20% of journal guidelines
- We found the detail and clarity of guidelines varied, 31% of guidelines were ambiguous regarding the accepted uses of AI, and a lack of harmonisation between journals. We discuss below our findings from the 45 AI guidelines

Authorship and disclosure

- Of all the journals that had guidelines on AI authorship (n = 37/45), **100%** stated **AI cannot be listed as an author**, the most common reasons included:
  - **Inability to be accountable for the work**
  - **Cannot complete effective copyright assignments or conflict of interest disclosures**
- **Disclosing use of AI** was the most common topic covered across journals (91%)
  - Most journals required the disclosure of AI use in the **Methods or Acknowledgements section**
  - 44% of journals were specific on what needed to be disclosed; for example, the **original input prompts and outputs** should be reported in the supplementary material

Limitations of AI

- The common limitations of AI mentioned in journal guidelines were:

Bias 27%

Accuracy 27%

Completeness 24%

Contextual understanding 7%

- One publisher **required authors to acknowledge the limitations** of language models
- 24% of journals noted the importance of **human intervention** to ensure accurate and appropriate content
- AI tools may **breach confidentiality**; for this reason, 24% of journals do not allow editors or peer reviewers to use AI tools

Research process

- 27% of journals included guidelines regarding the use of AI tools during the research process, e.g. for data analysis; these guidelines **varied across journals**

Journals that allowed AI within the research process 20%

Manuscript development

- Acceptable uses of AI varied:

Drafting 16%

Editorial improvement 49%

Figures and images 18%

- A **specific AI-language improvement tool** was specified in 18% of journal guidelines
- One journal **prohibited the use** of AI in the development of **opinion-based articles**

Conclusions

- Our results show that 75% of journals surveyed provide guidelines on the use of AI tools and request that its use is disclosed. However, the level of guidance varied, with most journals having broader statements in their guidelines that lack clarity on the acceptable uses of AI
- In contrast, a quarter of the journals assessed lacked any mention of AI
- Permitted uses of AI tools varied across journals but included use for editorial improvement only, research process, and full-draft development
- The lack of alignment between journal guidelines may be a challenge for integrating AI into publication processes. Therefore, there is a need for journals and publishers to harmonise AI guidelines

Trends, recommendations and future perspectives

- AI tools, when used appropriately and with human intervention, have the potential to make the manuscript development process more efficient as well as support tasks such a plagiarism checks and editorial improvement
- There is a need for harmonisation, and guidelines will likely continue to adapt regarding the accepted uses of AI tools and transparency of their use
- Additionally, it may be beneficial for journals/publishers to have a specialist in AI focusing on establishing best practices with the use of AI in partnership with ISMPP
- AI tools could also aid in the development of publication extenders, such as patient lay summaries and graphical abstracts, which would help speed up the dissemination of scientific and clinical data to a wider audience and ultimately benefit patient care

Disclosure statement

- PF, RJ, EP, JQ, SD, JR and IS report employment with Nucleus Global, an Inizio Company
- ML is a partner in and employed at Inizio; has equity interests in Inizio, and minority equity interests in AI-powered digital health startups AVOMD

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