Artificial Intelligence in Biomedical Writing

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Creativity is a skill which sets humans apart from other species. It is an art which is learned, honed and perfected. We constantly strive to improvise, innovate and create tools to ease our lives. Artificial intelligence (AI) is one such creation which is an application of computer science that can perform tasks mimicking human intelligence. AI helps automate processes and increase efficiency, provide real-time information and is even intuitive at times. AI has transformed our lives in unimaginable ways ranging from smart assistants like Siri and Alexa, ride sharing apps like Uber and Ola, spam filtering of emails and development of self-driving cars.

Rapid strides have been made in the healthcare systems using AI systems for patient diagnosis and prognosis, using bot assistants for answering prescription-related queries and transcribing notes, organizing images and files and even performing robotic surgeries. The collaboration of AI and medical field does not end here and there is a growing use of AI also in the field of biomedical writing. AI is now capable of generating text that is often indistinguishable from that produced by human researchers. As a result, there has been a growing interest in the use of AI as an author in academic journals. Large Language Models (LLMs) like ChatGPT (Generative Pretrained Transformer) use AI-generated algorithms based on huge text data sets to summarize data. Thus, LLMs have presented an exciting oppor-tunity to the younger generation of authors especially the non-native English authors to create lucid articles, especially review articles, in a short time. There have even been a few instances where the researchers have listed an AI system as a co-author on a medical paper. However, the idea of listing AI models as co-authors has not gone down well with the editorial policies of most journals. Several reputed journals including Nature, Science, and JAMA, have barred the inclusion of these non-human technologies as authors as well as prohibited the inclusion of AI-generated text in submitted work. Recently, an editorial in the journal *Nurse Education in Practice* credited ChatGPT as a co-author, alongside Siobhan O'Connor.[1] However, soon an erratum was published in the journal wherein ChatGPT was removed as co-author and instead acknowledged as making a substantial contributor to the manuscript.[2]

Giving AI credit as a co-author is believed to be in contravention to the ethos of authorship guidelines. When research is conducted using AI, the AI system should be considered a tool or resource rather than an author in its own right, akin to the use of statistical packages for analysis of data. Software cannot consent to the terms and conditions for publication as laid down by journals. Further, AI cannot be made accountable for the research work. Traditionally, authorship is granted to individuals who have made a substantial intellectual contribution to the academic work. However, when AI is used to generate text, it is unclear whether the credit should be given to the person who programmed the AI, the person who selected the data to train the AI, or the AI itself? This lack of clarity can lead to conflicts over who should receive recognition for the work.

There is a risk that the inputs provided to the AI system may have been purposefully fragmented or fabricated to generate a paper that could be used to support a particular argument. Such a bias could have serious implications for the accuracy and fairness of academic research. There is also a question about accountability. If an AI-generated paper is found to be erroneous or fraudulent, who should be held responsible? Furthermore, the chances of plagiarism are much higher in AI-generated research papers. There is also an issue with data privacy and sharing. These issues and many more have been discussed in the recent Indian Council of Medical Research Ethical Guidelines for Application of Artificial Intelligence in Biomedical Research and Healthcare.[3]

A potential outfall of over-reliance on AI for writing research papers is the death of human expertise and creativity in academic writing. AI systems are designed to analyse large volumes of data and identify patterns that are not immediately

apparent to humans, however, if AI is used extensively for scientific production, there are greater chances of deskilling in the researchers' writing abilities. The situation reminds me of the 1980s song "Video killed the radio star!" that lamented the rising popularity of television as a source of entertainment and information that wiped out the radio industry. So, while we embrace digital media and AI into our healthcare practice and research, we need to be cognisant of the related issues and ensure that rigorous academic research is published ethically.

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