


Clarifying Ethical Dilemmas in Using Artificial Intelligence in Research Writing: A Rapid Review


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Abstract

Objective: The purpose of the study was to clarify, through the lenses of experts and frontline publishers, ethical dilemmas related to the use of artificial intelligence (AI) in research writing.

Method: We conducted a rapid review of expert opinions and publishers' policy statements on ethical considerations in using AI for research writing. We included articles published in journals indexed by academic databases that met the criteria. We also included the policy statements and guidelines of seven reputable publishers.

Result: The use of AI in scientific writing is acceptable, contingent on addressing ethical considerations bordering on plagiarism, transparency, and disclosure. While AI should not be listed as an author or co-author on its own, its use in the development of the work deserves acknowledgment. Authors must substantially rephrase AI-generated content in their own words, properly citing sources to avoid claims of plagiarism. Transparency regarding AI usage and oversight of AI-generated drafts are necessary, as there are risks related to inaccuracy and bias if AI is not supervised by human experts.

Conclusion: AI can be deployed to support research writing, provided users carefully abide by ethical standards that uphold academic integrity.

Implications: The findings offer valuable guidance for researchers, students, and emerging publishers on how AI's capabilities can be ethically and responsibly leveraged in academic writing. By establishing clear principles, the study equips these stakeholders with the means to incorporate AI judiciously into their knowledge production practices.

Keywords: *artificial intelligence, academic writing, authorship, AI plagiarism, AI ethics, transparency*

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Introduction

The growing adoption of artificial intelligence (AI) among researchers has important implications that call for clarification of the ethical responsibilities surrounding its use. AI-powered tools are increasingly being leveraged by researchers to assist in various aspects of the writing process, from idea generation and content creation to automated formatting, citation management, and even language editing (Khalifa & Albadawy,

2024; Malik et al., 2023). For instance, AI-driven text generation models can help researchers ideate and compose initial drafts of manuscripts, while automated reference management systems can streamline the citation and bibliography creation process (Dang et al., 2022). Additionally, AI-powered grammar and style checking tools are being integrated into research writing software to enhance the clarity and coherence of scholarly texts (Adams & Chuah, 2022). The use of AI technology empowers scientists by offering them immediate answers to and insights into their research queries, thereby dramatically accelerating the overall pace of scientific discovery, experimentation, and the timely reporting of innovative findings and breakthroughs (Dwivedi et al., 2021; Kitano, 2016; Leslie, 2020; Sarker et al., 2021). Generally, AI applications bolster research productivity, efficiency, and accessibility, empowering scientists to achieve more in their work through intelligent automation and advanced analytical capabilities (Ochuba et al., 2024).

However, as the technology becomes more integrated into the core workflows of research and publication, it presents complex ethical dilemmas that need to be carefully understood by the academic community, in order to enable its responsible use in the advancement of knowledge (Carobene et al., 2024; Miao et al., 2023). Some of the commonest concerns regarding the use of AI technology in research writing include (a) whether the tool should be used at all in research writing; (b) issues around authorship and attribution of AI; (c) privacy and transparency; (d) quality, reliability and fact-checking; and (e) disclosure of AI use (Cheng et al., 2021; Kieslich et al., 2024; Labajová, 2023; Miao et al., 2023).

The question of whether AI tools should be used at all in the research writing process presents a critical ethical dilemma for the academic community (Kooli, 2023). While some scholars are opposed to utilizing AI in research writing, owing to its potential impact on the integrity of the research process (Alharbi, 2023; Zawacki-Richter et al., 2019), others in the field are supportive of integrating AI (Lee & Perret, 2022; Sarwar et al., 2019; Schneider-Kamp, 2021; Selten & Klievink, 2024). As a result, researchers seeking to publish their work face conflicting guidelines, with some notable publishing outlets, such as Elsevier, Taylor & Francis, and Sage, allowing and even encouraging the use of these AI tools (Budhwar et al., 2022; Jandrić & Hayes, 2019; Tennant et al., 2019) and others, such as *Science*, rejecting AI-related manuscripts outright (*Science*, n.d.; Thorp, 2023). The inconsistency in policies and guidelines across journals and publishers regarding the use of AI in research and scholarly publishing generates confusion within the scientific community (Ganjavi et al., 2024).

Similarly, the issue of assigning appropriate authorship and attribution of intellectual work presents an ethical dilemma. As AI systems have become more sophisticated in assisting with research tasks such as writing, it may become difficult to distinguish its contributions from those of humans (Glikson & Woolley, 2020). Without clear guidelines, ambiguous authorship could potentially undermine researchers' careers, stifle motivation, and compromise the integrity and transparency of the published academic record (Reyes & Kaltenbrunner, 2024). Therefore, thoughtful clarifications on authorship criteria are needed to provide clear guidance to authors on the appropriate course of action (Resnik & Hosseini, 2024). This will ensure that researchers are well-informed about the expectations and responsibilities associated with authorship, which is crucial for maintaining the integrity and transparency of the research process (Cooksey & McDonald, 2019).

Furthermore, whether AI writing can constitute plagiarism is unclear (Miao et al., 2023). Currently, there is no consensus on where to draw the line between original human work and the reuse of ideas from training materials (Vasquez, 2024). There are two conflicting positions on the use of AI in research writing. On one hand, drafts generated by an AI system are seen as plagiarizing from the source texts used to train that AI system (Anson, 2022; Lukac & Lazareva, 2023). However, others argue that AI systems produce novel combinations of knowledge not present in any single source, making accusations of plagiarism illogical (Cameron, 2020; Grimm, et al., 2021; McJohn & McJohn, 2020; Novobilská, 2023). With no standardized approach, researchers could face uncertainty around whether leveraging AI assistance could unintentionally lead to claims of plagiarism down the line, depending on varying editorial interpretations (Vasquez, 2024). Rigorous criteria must be established that differentiate AI-generated content from direct copying and that

include disclosure guidelines so that writing with AI contributions can be objectively assessed (Kieslich et al., 2024). This will clarify intellectual property issues and help ensure research integrity as AI increasingly supports the writing process.

Finally, researchers may be hesitant to disclose AI use in their manuscripts because some journals opposed to the use of AI could reject papers that acknowledge its contributions during the manuscript development process (Hosseini et al., 2023). Balakrishnan and Dwivedi (2024) noted that possible submission rejection if authors disclose the use of AI assistance poses a complex ethical challenge that researchers must carefully navigate when leveraging the technology in their work.

The above ethical concerns create a clear need to rapidly synthesize and harmonize existing AI-related policies and perspectives from publishers, journal editors, scientists, and regulators like the Committee on Publication Ethics (COPE), as this will be helpful in providing researchers with one-shot guidance on responsible deployment of this technology in research writing (Vasquez, 2024). Hence, the current review seeks to consolidate perspectives from experts and publishers, with the aim of equipping researchers with clear, concise, and harmonized guidance centered on upholding transparency, ownership, privacy, and integrity standards in the use of the tool.

Purpose of the Study and Research Questions

This rapid review clarifies ethical dilemmas associated with using AI in research writing. Specifically, the study aimed to clarify these ethical issues by answering the following research questions:

1. Should AI tools be used to support research writing tasks?
2. Should AI systems be attributed or designated as authors or co-authors of research papers?
3. How should issues of plagiarism and originality be addressed when using AI in the research writing process?
4. What transparency and privacy guidelines are needed for the responsible use of AI in research writing?
5. Should human oversight and control be required for AI-generated outputs in academic writing?

To answer these questions, we reviewed the perspectives of scholars published in academic databases and policy statements of prominent publishers.

Methods

Design

This study employed a rapid review design. A rapid review is an expedited form of evidence synthesis that employs streamlined systematic review methods to address urgent questions for local decision-making (Garrity et al., 2024; Khangura et al., 2014). While not a substitute for a comprehensive systematic review, a rapid review adheres to the principles of robust evidence synthesis, including thorough searches, rigorous data extraction, and transparent reporting (Ganann et al., 2010; Khangura et al., 2012). This design has been widely utilized for time-sensitive evidence synthesis to guide policy and practice (King et al., 2022; Raghunathan et al., 2022). We adopted this approach in the current study for timely synthesis of insights that can guide responsible integration of AI.

Context

We reviewed 12 relevant articles published in high-impact scholarly databases, as well as seven policy statements and guidelines from some of the world's leading academic publishers. The aim was to present harmonized, authoritative guidelines across the publishing landscape that would help provide clarity and consistency on AI-related ethical considerations. Specifically, we reviewed relevant articles that were published in academic databases, as well as policy statements and guidelines from publishers, including Elsevier, Taylor & Francis, SAGE, Cambridge University Press, Springer, *Science*, and Wiley. This strategic focus ensured the findings were grounded in guidance from the most authoritative sources within the scholarly community. The insights gleaned from this rapid review can provide much-needed clarity and guidance to the academic community on the subject.

Search Strategy

Four academic electronic databases (Scopus, Web of Science, MEDLINE, and Google Scholar) were systematically searched, using controlled vocabularies and keywords such as “artificial intelligence,” “ethics,” “research writing,” “challenges,” “AI disclosure,” “large language models,” “AI transparency,” “AI authorship,” and “AI attribution.” Boolean operators (“AND,” “OR”) were applied to combine search terms. The search was conducted between November 2022 and February 2024. This timeframe was chosen due to the surge in AI-powered research following the November 2022 release of OpenAI's ChatGPT, a blockbuster event that heightened awareness and usage of generative AI (Purohit, 2023). Conducting the study during this period was crucial to synthesizing the latest policies, guidelines, and scholarly insights to provide researchers with urgent ethical guidance on the subject.

Inclusion and Exclusion Criteria

Only sources published in English that assessed ethical issues arising from the integration of AI into the research process were considered eligible for inclusion. This decision was made to ensure that the insights gathered would be accessible to the widest possible readership within the global academic community, as English has become the predominant language in global research (Gordon & Fierros, 2022; Yakhontova, 2020). Also, our limited understanding of other languages made focusing on English a practical necessity for this research. Other inclusion criteria for the sources reviewed were: (a) peer-reviewed articles indexed in academic databases and (b) articles having the primary objective of assessing the ethics of AI use for research and writing. Exclusion criteria included (a) unpublished sources, such as preprints, and (b) sources whose main objective was not to examine associated ethical dimensions. We also searched for current policy statements and guidelines from prominent academic publishers that we believed captured diverse and authoritative perspectives.

Search Outcome

A total of 159 articles and 16 policy documents/guidelines were initially identified through preliminary searches. After assessing eligibility based on title, abstract, and full-text review, 82 articles were identified as being the same or very similar to other articles already included in the study and were therefore excluded; 21 articles were removed for having unrelated titles and abstracts; 32 articles were excluded as they discussed AI ethics in general rather than in the specific context of research writing, and 12 articles were removed for not being available in English. Of the 16 policy documents, nine were excluded as they did not specifically address the use of AI in the research writing process and rather provided only general guidelines on research integrity or academic publishing. This exclusion process resulted in a final set of 12 eligible articles and seven policy documents that were analyzed to clarify the ethical dilemmas surrounding the use of AI technology in the research writing workflow. The above selection steps are depicted in Figure 1 and are consistent with Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA).

Figure 1. PRISMA Flow Chart

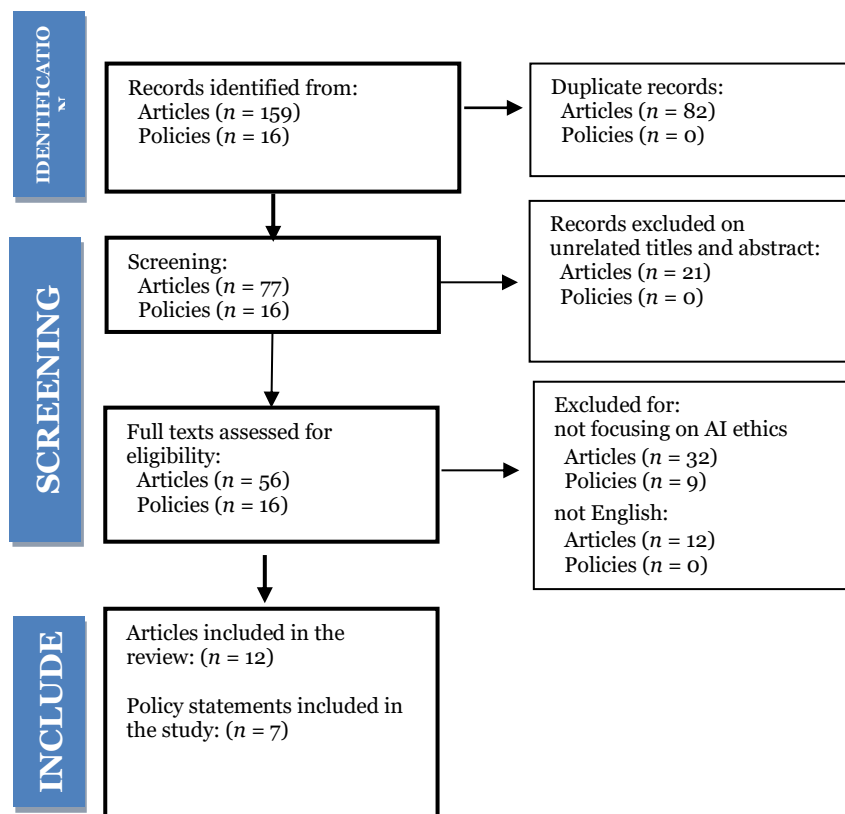


Table 1 provides an overview of the reviewed sources and their relevant attributes. Of the articles, the majority (11) were published in 2023, with only 1 article published in 2024. In terms of indexing sources, most of the articles were indexed in multiple databases, with 10 of them indexed in Google Scholar, seven in Scopus, five in MEDLINE, and four in Web of Science, suggesting a broad coverage of the topic across various academic databases. Regarding the methodological approaches employed, most of the articles utilized a perspective or commentary methodology, and the others included policy analysis, systematic literature review, and non-systematic review approaches. In other words, articles reflect both empirical investigations and conceptual discussions.

Table 1: Summary of Attributes of Articles Included in the Study (n = 12)

Author and year	Title	Indexing	Methodological approach
BaHamam (2023)	Balancing Innovation and Integrity: The Role of AI in Research and Scientific Writing	GS, SCP	Policy analysis
Del Giglio & da Costa (2023)	The Use of Artificial Intelligence to Improve the Scientific Writing of Non-native English Speakers	GS, SCP, WoS, MED	Non-systematic review
Flanagin et al. (2023)	Nonhuman “Authors” and Implications for the Integrity of Scientific Publication and Medical Knowledge	MED, GS	Perspective
Hosseini et al. (2023)	The Ethics of Disclosing the Use of Artificial Intelligence Tools in Writing Scholarly Manuscripts	GS	Perspective

Jarrah et al. (2023)	Using ChatGPT in Academic Writing Is (Not) a Form of Plagiarism: What Does the Literature Say?	GS, SCP	Systematic literature review
King (2023)	A Place for Large Language Models in Scientific Publishing, Apart From Credited Authorship	GS, SCP, WoS, MED	Perspective
Lee (2023)	Can an Artificial Intelligence Chatbot Be the Author of a Scholarly Article?	GS, SCP	Perspective
Lubowitz (2023)	Guidelines for the Use of Generative Artificial Intelligence Tools for Biomedical Journal Authors and Reviewers	SCP, GS, MED	Perspective
Salvagno et al. (2023)	Can Artificial Intelligence Help for Scientific Writing?	GS, SCP, WoS	Perspective
Stanbrook et al. (2023)	A New Policy on the Use of Artificial Intelligence Tools for Manuscripts Submitted to CMAJ	GS, MED	Perspective
Thorp (2023)	ChatGPT Is Fun, but Not an Author	GS, SCP, WoS	Editorial comment
Carobene et al. (2024)	Rising Adoption of Artificial Intelligence in Scientific Publishing: Evaluating the Role, Risks, and Ethical Implications in Paper Drafting and Review Process	GS	Perspective

Note: GS = Google Scholar; SCP = Scopus; WoS = Web of Science; MED = MEDLINE

Table 2 summarizes the key attributes and policies related to the use of generative AI tools in academic publishing. Three of the policy statements were published in 2023; the remainder appear on web sites with no date specified, and these were retrieved for review at the time of publication. Common themes included the requirement for transparency in disclosing AI use, the prohibition of AI authorship, the prohibition on using AI to create or manipulate original research data and results, and the restriction on the use of AI-generated content, such as images and multimedia.

Table 2. Summary of Attributes of Publishers Included in the Study

Publisher	Policy title	Policy summary	Uniform resource locator (URL)
Cambridge University Press (2023)	Research Publishing Ethics Guidelines for Journals	Transparent AI use required; AI lacks authorship; authors accountable for integrity and originality.	https://assets.ctfassets.net/ulsp6w1006po/1d2pgZfZ7xwtIWmziBYGpS/d7e31f360974e0baaaca090191b070c/2023-Research-Publishing-Ethics-Guidelines-for-Journals.pdf
Elsevier (n.d.; retrieved February 1, 2024)	The Use of Generative AI & AI-assisted Technologies in Writing for Elsevier	AI use only to improve readability, authors accountable for content; AI cannot be listed as author; AI-generated images and artwork prohibited.	https://www.elsevier.com/about/policies-and-standards/the-use-of-generative-ai-and-ai-assisted-technologies-in-writing-for-elsevier
Sage (n.d.; retrieved February 1, 2024)	Use of Large Language Models and Generative AI Tools in Writing Your Submission	Disclose AI use, verify content accuracy, acknowledge model limitations, and not list AI as authors.	https://us.sagepub.com/en-us/nam/using-ai-in-peer-review-and-publishing#:~:text=Authors%20using%20generative%20AI%20to,provided%20reflect%20the%20claims%20made.&text=If%20you%20have%20any%20questions,Editor%20in%20the%20first%20in stance.
<i>Science</i> (n.d.; retrieved February 1, 2024)	<i>Science</i> Journals: Editorial Policies	Prohibits listing AI as authors; authors must disclose AI use, ensure accuracy, mitigate bias; prohibits AI-generated images/multimedia.	https://www.science.org/content/page/science-journals-editorial-policies
Springer Nature (n.d.; retrieved February 1, 2024)	Artificial Intelligence (AI)	Ethical AI use, prohibiting AI authorship and generative AI images.	https://www.springer.com/gp/editorial-policies/artificial-intelligence--ai-/25428500
Taylor & Francis (2023)	Taylor & Francis Clarifies the Responsible Use of AI Tools in Academic Content Creation	Bars AI authorship, mandates responsible AI use disclosure and human accountability for content originality, validity, and integrity.	https://newsroom.taylorandfrancisgroup.com/taylor-francis-clarifies-the-responsible-use-of-ai-tools-in-academic-content-creation/
Wiley (2023) (by M. M. Streeter)	The Implications of AI in Academic Publishing	Allows limited, responsible use of generative AI in research, requiring transparency, human accountability for content validity; prohibits AI authorship or manipulation of original data.	https://www.wiley.com/en-us/network/publishing/research-publishing/editors/the-implications-of-ai-in-academic-publishing

Data Extraction and Analysis

The following information was extracted from each article included in the study: (a) publication details, (b) paper title, (c) key findings and conclusions, and (d) indexing. Discrepancies in data extraction between reviewers were resolved through discussion among the researchers. We also extracted the following information from the policy statements and guidelines that were included: (a) name of publisher, (b) summary of policy statement, and (c) source. Extracted data were compiled and summarized narratively under relevant themes that addressed the objectives of this study. These included:

1. Acceptability of the use of AI in research writing
2. AI authorship/co-authorship/attribution
3. AI output and plagiarism/originality
4. Transparency and privacy with AI use
5. Oversight of AI-derived information

Results

This section presents the results of the study, which provide valuable insights into key considerations surrounding the use of AI in research and scholarly writing. Findings cover the acceptability of integrating AI, questions of authorship and attribution, and concerns around plagiarism and originality, as well as issues of transparency, privacy, and oversight of AI-derived information.

Acceptability of Using AI in Research Writing

All 12 articles reported that AI can be appropriate for research writing, but only if ethical issues related to its use are addressed. The authors expressed concerns about AI-generated information being unreliable and potentially enabling falsified papers, as well as issues of plagiarism, lack of originality, and violations of academic integrity. However, there is agreement that if these ethical concerns can be sufficiently resolved, AI could be a useful addition to the research writing process.

With the exception of *Science*, which strictly maintains that any work produced entirely by AI (text, figures, images, or graphics) should not be permitted in scientific writing, the remaining publishers posit that AI can be used in research writing with human oversight and that its use must be disclosed in the manuscript. However, publishers also expressed concerns about the use of AI images and figures in research writing. Springer Nature states that journals should not publish AI-generated images, except when analyzing such media or under proper licensing, due to copyright risks. Elsevier restricts the use of AI to modify figures, requiring all images to be original or properly licensed otherwise. Overall, publishers emphasize maintaining the integrity of the research process and the authenticity of presented data while stressing transparency around the use of AI tools and retaining human oversight and responsibility over the final published work. They also expressed that they are monitoring ongoing developments regarding the use of AI in research writing and will adjust or refine their policies as appropriate.

AI Authorship/Co-authorship/Attribution

There is consensus that AI should not be listed as an author or coauthor in research because authorship obligations such as accountability, consent, and contractual assurances cannot be transferred to or fulfilled by AI systems. Human authors must take full responsibility for any submitted content and uphold ethical publishing standards. It was generally agreed that, if it is used, AI should be acknowledged in the appropriate section of the manuscript.

Similarly, all the publishers emphasized that AI should not be included as an author or co-author in a research manuscript, because, as a non-legal entity, it cannot take responsibility for the submitted work. This stance is in line with the guidelines of the Committee on Publication Ethics (COPE, 2024). The publishers also maintain that authors must take full responsibility for the content and uphold ethical publishing standards.

AI Output and Plagiarism

Three studies (Flanagin et al., 2023; Hosseini et al., 2023; Thorp, 2023) directly responded to the concern regarding plagiarism. They reported that AI can be regarded as a form of plagiarism only if the author fails to acknowledge any reliance on AI assistance. This is because developers designing AI systems may have trained the models by utilizing ideas and wording from pre-existing human works without consent or attribution (Stanbrook et al., 2023). All maintained that the use of AI must be disclosed. In a similar way, all publishers asserted that failing to acknowledge the use of AI can be considered plagiarism. In that same vein, they stated that if authors sufficiently rework the AI-generated content and properly cite their sources, the use of AI would not be regarded as plagiarism.

Transparency and Privacy with AI Use

There is consensus that the use of AI tools must be disclosed, that AI-generated content must be distinguished from the author's own work, and that any ideas or text derived from AI systems must be properly attributed through citation and referencing. Alternatively, AI sources should be documented in the methodology or acknowledgment sections of the paper, and the contents created by AI tools should be clearly described, including the name, model, version, and manufacturer of the tool used, in order to maintain transparency (Flanagin et al., 2023; Del Giglio & da Costa, 2023; Jenkins & Lin, 2023; King, 2023; Lubowitz, 2023). This level of transparency allows for the navigation of privacy issues, by making clear what parts of the work stem from human effort versus AI systems.

All academic publishers explicitly stated that researchers must be fully transparent about the use of AI systems in their work. This includes disclosing the utilization of AI tools, clearly differentiating any content generated by these systems from the author's own work, and properly attributing and citing any ideas or text derived from AI through appropriate referencing. Specifically, *Science* emphasized that the disclosure should include reporting the specific prompts used to elicit responses from the AI. This level of transparency is considered essential by the scientific community in navigating the complex privacy considerations surrounding the integration of AI into the research process.

Oversight of AI-Assisted Writing

Researchers and publishers' policies consistently emphasized the importance of human oversight and control when using AI in scientific writing. The literature maintains that authors must carefully review and modify any manuscript content generated or influenced by AI, as the output can sound authoritative yet potentially be incorrect, biased, or incomplete. Publishers universally stressed the necessity of human oversight for the responsible integration of AI into the research and publication process: Authors are strongly encouraged to scrutinize AI-derived data, information, and text to ensure accuracy, objectivity, and alignment with their own insights and conclusions.

Discussion

Using AI in research writing raises ethical dilemmas that urgently need clarification to guide researchers. We drew on expert opinions published in high-impact journals and the policy statements and guidelines of reputable publishers. Experts and publishers are supportive of using AI for research writing, but only if issues

of ethics and integrity are properly addressed. This aligns with the existing body of literature that reflects a growing acceptance of the integration of AI across academic fields, provided appropriate safeguards are implemented. For instance, a survey of journal editors found widespread openness to the use of AI-assisted writing, but with the caveat that any AI contributions must be transparently disclosed to readers (Hoque et al., 2024). This reflects a willingness to leverage the potential benefits of AI, such as enhanced writing quality and efficiency (Alharbi, 2023; Nazari et al., 2021), while maintaining clear attribution and accountability. Similarly, a Delphi study involving research integrity experts emphasized the critical need for clear guidelines to manage AI authorship and mitigate the risk of misuse (Lam et al., 2022). This speaks to legitimate concerns that have been raised around issues such as plagiarism, bias, and the responsible oversight of AI-derived information (Ambati, 2023). Overall, there appears to be general acceptance of the use of AI in research if it can be deployed in a way that preserves the core principles of scholarly work.

AI tools should not be designated as authors or co-authors on research papers, but their use should be acknowledged in the appropriate sections of the research. This finding aligns with recent studies and guidelines on the responsible integration of AI in academic publishing. A study by the International Committee of Medical Journal Editors (ICMJE, 2024a, 2024b) emphasized that authorship criteria should be based on substantial contributions to the conception, design, execution, or interpretation of the reported work. Given the current limitations in AI's ability to meet these criteria independently, the ICMJE concluded that AI tools should not be granted authorship status. Similarly, a position statement from the Committee on Publication Ethics (COPE, 2024) included that AI should be acknowledged for its contributions but should not be listed as an author. The COPE highlighted concerns about the potential for misattribution and lack of accountability if AI were given authorship privileges. Researchers have also proposed frameworks for transparently disclosing the role of AI in the research process. For example, Liu et al. (2020) recommended that AI contributions be documented in the acknowledgments, methods, or supplementary information sections. This approach allows the benefits of AI-assisted research to be realized while maintaining the integrity of the authorship model. This perspective is further supported by Blau et al. (2024), who highlighted the importance of clear attribution when AI is involved in scholarly work. They recommended the development of guidelines to ensure that the contributions of both human and AI participants are properly recognized. The above findings suggest a balanced perspective among academic publishers, research experts, and other stakeholders that emphasizes the need for acknowledgment of AI contributions in scientific writing rather than designating AI as an author or a coauthor.

Similarly, concerns around plagiarism can potentially be avoided if authors are diligent about critically examining their own work, clearly disclosing where and to what extent AI systems are utilized when writing the manuscript, and specifying precisely which version of AI is used in research writing. The National Academies of Sciences, Engineering, and Medicine (NASEM, 2024) emphasized the importance of clear documentation and attribution when AI is involved in scholarly work. The report included the position that authors have the responsibility for transparent disclosure of the use of AI tools, including the specific systems and versions employed, in order to maintain research integrity. Leavitt et al. (2021) recommended that authors provide detailed information on AI contributions. Researchers have also proposed frameworks for managing AI-assisted writing in a transparent manner. For example, Ghorbani (2023) suggested that authors should specify the role of AI in ideation, drafting, and/or editing and provide access to the AI-generated materials upon request. This level of disclosure allows readers to critically evaluate the source and extent of AI contributions. Furthermore, guidelines from the ICMJE (2024a) state that authors must ensure the accuracy, completeness, and transparency of their work, including any AI-derived components. The ICMJE emphasizes that authors bear the primary responsibility for the integrity of their research, regardless of the tools used.

Whenever AI is used to assist with research writing, authors must maintain the highest levels of transparency. They should fully disclose the utilization of AI tools to ensure accountability and uphold the integrity of scholarly communications. This finding is strongly supported by recent guidelines and recommendations from leading

academic organizations. COPE (2024), for example, emphasized the need for transparent disclosure of AI use in research papers. It highlighted concerns about the potential for AI-assisted content to be misrepresented or misattributed and stated that authors have a responsibility to document clearly the role of AI in their work. The ICMJE has also weighed in on this issue, stating that authors must ensure the accuracy, completeness, and transparency of their work, including any AI-derived components (Dergaa et al., 2023; ICMJE 2024a, 2024b). As noted previously, the ICMJE guidelines emphasize that the primary responsibility for the integrity of any research lies with the authors, no matter what tools are used. Similarly, a report by NASEM (2024) recommended the development of clear guidelines for disclosing AI use in scholarly publications. The report stressed the importance of transparency in maintaining public trust in the research process and in preventing potential misuse of AI-generated content. Researchers have further elaborated on strategies for transparent disclosure of AI use in writing. For instance, Vartiainen and Tedre (2023) advised that authors should specify the role of AI, such as in ideation, drafting, and/or editing, and provide access to the AI-generated materials upon request. This level of detail allows readers to critically evaluate the source and extent of AI contributions. Overall, these findings and recommendations from leading academic bodies and researchers emphasize that transparency and disclosure are crucial when using AI to assist with research writing.

Finally, while AI can assist in research writing, human oversight and accountability for the final work remain essential, as AI can produce responses that seem credible but may contain factual errors or even fictitious citations. This finding aligns with growing concerns in the academic community about the potential risks of over-relying on AI in scholarly work. While AI tools can be powerful assistants in the research and writing process, they do not possess the higher-order reasoning and contextual understanding necessary to ensure the accuracy, integrity, and reliability of academic publications (Xie et al., 2023). As noted in a report by NASEM (2024), AI systems can generate plausible-sounding content that appears credible but may contain significant factual inaccuracies or fabricated information. This poses a serious threat to the quality and trustworthiness of research, as readers may unknowingly accept AI-generated errors or falsehoods as facts. Similarly, there is a risk of AI-assisted *citation hacking*, whereby AI-generated citations could be used to create an illusion of supporting evidence for claims, even if the cited sources do not actually exist or are irrelevant (Májovský et al., 2023). Such practices undermine the foundations of rigorous, evidence-based research. To address these concerns, academic guidelines and experts have consistently emphasized the need for human oversight and accountability in the use of AI for research writing. The ICMJE, for example, has stated that authors must ensure the accuracy and integrity of their work, regardless of the tools used, and bear primary responsibility for the content (ICMJE, 2024a). Researchers have also proposed strategies to maintain human control, such as requiring authors to provide access to the AI-generated materials used in their work and to specify the role of AI in the research and writing process (Malik et al., 2023). This finding underscores that, while AI can be a valuable assistant in research writing, human judgment, oversight, and accountability remain essential to upholding the highest standards of scholarly integrity.

Limitations of the Study

The first key limitation of this study is its scope, as it concentrated solely on the ethical dilemmas related to the use of AI in research writing rather than exploring the broader implications or applications of AI in research generally. Secondly, the rapid review design employed may have limited the depth and comprehensiveness of the literature search and analysis compared to a more extensive systematic review. Thirdly, the study focused on expert opinions and publisher policies but did not directly incorporate the perspectives and experiences of researchers who have used AI in their own research writing process, limiting our ability to capture fully the practical and contextual factors that may shape ethical decision-making around AI usage. Despite these limitations, this study offers a valuable starting point to guide ongoing discussion and development of guidelines to navigate the evolving ethical issues of AI-assisted research.

Implications

This study provides an essential foundation for future in-depth studies on how researchers use AI tools in their writing. Researchers could perform qualitative and quantitative studies to better understand the practical, situational, and field-specific factors that influence how researchers make ethical decisions about using AI. This additional research would give us a deeper understanding of the different challenges, motivations, and strategies that drive researchers when they integrate AI into their writing processes. This may provide more insight than that derived from looking only at expert opinions and publisher policies.

In practice, the ethical principles and policy insights identified in this study can inform the development of standardized guidelines to help researchers, publishers, and research institutions navigate the complex ethical landscape of AI-assisted writing. Implementing such guidelines can promote more transparent, responsible, and trustworthy use of AI in the research process. This has far-reaching implications for scholarly communication, research integrity, and public trust in science. Proactive engagement with these issues can empower the research community to harness the benefits of AI while upholding the core values of scientific rigor.

Conclusion

Based on the analysis of publisher policies and expert opinions, we conclude that the integration of AI into scientific writing can be beneficial if certain ethical standards are upheld. To guide this process, institutions or publishers should consider the following key components when adopting a policy on the use of AI:

- Clear guidelines on the appropriate use of AI tools in the scientific writing process, ensuring that they are used to augment and assist human efforts, and not replace them.
- Requirement for human oversight and verification of all AI-generated content, to maintain standards of scholarly integrity, factual accuracy, and intellectual honesty.
- Prohibition on crediting AI systems as authors or co-authors on published works, as AI is a non-legal entity that cannot be held responsible for the submitted content.
- Processes for disclosing the use of AI tools in the scientific writing process, ensuring transparency and allowing readers to evaluate the work accordingly.
- Mechanisms for evaluating the reliability and trustworthiness of AI tools to ensure they adhere to ethical principles and do not introduce bias or errors.
- Ongoing review and updating of policies to keep pace with the evolving capabilities and applications of AI in the scientific domain.

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