External Landscape Readiness for Artificial Intelligence (AI) in Scientific Publishing: Physician Perspectives on Benefits and Barriers

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Current Situation

- The integration of artificial intelligence (AI) into scientific publishing holds the potential to revolutionise how research content is generated and disseminated.
- AI can enhance efficiency by automating routine tasks and tailoring content to diverse audiences. However, its adoption faces challenges such as concerns over content accuracy and the role of authorship.
- Understanding the perspectives of healthcare professionals (HCPs) on these issues is crucial for guiding future implementation strategies.

Aim

- This study aimed to assess HCP perceptions regarding the benefits versus barriers to adopting AI in scientific publishing processes.
- By evaluating these perspectives across different levels of AI experience, we sought to identify areas where educational initiatives could facilitate smoother integration.

Conclusion

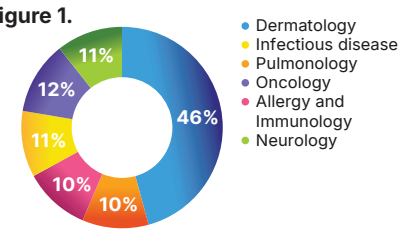
- The findings suggest that while there is optimism about the role of AI in improving efficiency and innovation in scientific publishing, apprehensions related to authorship authenticity and content reliability must be addressed.
- Notably, individuals with extensive experience using AI are more likely to appreciate its benefits and less likely to perceive barriers compared to those with no experience. This disparity highlights the importance of exposure and education in shaping perceptions.

Methods

Participants

US- and UK-based HCPs, across a range of specialties (n=94; **Figure 1**).

Figure 1.



Survey Design

- The survey was undertaken in September 2024.
- Participants rated their agreement with statements about the role of AI in publication development using a 7-point Likert scale (1 = Strongly disagree; 7 = Strongly agree), and a Net Promoter Score (NPS) was calculated to determine trends in opinions.
- Participants were also asked to rate their knowledge and experience with AI in the generation of publication content (1 = No knowledge or experience with use of AI; 7 = Clear knowledge on how AI can be used and/or extensive experience with using AI).

Data Analysis

- NPS Calculation
  - NPS=% of promoters – % of detractors
  - Respondents scoring **5, 6 or 7** were considered **"promoters"**.
  - Respondents scoring **1, 2 or 3** were considered **"detractors"**.
  - A **score of 4** was considered **neutral** and not included in the calculation.
  - The resulting NPS ranged from -100 to +100, indicating overall sentiment towards each statement (**Table 1**).

Subgroup Analysis

- Results were further analysed based on participants' level of knowledge and experience with AI (no experience, some experience, extensive experience).

Table 1. Interpretation of NPS Values

Score	Interpretation
<−70	Disagree
−70 to −51	Trend towards disagree
−50 to −26	Small trend towards disagree
−25 to +25	No consensus
+26 to +50	Small trend towards agree
+51 to +70	Trend towards agree
>+70	Agree

Results

Overall Population Findings

Perceived Benefits

- Efficiency improvement: HCPs agreed that AI could enhance efficiency in publication processes (NPS=73).
- Audience tailoring: There was a trend towards agreement that AI could help tailor publications to different audiences and reading levels (NPS=63).
- Content generation ideas: Participants showed a trend towards agreement that AI could generate new ideas for publication content (NPS=57).

Perceived Barriers

- There was a trend towards agreement that potential barriers to uptake of AI include:
  - Concerns that content is no longer author-driven (NPS=63).
  - Concerns regarding the accuracy of AI-generated content (NPS=66).
  - Trust/Mistrust (NPS=52).
  - Lack of awareness about how AI works (NPS=52).

Results by AI Experience Level

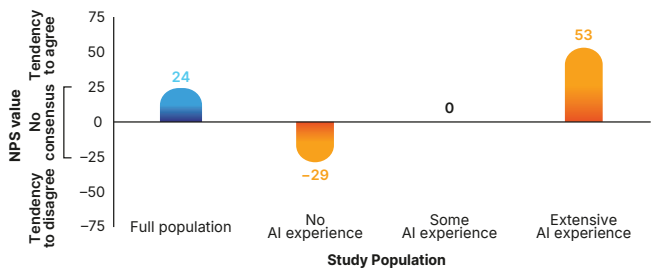
- Across the study population, approximately two thirds of HCPs indicated they had some knowledge or experience with the use of AI (**Figure 2**).

Figure 2. Level of Knowledge or Experience with Use of AI Amongst HCPs



- In the overall population there was no consensus on whether HCPs would be willing to adopt AI in the generation of publication content, but this was influenced by AI experience (**Figure 3**):
  - HCPs with no AI experience showed a small tendency to disagree with the adoption of AI into publication development.
  - HCPs with extensive AI experience tended to agree that they would be willing to adopt AI into the generation of publication content.

Figure 3. HCP Perspectives on Willingness to Adopt AI in the Generation of Publication Content



To what extent, if at all, do you agree or disagree with the following statement regarding the use of AI in the generation of scientific publication content?

- I have used or would be willing to use AI to generate publication content

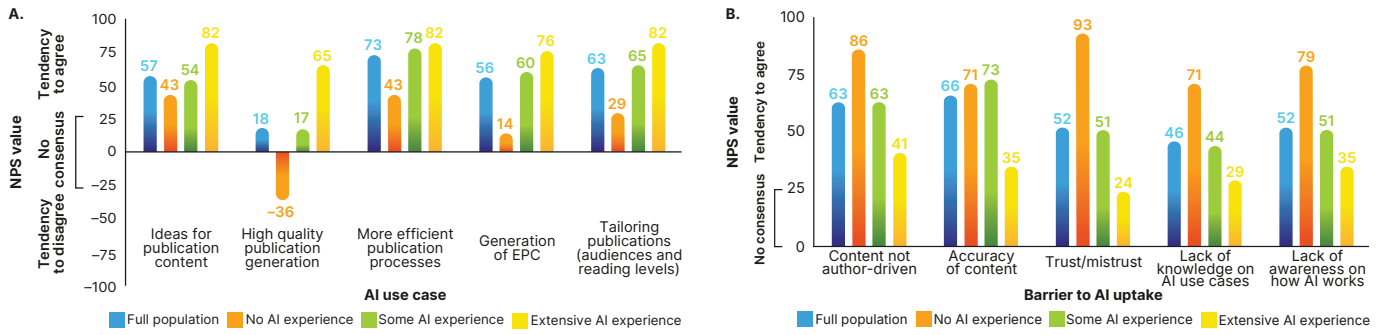
Extensive AI Experience Group (n=17)

- Showed higher NPS values for benefits such as efficiency improvement and idea generation versus the overall population.
- Had lower NPS values for all potential barriers assessed than the overall population (**Figure 4A and B**).

No AI Experience Group (n=14)

- Exhibited higher NPS values for potential barriers to AI uptake versus the overall population, including concerns around author involvement and the accuracy of AI-generated content.
- Demonstrated lower NPS values than the overall population for perceived benefits like efficiency improvements (**Figure 4A and B**).

Figure 4. HCP Perspectives on Potential Benefits (A) and Barriers (B) to Uptake of AI in Generation of Publication Content



To what extent, if at all, do you agree or disagree with the following statements regarding the potential benefits of involving AI in the generation of scientific publication content?

- AI can be used to generate ideas around publication content
- AI can be used to generate high-quality publications
- AI can make the publication process more efficient (e.g. reduction in time)
- AI could be used routinely to generate enhanced publication content (EPC) from an existing journal article
- AI could be useful for tailoring publications to different audiences and reading levels

To what extent, if at all, do you agree or disagree that the following are potential barriers to the uptake and use of AI in the generation of scientific publication content?

- Concerns that content is not driven by authors
- Concerns around the accuracy of AI-generated content
- Trust/Mistrust in AI
- Lack of knowledge on what AI can be used for
- Lack of awareness on how AI works (in the context of publication generation)

Discussion

Key Insights:

The study reveals a **nuanced landscape of HCP perceptions regarding the integration of AI into scientific publishing**.

Overall, there is a positive inclination towards recognising the benefits of AI, particularly in **enhancing efficiency and tailoring content to diverse audiences**.

However, significant barriers persist, primarily centred around **concerns about authorship integrity and content accuracy**.

Efficiency Improvement
There was agreement among HCPs that AI can streamline publication processes, suggesting a readiness to embrace AI for operational enhancements.

Audience Tailoring and Content Generation
Trends towards agreement on these benefits highlight potential areas where AI could add value by personalising content and fostering creativity in publication development.

Barriers to Adoption
Concerns about author-driven content, accuracy, trust/mistrust, and awareness gaps underscore the need for addressing these issues to facilitate broader acceptance of AI technologies.

Limitations and Future Directions

Limitations

- The study relies on self-reported data from a relatively small sample size, which may not fully represent the diversity of opinions across different specialties or regions.
- Rapid technological advancements mean that perceptions captured at one point may change over time.

Future directions

- Conduct longitudinal studies to track changes in attitudes as AI becomes more integrated into publishing workflows.
- Develop targeted educational initiatives to demystify AI capabilities and address concerns among those with limited experience.
- Implement workshops or pilot programs to provide practical insights and demonstrate tangible benefits of AI in scientific publishing.

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