

Perspective Article

## Biomedical research publication in the age of artificial intelligence: Current prospects for balancing integrity and innovation

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### ABSTRACT

Artificial intelligence (AI) is inevitably transforming scientific writing, peer review, and publication workflows. AI holds enormous potential to improve efficiency, equity, productivity, and editorial precision. However, their unregulated use poses risks to research integrity, authorship accountability, and data confidentiality. Its safe and ethical use requires vigilance, transparency, and human oversight to prevent bias, misinformation, and plagiarism while upholding the standards of scientific integrity for all. Journals, time to time, issue policies to define acceptable practices of AI use in manuscript preparation and review, that are limited to grammar, language refinement, and formatting support, while strictly prohibiting data generation, analysis fabrication, or peer-review automation. Therefore, understanding the ethics framework of international editors and publishers for the use of AI in scientific publications, which aims to uphold righteousness, comprehensiveness, and objectivity in healthcare publications, is of paramount importance.

**Keywords:** Artificial intelligence (AI), Committee on publication ethics (COPE), International committee of medical journal editors (ICMJE), Scholarly publishing, The world association of medical editors (WAME)

### INTRODUCTION

Artificial intelligence (AI) is defined as “technology that enables computers and machines to simulate human learning, comprehension, problem-solving, decision-making, creativity, and autonomy.”<sup>[1]</sup>

It encompasses various machine-generated computations and learning, with origins traceable to Alan Mathison Turing’s work in the 1950s. The term “artificial intelligence” was coined in 1956 during a conference organized by John McCarthy, Nathan Rochester, Marvin Minsky, and Claude Shannon of International Business Machine (IBM) Corporation.<sup>[2,3]</sup> It is one of the most transformative forces in modern healthcare. Yet, in clinical and academic settings where human lives and well-being are directly involved, its application demands heightened vigilance, empathy, and accountability. The healthcare professional’s role extends beyond research and

publication. It carries an intrinsic societal responsibility to protect patient dignity, privacy, and safety.

AI differs from automation in that intelligent machines can mimic or exceed human behavior, rather than just completing processes based on finite tools and rules. Key AI processes include machine learning (detecting patterns from large datasets) and natural language processing (understanding, interpreting, and generating human language).<sup>[2]</sup> Generative AIs, such as those using large language models (LLMs) like ChatGPT (Generative Pre-trained Transformer), are particularly relevant to scientific publishing, as they can generate research ideas, write papers, and assist in various aspects of article production. This necessitates the establishment of ethical standards for authors, reviewers, editors, and publishers to keep pace with new tools while protecting the scientific community from incorrect science.<sup>[2,4]</sup>

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AI has rapidly evolved from a computational novelty into a ubiquitous tool within the academic and scientific publishing landscape. Applications such as automated text generation, plagiarism detection, and manuscript proofreading have transformed how authors prepare, editors assess, and reviewers evaluate scientific content. However, this convenience comes with significant ethical, legal, and academic challenges. AI systems can introduce factual inaccuracies, unintentional plagiarism, and biased interpretations, while also raising concerns about data confidentiality when manuscripts are uploaded to public platforms. The global scholarly community has responded with an urgent need for clear ethical boundaries to preserve research integrity and public trust. Leading publishers and journals, including The Lancet, British Medical Journal (BMJ), New England Journal of Medicine (NEJM), Elsevier, Springer, and Journal of the American Medical Association (JAMA), have released formal statements outlining the preparation. Common to these principles are three permissible and prohibited uses of AI tools in manuscript foundational

principles: transparency, human accountability, and data confidentiality.

In the medical and healthcare context, these issues become even more critical, as errors or ethical breaches may directly affect patient welfare and clinical decision-making. Journals stress that AI cannot replace human judgment, nor can it be credited as an author.<sup>[5]</sup> All use of AI must be disclosed, and content generated by algorithms must be verified by qualified professionals [Table 1].<sup>[6-16]</sup> Most reputed journals aligns with international publication ethics frameworks and regional data protection regulations, including those of Committee on Publication Ethics (COPE), the World Association of Medical Editors (WAME), and the International Committee of Medical Journal Editors (ICMJE), European Union's General Data Protection Regulation (GDPR) and India's Digital Personal Data Protection Act (DPDP 2023).<sup>[17-21]</sup> This paper aims to provide an informed perspective on the benefits, limitations, current evolving role, and ethical considerations of AI use in biomedical research publications.

**Table 1:** Summary of guidelines for AI use in medical and scholarly publication

Year	Journal/organization	Publication type	Key provision on AI use
2023	Nature (Springer Nature)	Editorial	Prohibits AI as author; requires disclosure; allows limited language assistance
2023	Science	Editorial	Bans AI-generated content; insists on human accountability
2023	JAMA	Editorial	Preclude AI inclusion of non-human authors; ensure transparency in reporting AI use; discourage AI-generated image creation.
2023	Elsevier	Editorial	Disclose AI use in the writing process; Authors are ultimately responsible and accountable for the contents of the work.
2024	The Lancet	Comment	Mandate AI disclosure and ban data fabrication or peer-review automation
2024	BMJ	Commentary	Highlights risks of bias and misinformation; calls for transparency
2024	NEJM	Perspective	Integrating AI-generated text into electronic health records (EHRs) may erode the quality, accuracy, and human essence, resulting in confabulation, loss of clinical reasoning, data pollution ("model collapse"), and automation bias.
2025	NEJM	Publication Policy	Disclose any AI assistance, ensure full human accountability, and cannot list AI as an author; Authors must verify accuracy, originality, and attribution of all AI-generated material, and AI outputs cannot be cited as primary sources.
2025	JAMA	Editorial	Transparency, accountability, and confidentiality for use of AI; Disclosed, described, and verified by humans; Prohibited from uploading manuscripts to an AI tool; Responsible, ethical, and transparent integration of AI in authorship, peer review, and editorial processes.
2025	COPE/ WAME/ ICJME	Position statements	Provide an ethical framework that includes disclosure, no AI authorship, and maintains confidentiality.

JAMA: Journal of Medical Association, BMJ: British Medical Journal, NEJM: New England Journal of Medicine , COPE: Committee on Publication Ethics, WAME: World Association of Medical Editors, ICJME: International Committee of Medical Journal Editors

### Considerate use of AI tools for authors

Authors are permitted to use AI tools for limited, well-defined functions that do not influence scientific conclusions or compromise the originality of their work. These include grammar and spelling corrections, copy-editing, stylistic refinement, translation of non English text, English enhancement, and assistance in reference formatting. Such uses are considered acceptable provided that authors verify all AI-generated suggestions before submission. The authors remain fully accountable for the accuracy and validity of the final content, including factual data, analyses, and interpretations. Authors can use offline or enterprise-grade licensed software that guarantees data privacy and prohibits data reuse for algorithm training.<sup>[4,14-18]</sup>

Journals explicitly prohibit the use of AI systems for generating primary data, performing analyses, interpreting results, or drafting substantial portions of scientific arguments without human oversight. Authors must not upload confidential or unpublished manuscripts to public AI interfaces that store or reuse inputs for training purposes. Any attempt to employ AI for authorship attribution or content fabrication constitutes serious academic misconduct. Authors are reminded that any inclusion of patient data or sensitive institutional material in AI systems without anonymization and prior approval may constitute a breach of legal confidentiality obligations.<sup>[4,14,16-18]</sup>

Generative AI systems (like ChatGPT, SciSpace, Thesis AI, Paperpal, Wordvice, Wordtune etc.) can not only produce extensive text, figures, or datasets, but also write research paper, review articles, and theses, with remarkable fluency and accuracy. While this ability enhances writing efficiency, it also introduces serious risks to research integrity and scientific concerns over authorship, accountability and bias. AI can generate text that mimics authentic scientific writing, but it is often based on incomplete, incorrect, or entirely fabricated information. Because LLMs remix existing content from their training data, they may inadvertently reproduce others' ideas or language without attribution, resulting in unintentional plagiarism. Furthermore, when AI-generated outputs are presented as genuine experimental results or interpretations, it constitutes a misrepresentation of scientific work.<sup>[2,16,19,22]</sup>

“Paper mills” are illicit commercial entities that sell fabricated or manipulated research papers to authors seeking publication. With generative AI, these operations can now produce fake manuscripts at scale, using AI to write convincing text, generate false data, and even create images or tables that appear authentic. Such fraudulent submissions flood journals and threaten the credibility of peer-reviewed literature. Furthermore, advanced AI algorithms can create

synthetic images, audio, or videos, known as deepfakes, that imitate real experimental data, patient scans, or even researchers themselves in scientific contexts. Deepfakes may falsify clinical images, microscopy data, or interview recordings, leading to false evidence that can mislead readers, distort scientific conclusions, and endanger patient safety when used in clinical research.<sup>[2,22,23]</sup> Therefore, maintaining the sanctity of academic authorship and ensuring that technological assistance complements, rather than compromises, scholarly rigor is essential. AI-based editing tools can enhance readability, reduce linguistic barriers for non-native English authors, and streamline administrative workflows. Nevertheless, without clear ethical boundaries, these same tools can distort authorship contributions, violate confidentiality agreements, and erode trust in the scientific literature.

### Limitations of AI

AI tools are trained on vast datasets created by humans, which means they can inherit the same cultural or linguistic biases, such as those related to gender, race, or inclusivity, present in the source material. These biases may appear overtly or subtly, for instance, by favoring research in the majority language or mainstream academic perspectives.<sup>[2]</sup> Although LLMs can simulate reasoning, they lack the human intuition, emotional intelligence, and contextual awareness of human thought, often missing subtle cues such as humor, irony, or metaphor. This limitation may restrict their capacity to contribute creatively or critically to complex scientific discussions, which can influence clinical decision-making because of limited possibilities for higher-level thinking.<sup>[2,24]</sup>

AI models are also prone to generating inaccuracies or hallucinations, producing authoritative-sounding outputs, statements, or references that appear plausible but are entirely false. Experiences with tools such as ChatGPT have shown that it may fabricate citations or alter publication dates, which can mislead researchers, raise ethical or legal concerns, and ultimately erode public confidence in scientific communication.<sup>[25]</sup> Because LLMs are designed to predict text patterns, they unintentionally reproduce phrases or ideas from existing literature without acknowledging the creator of the intellectual idea, resulting in inadvertent plagiarism or duplication of scholarly content.<sup>[26]</sup> The datasets used to train AI systems are derived from a mix of reliable and unreliable internet sources, which means that some generated information may be misleading, particularly in sensitive fields such as healthcare or clinical research, where errors could impact patient outcomes. Predictive algorithms are trained to identify recurring patterns, which can bias them towards conventional or widely accepted ideas while overlooking novel hypotheses. They may also rely on mainstream ideas that are based on incomplete or outdated

data, thereby limiting innovation and perpetuating past biases.<sup>[2]</sup> Moreover, many AI tools function as “black-boxes”, with their datasets, architectures, and training processes kept proprietary by developers; this opacity hinders academic scrutiny and prevents users from evaluating potential bias or data quality, sometimes leading to unreliable or context-inappropriate outputs.<sup>[27]</sup>

Although AI can make publishing more inclusive in theory, without equitable access and localized training initiatives, it risks amplifying the very inequalities it aims to solve, by creating a digital divide within the global research ecosystem due to unequal access to training and infrastructure.<sup>[28-30]</sup>

Another critical limitation of frequently using AI in scientific writing is that convenient AI-driven content generation can diminish researchers’ engagement with primary and original literature, thereby weakening their skills in reviewing literature, verifying sources, and interpreting context. Core academic practices, such as lateral and vertical reading, which involve critically cross-checking information across diverse sources, are increasingly being replaced by superficial text synthesis. This shift ultimately affects essential cognitive abilities, including argument analysis, critical thinking, creativity, and scientific integrity.<sup>[31,32]</sup> Furthermore, the uncritical reliance on AI-generated text or data has contributed to the rise of low-quality biomedical research papers, characterized by repetitive phrasing, factual inaccuracies, and poorly substantiated claims.<sup>[33,34]</sup> This not only dilutes the credibility of scientific literature but also poses a challenge to editors and reviewers to distinguish genuine data from algorithmic output. To protect the intellectual rigor of biomedical science, researchers must therefore use AI only as an augmentative tool, rather than a surrogate for analytical reading, conceptual understanding, and scholarly authorship.

### Responsible use and transparency

A systematic review conducted by Khalifa & Albadawy<sup>[35]</sup> across PubMed, Embase, and Google Scholar, selecting 24 studies published after 2019 that directly examined AI’s role in academic writing, editing, research design, and publishing, suggested six core domains in which AI can assist in manuscript writing. AI helps in brainstorming, identifying research gaps, and generating hypotheses by analyzing existing data and literature to inform these processes. It can propose suitable methodologies, sample sizes, and statistical models, supporting more structured research planning. However, over-reliance on AI may divert research objectives or reduce human creativity.<sup>[35-37]</sup> AI tools, such as ChatGPT, improve writing fluency, expand text, predict terminology, and ensure logical flow through structuring and tone analysis. They also enhance visual

and multimedia presentations via auto-generated figures, infographics, and presentations. However, ethical vigilance is needed to prevent misuse, such as fabricating or falsifying content.<sup>[38,39]</sup> The AI revolutionized literature reviews by extracting, summarizing, and synthesizing massive volumes of data through semantic analysis (e.g., www.scispace.com). It creates summary tables and comparative insights, offering more comprehensive overviews while saving time. However, researchers must validate accuracy and context to avoid misleading interpretations.<sup>[40]</sup> AI enhances data interpretation, visualization, and duration. Tools like Tableau, NVivo, and RapidMiner can analyze large datasets and generate accessible insights. However, maintaining data integrity and ethical standards during automation is of utmost importance.<sup>[41]</sup> AI tools, such as Grammarly, Paperpal, and ChatGPT, refine manuscripts by proofreading, summarizing abstracts, and assisting in drafting peer-review responses. They streamline submission tracking and correspondence, improving workflow efficiency while requiring ethical disclosure of AI use in manuscripts.<sup>[42]</sup> AI aids in dissemination and accessibility, including multilingual translation, social media outreach, and chatbot-based engagement, while also ensuring ethical compliance through plagiarism detection, integrity checks, and adherence to research ethics frameworks. However, transparency and disclosure of AI usage are strongly recommended.<sup>[43]</sup>

Global organizations, such as the COPE, WAME, and ICMJE, are actively developing guidelines to promote transparency and accountability in the responsible use of AI within research and publishing. LLMs and other AI tools do not qualify for authorship and must not be listed as authors. When used for writing, language editing, or data handling, their role should be explicitly declared in the acknowledgements section, stating the name, version, and nature of use.<sup>[4,14,17,18]</sup> If AI tools assist in data analysis or figure generation, details of the model, prompt, and date of use should be clearly mentioned in the methods section. Researchers remain fully accountable for all AI-generated content. They must keep records of the system used, including the date, verify the accuracy of references, validate concepts and interpretations, ensure that outputs and language are unbiased and correctly attributed, and ensure that independent human oversight is essential to safeguard the reliability and integrity of scientific communication.<sup>[2,19]</sup>

### Current consensus and policy on disclosure of AI use

Transparency is central to ethical scholarly communication. The author must declare any AI involvement in manuscript preparation in either the acknowledgements or method section. A suitable statement example of disclosure is: the author used [Tool Name, Version] for grammar and language refinement. No AI tool was used for data generation or

interpretation. Failure to disclose the use of AI within the editorial workflow adheres to privacy and ethical standards. Disclosure aligns with fundamental norms of scientific integrity, including honesty, transparency, accountability, reproducibility, and fairness.<sup>[44]</sup> Resnik and Hosseini<sup>[45]</sup> enumerated five ethical rationales for disclosing the use of AI in research. First, it ensures fair credit assignment, so that human authors are not improperly credited for work produced or significantly shaped by AI systems. Transparency about AI use also enhances accountability, allowing any issues, such as plagiarism, data fabrication, or algorithmic bias, to be traced back to the responsible individuals. Disclosure supports reproducibility by enabling other researchers to understand and replicate methods or analyses that involve AI tools. Furthermore, it establishes a clear boundary between human and machine contributions, clarifying the extent to which the work was guided by human judgment versus automated processes. Ultimately, openness about AI involvement reinforces trustworthiness, strengthening both public and academic confidence in the credibility and integrity of the scientific record.<sup>[45]</sup> They further introduced a two-part criterion for determining whether disclosure is mandatory and suggested that AI use must be disclosed if it is intentional and substantial. Intentional use refers to the researcher's deliberate application of an AI tool for a specific scientific purpose. Substantial use means the tool directly affects the researcher's evidence, analysis, or conclusions. Three practical indicators of substantial AI use proposed by them are summarized in Table 2.<sup>[45,46]</sup>

healthcare, where evidence-based accuracy determines patient outcomes, the shortage of qualified reviewers is acute. A small fraction of dedicated academics shoulders the majority of review tasks, leading to fatigue and variability in the quality of reviews.<sup>[47]</sup> AI tools are now powerful enough to reduce administrative burden, automate quality checks, and support editors in identifying suitable reviewers. Further, it assists reviewers in organizing, verifying, and critically appraising manuscripts.<sup>[48,49]</sup> AI can assist reviewers in rephrasing comments, leading to kinder and more professional reviews, thus helping clarify and improve the tone of feedback. AI has the potential to accelerate the peer review process by automating tasks such as pre-submission checks and managing large volumes of submissions, as well as quickly identifying issues related to plagiarism, statistical errors, or data inconsistencies. AI can help match manuscripts with established experts by analyzing keywords and prior publications, thereby streamlining the reviewer selection process.<sup>[50]</sup>

However, AI-generated comments may be overly generic, lack specificity, and fail to engage with the manuscript's actual content. AI-generated data/reference outputs could produce inaccurate and fabricated results, and if passed to authors without proper verification, undermine the reviewer's credibility. Without consent, unauthorized AI use risks compromising confidentiality and intellectual property, which may further impact the quality of reviews when confidential manuscripts are uploaded to external

**Table 2:** Three practical indicators of substantial AI

Category	Example	Obligation
Mandate	Using AI to design experiments, draft sections, translate papers, summarise or paraphrase content, analyse or visualise data, or extract systematic review data It is mandatory to disclose the use of AI. 1. When AI tools make decisions that directly impact the research outcome. E.g., extracting data for a systematic review. 2. When an AI tool generates or synthesises content, data, or images that directly affect research outcomes, such as writing sections of a paper or creating synthetic data. 3. When an AI tool analyses genomic data, text, or radiographic images, it produces an analysis that supports findings and conclusions and affects publication content.	Must disclose
Optional	Using AI for grammar checks, reference validation, brainstorming ideas, or reorganising text	Author discretion
Unnecessary	Using AI incidentally (eg, embedded in software, or instruments like search or sequencer engines)	Not required

### AI use in peer review and editorial processes

Peer reviewing is the cornerstone of scholarly publishing. It depends on several essential principles, including confidentiality, accountability, transparency, data minimization, fairness, and bias, as well as expert human judgment. In medicine and

servers. Algorithm-based AI decisions may bias research selection and blur the boundaries between human and AI, thereby reducing originality and credibility. Over-reliance on AI may erode human judgment, leading reviewers to skip critical analysis and provide less thoughtful and detailed evaluations.<sup>[50,51]</sup>

Therefore, reviewers require training to use AI responsibly, recognize its limitations, and maintain ongoing professional development. They must understand that most AI tools operate through cloud-based or public servers, which inherently compromise confidentiality, and their unregulated use can compromise the ethical foundation of peer review. When a reviewer uploads even a portion of a manuscript to an online AI platform, it may be temporarily stored, used for model training, or expose sensitive data. Reviewers must adopt workflows that ensure data never leaves their secure environment while still harnessing AI's cognitive strength. Practical workflow for ethical AI assisted reviewing without uploading substantial part of manuscript commenced with reading of full manuscript manually; followed by use of AI to search recent studies and summarize published literature, cross-check citations or verify contextual accuracy of references; followed by data/ method verification for statistical claims, detect p-value errors using offline AI calculators or statcheckers and thus AI can help explain complex concepts or refresh knowledge about statistics, methods or terminology mentioned in the paper without disclosing the manuscript text; then write/ draft original review and use AI to refine the grammar and tone or summaries own notes to ensure professionalism and neutrality; and final check ensuring originality to remove any AI artifacts while taking full accountability [Table 3]. In any case, reviewers and editors are discouraged from submitting any manuscript text, figure, or table to third-party AI systems without explicit consent from the corresponding author or publisher. Human oversight must remain central, with AI used to complement, not replace, the judgment of reviewers or editors.<sup>[50]</sup> In the end, if AI tools are used in any part of the review preparation, phrasing or literature clarification, reviewers should disclose this to the editor. A disclosure statement by reviewers affirming that "AI tools were used for linguistic or conceptual assistance, not for content generation or manuscript analysis, and that confidentiality was maintained throughout" can be added for transparency and accountability.

### AI misconduct detection and publication ethics

Adele da Veiga<sup>[52]</sup> analyzed the AI-related publication unified

policies of the world's top 10 academic publishers to propose ethical standards for the use of AI in research and publishing. Using a literature-based thematic analysis, the author identified significant inconsistencies among publishers regarding the acceptable use of AI. Therefore, a coherent, transparent, and globally harmonized set of ethical guidelines is needed to distinguish the responsible use of AI-assisted tools from the more cautious use of generative AI in scholarly publishing.<sup>[52]</sup> Research integrity communities, journals, and publishers have been utilizing numerous AI tools to detect research misconduct, including plagiarism, image manipulation, and paper mill activities. While AI tools like ImaCheck, FigCheck, Papermil Alarm, Proofing, and ImageTwin can enhance research integrity, they also introduce ethical, procedural, and fairness challenges.<sup>[46,53,54]</sup>

AI screening systems are not error-free and can generate false positives, wrongly flagging legitimate work, which may lead to unsubstantiated or harmful allegations against researchers who have been vindicated. This is because an AI tool cannot determine intent, which is essential in distinguishing misconduct from honest error under established definitions by US federal policy and COPE standards. Hossenini & Resnik<sup>[46]</sup> highlighted that AI detection tools have technical limitations, such as the inability to recognize subtle image alterations or conceptual plagiarism. Furthermore, misuse of AI screening could introduce bias, especially if applied unevenly across submissions from different regions or institutions. They emphasize that any concerns identified by AI systems must undergo human verification before action is taken, ensuring that false positives do not unfairly harm researchers. Journals should rely only on validated and reliable AI tools, while staying alert to emerging forms of misconduct that may evade current detection methods. Authors flagged by these systems must be informed and allowed to respond or clarify before conclusions are drawn.<sup>[46]</sup> Moreover, AI screening should be applied consistently across all submissions to avoid regional or institutional bias. Publishers should publicly disclose their policies on how AI tools are implemented and how potential cases of misconduct are addressed.

Step	Reviewer's action	Ethical AI use
Initial reading	Manual reading of the full-text of the manuscript	No use of an AI tool
Background search	Searching for similar studies using keywords and title	AI assistance for a data searching and summarisation tool
Statistical data methods verification	Check statistical tools and data using similar data studies	Using offline AI calculators or statchekers
Drafting of review	Write a review in your own words	Use AI to refine tone or summarise own notes
Final checking of the review	Ensure originality and remove AI artefacts.	Reviewers take full accountability; Disclosure of a statement if AI is used substantially.

## RECOMMENDATIONS AND CONCLUSION

While AI-assisted tools, such as grammar and referencing software, are widely accepted for improving grammar, readability, and formatting, the use of generative AI tools remains contentious, particularly in the pre-writing and data analysis phases. The integration of AI into scientific publishing, particularly LLMs such as ChatGPT, is transforming the landscape of biomedical research, academic writing, peer-reviewing, and editorial decision-making. While AI enhances efficiency, consistency, and linguistic precision, it also raises profound ethical questions about biomedical research, authorship, accountability, and thus preservation of human intellect within the scientific process. Tian *et al.*<sup>[55]</sup> observed that while LLMs have improved efficiency in literature summation, medical education, and patient communication, they have yet to revolutionize biomedicine. Persistent challenges such as hallucinated information, algorithm bias, and privacy risks, demand human oversight, contextual interpretation, and domain-specific validation. Therefore, researchers, authors, reviewers, and editors must ensure that patient data remain confidential, that results are interpreted in context, and that algorithmic outputs are transparently verified.

Hyciw, *et al.*<sup>[56]</sup> provide an ethical framework centered on integrity, transparency, validity, and accountability, along with a clear classification system for levels of AI involvement, ranging from proofreading and restructuring to drafting and potential autonomous writing. This model stresses that with increasing AI engagement comes a proportional need for human oversight, disclosure, and verification. From an author's standpoint, this framework ensures that AI remains a supportive collaborator, enhancing thought clarity and precision without diluting originality or ethical responsibility. Ciacciaio<sup>[16]</sup> extends this discussion by identifying ethical grey zones that authors, reviewers, and editors navigate. Differentiation between acceptable assistance and unethical practices, including unacknowledged AI-paraphrasing, ghost-writing, and plagiarism, must be known. Editors mandatorily ask for explicit disclosure of AI usage mirrors the need for transparency statements, similar to conflict-of-interest or funding declarations, to protect academic integrity. This is because undisclosed AI can blur accountability, complicate peer review, and potentially undermine the credibility of published research.

Drozd & Ladomery<sup>[49]</sup> highlighted that the centuries-old peer review system continues to face challenges of bias, inconsistency, and reviewer fatigue. AI can assist editors in screening manuscripts, detecting plagiarism, and checking references, thereby allowing human reviewers to focus on conceptual rigor and methodological soundness. However, sustainable reform requires not only technological

adaptation but also recognition, mentorship, and fair reward systems for reviewers, ensuring that efficiency gains do not come at the expense of motivation or depth of analysis. The responsible integration of AI across the publication process requires collective accountability from authors, reviewers, and editors.<sup>[50,51]</sup> Clear policies and training are essential to define acceptable uses of AI, promote transparency through disclosure statements, and ensure all stakeholders understand how to interpret and manage AI-generated content. Equal attention must be given to protecting data privacy and maintaining the confidentiality of manuscripts, as the use of public AI platforms without safeguards may breach sensitive or proprietary information. All publishers and journals prohibit listing AI as an author, prohibit uploading any identifiable manuscript content, emphasize full disclosure of AI use, and stress that human authors retain accountability for content integrity.

Ultimately, the goal of integrating AI into the scientific ecosystem is not to replace human reasoning but to redefine the synergy between human insight and machine precision. The future of scholarly publishing will depend on our ability to strike a balance where technology amplifies human wisdom without eroding the ethical and emotional foundations of scientific discovery. Ethical healthcare publishing requires that all content derived or refined using AI tools be critically evaluated by qualified professionals. As custodians of healthcare knowledge, researchers and educators must advocate responsible innovation using technology to elevate evidence-based practice without compromising the moral and social contract between healthcare providers and the community they serve.

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