Responsible use of Generative Artificial Intelligence in Research Publication: A case study of Indian research journals in Scopus

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Abstract

The Generative Artificial Intelligence (GAI) has the ability to create content that mimics human-like writing. In the Indian academic landscape, where research output is increasingly viewed as a measure of institutional success, the temptation to utilize generative AI for expedited publication can potentially undermine the rigor and authenticity of scholarly work. As publications in academic journals carries a kind of prestige for academicians, therefore it is necessary that journals take required initiatives so that people can't just simply write anything with GAI and publish it the journals. Journals need to have proper guidelines regarding the use of GAI in their published peer reviewed contents. This research paper aims to address the nature of guidelines adopted by the Top Indian journals indexed in Scopus regarding the use of GAI in research publications. The current study took the example of four subject disciplines and made an analysis. The study finds that 70% of the top Indian journals from the discipline of Mathematics, Business management and accounting have at least some guidelines regarding the use of GAI, while in the discipline of Medicine only 40% have it. It is observed that guidance specific for ChatGPT use and guidance for any LLMs use are the most popular parameter. The study identified the lack of standardized and structured guidelines about the use of GAI provided by the journals for the authors.

Keywords: Generative Artificial Intelligence, ChatGpt, Large Language Models, Science communication, Academic journals

1.   Introduction

In recent years, the integration of artificial intelligence (AI) in various domains has brought forth both awe-inspiring advancements and ethical challenges. The application of AI in research publication is rapidly increasing day by day. The Generative Artificial Intelligence (GAI) has the ability to create content that mimics human-like writing, poses a significant question on the integrity and responsibility of research dissemination. As this technology evolves, it becomes imperative to critically examine its impact on academic publishing, particularly within the context of emerging research landscapes like India.

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The introduction of generative AI tools raises fundamental questions regarding authorship, credibility, and ethical standards in research dissemination. While these tools offer unprecedented efficiency and productivity gains, concerns regarding plagiarism, bias, and quality control loom large. In the Indian academic landscape, where research output is increasingly viewed as a measure of institutional success, the temptation to utilize generative AI for expedited publication can potentially undermine the rigor and authenticity of scholarly work.

In December 2022, 'Nature' published an editorial discussing concerns about the use of ChatGPT and GAI in academic writing. Since then, journals and publishers have begun updating their editorial policies and instructions to authors to provide guidance on how to disclose the use of GAI in academic research. 'Science' (Thorp, 2023) published an article stating its decision to prohibit the use of GAI to generate text, figures images, or graphics in the writing process, and it views violation of the policy as constituting scientific misconduct.

Jenkins and Lin (2023) outline procedures for determining how AI-generated content should be credited. They note the importance of two factors: continuity and creditworthiness. Continuity refers to the extent to which AI contributions are present in the final publication, while creditworthiness refers to the extent to which the contributions could be considered worthy of publication in their own right. Other scholars cite current publishing standards, such as those by the International Committee of Medical Journal Editors, to justify inclusion of AI as authors (Polonsky & Rotman, 2023; Rahimi & Abadi, 2023).

Zielinski, C, et al. (2023) studied the WAME recommendations on chatboats and generative artificial intelligence. Those recommendations are informative for editors and help them develop policies for the use of chatbots in papers published in their journals. The recommendations help the authors and the reviewers to understand how chatbots can be used in their work.

Kaebnick, et al,(2023) made statement on the responsible use of GAI in scholarly journal publishing. They stated that generative AI may pose a threat to the goals that animate editor's work but could also be valuable for achieving those goals. They also have developed a preliminary set of recommendations for its use in scholarly publishing.

Ganjavi, et al. (2024) found in their study that most of the top journals and publishers have guidelines for the use of artificial intelligence in the academic publications, Although the guidelines were not specific but it has some instructions for the authors for responsible use of AI.

This research paper aims to address the nature of guidelines adopted by the Indian journals while using GAI in research publication and also underscore the importance of responsible use of AI by the academic community.

2.   Objective of the study

The objective of the study is to analyze the nature of the guidelines on the responsible use of generative artificial intelligence in research publications of top Indian academic journals indexed in the Scopus database.

3.   Methodology

To find out the top Indian journals, h index of the journals based on Scopus was chosen as a measure of quality indicator. The Scimago Journal and Country Rank portal, which lists out performance of Scopus indexed journals, was selected as a data source. Data was collected in the month of Feb to March 2024. For the study, journals from four Scopus subject categories viz. Mathematics, Medicine, Social Science & Business, Management and Accounting were selected. Only the top 20 journals based on h index, published from India in these four subject disciplines were identified for the evaluation based on the objective.

The official website of each journal was then manually visited for author guidance pertaining to AI tools broadly, including those based on GAI. GAI guidelines were identified as any guidelines mentioning the use of GPTs, large language models, or GAI. If a journal did not provide guidance on the reporting of GAI, then the GAI guidelines provided by the journal's publisher were considered as proxy only if the author guidelines or ethics page directly recommended viewing or was linked to the publisher's guidelines. The study used a ten point expected guidelines as identified by Ganjavi et al. (2024) as presented on table 1 on the use of GAI in research publications to parametrically score the journals.

Table 1: Parameters on responsible use of GAI in research publications

Parameters	Notation for the parameter
Guidance available on GAI	P1
Guidance available on What to disclose	P2
Guidance on GAI assisted writing process	P3
Guidance specific for ChatGPT use	P4
Guidance for any LLMs use	P5
Guidance for ethical GAI use (COPE-AI statement)	P6
Authors accountability statement required	P7
Discloser of GAI use required	P8
Images generated by GAI is prohibited	P9
GAI generated content Prohibited	P10

Table 2, Table 3, Table 4 and Table 5 contains the details of the studied journals. The name of the journals, Rank and their H index are presented in the tables.

Table 2: Details of journals in Mathematics

Rank	Name of Journal	H Index
1	Indian Journal of Pure and Applied Mathematics	41
2	International Journal Applied of Computational Mathematics	32
3	Proceedings of the Indian Academy of Sciences: Mathematical Sciences	29
4	Journal of Discrete Mathematical Sciences and Cryptography	24
5	Differential Equations and Dyanamical Systems	23
6	Journal of Interdisciplinary Mathematics	23
7	AKCE International Journal of Graphs and Combinatorics	20
8	International Journal of Mathematical, Engineering and Management Sciences	20
9	Sankha: The Indian Journal of Statistics	20
10	Journal of Ramanujan Mathematical society	14
11	Sankha B	13
12	Calcutta Statistical Association Bulletin	11
13	Global and Stochastic Analysis	11
14	Indian Journal of Mathematics	11
15	Sankha A	11
16	Journal of the Indian Mathematical Society	9
17	Journal of Algebra and Applied Mathematics	7
18	Journal of Analysis and Application	7
19	Poincare Journal of Analysis and Application	7
20	Journal of Integrated Science and Technology	6

Table 3: Details of journals in Medicine

Rank	Name of Journal	H Index
1	Neurosurgery	222
2	Indian Journal of Medical Research	104
3	Asian Journal of Andrology	89
4	Journal of Biosciences	85
5	Indian Journal of Opthalmology	73
6	Asian Pacific Journal of Tropical Medicine	72
7	India Journal of Pharmacology	68
8	Journal of the Association of Physicians of India	66
9	Hepatology International	65
10	Indian Journal of Pediatrics	64

11	Indian Pediatrics	62
12	Journal of Postgraduate Medicine	62
13	Noise and Health	59
14	Indian Journal of Dermatology, Venereology and Leprology	57
15	Indian Journal of Medical Microbiology	57
16	Indian Journal of Physiology and Pharmacology	56
17	Journal of Applied Pharmaceutical Science	56
18	Neurology India	56
19	International Journal of Preventive Medicine	55
20	Research Journal of Pharmacy and Technology	54

Table 4: Details of journals in Business, Management and Accounting

Rank	Name of Journal	H Index
1	Global Journal of Fexible Systems Management	45
2	Global Business Review	43
3	International Journal Systems Assurance Engineering and Management	39
4	Vikalpa	34
5	Journal of Entrepreneurship	29
6	OPSEARCH	29
7	International Journal of Mathematical,Engineering and Management Sciences	20
8	Journal of Human Values	19
9	Journal of South Asian Development	18
10	FIIB Business Review	16
11	Management and Labour Studies	16
12	International Journal of Rural Management	15
13	Prabandhan: Indian Journal of Management	15
14	Indian Journal of Marketing	14
15	Foreign Trade Review	13
16	Journal of the Textile Association	12
17	Asian Journal of Management Cases	8
18	International Journal of Hospitality and Tourism Systems	6
19	Finance India	5
20	Indian Journal of Economics and Development	5

Table 5: Details of journals in Social Science

Rank	Name of the journal	H Index
1	Economic and Political Weekly	70
2	Journal of the Indian Society of Remote Sensing	55
3	Education for Health: Change in Learning and Practice	40
4	Contributions to Indian Sociology	32
5	Indian Journal of Agricultural Economics	26
6	Indian Journal of Gender Studies	25
7	Journal of Education and Health Promotion	24
8	International Journal of Cyber Criminology	23
9	Resonance	23
10	Studies on Ethno-Medicine	23
11	Disaster Advances	20
12	Journal of Mid-Life Health	20
13	South Asia Research	20
14	DESIDOC Journal of Library and Information Technology	19
15	Journal of Human Values	19
16	China Report	18
17	International Studies	18
18	Journal of South Asian Development	18
19	Annals of Library and Information Studies	17
20	Social Change	17

4. Data analysis and interpretation

4.1. Presence of guidelines regarding use of GAI

The study began with the search for the presence of basic guideline related to the use of GAI in the research publication of the journals in four disciplines. Fig. 1 presents the detailed findings about the presence of at least a single parameter out of the selected ten in the top twenty Indian journals of the studied disciplines. It is observed that 70% of the top Indian journals from the discipline of Mathematics, Business management and accounting have at least some guidelines regarding the use of GAI, while in the discipline of Medicine only 40% have it.
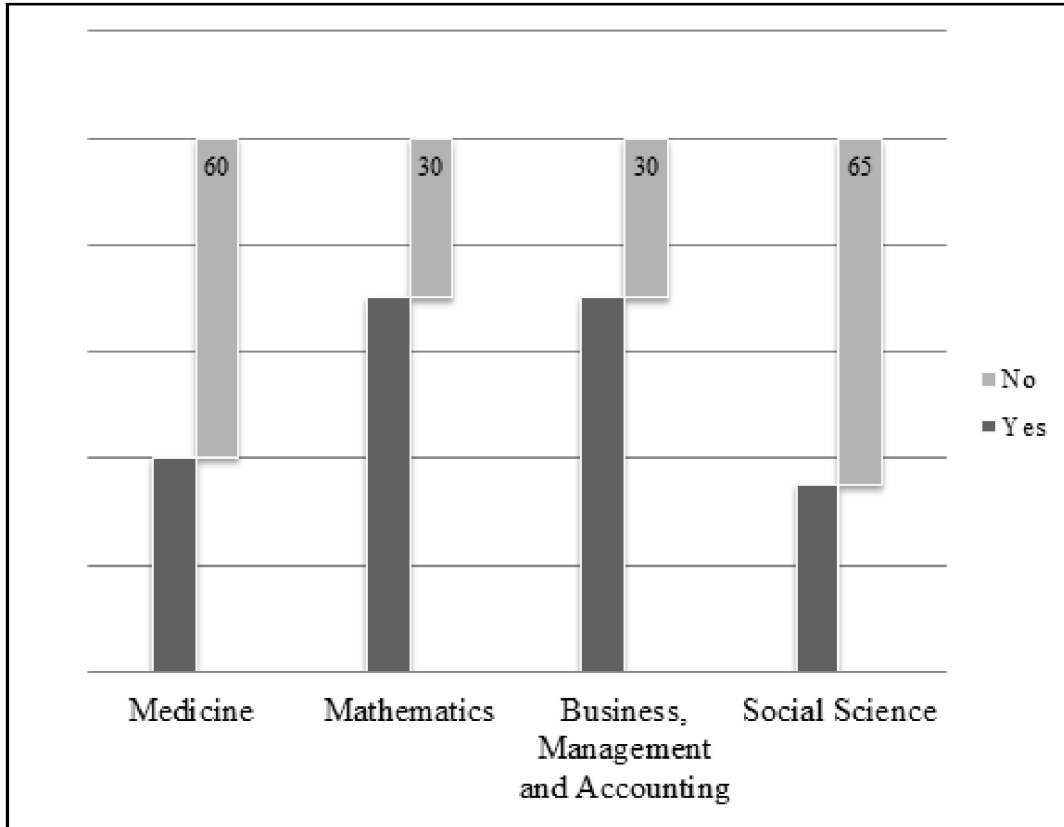
Figure 1: Presence of guidelines regarding use of GAI

4.2. Most common GAI parameters in different subject disciplines

In the study an attempt was made to find the most common parameters that were present in the top twenty journals of the studied disciplines. In the discipline of Mathematics parameter P2 (Guidance available on what to disclose), P4 (Guidance specific for ChatGPT use), P9 (GAI generated content Prohibited) are the most advocated parameter that the top journals are pushing. In the discipline of medicine parameter P2 (Guidance available on what to disclose), P4 (Guidance specific for ChatGPT use), P5 are the most advocated parameter that the top journals are pushing. In the discipline of Business, Management and Accounting parameter P4 (Guidance specific for ChatGPT use), P5 (Guidance for any LLMs use), are the most advocated parameter that the top journals are pushing. In the discipline of Social Science only two parameters P4 (Guidance specific for ChatGPT use) and P5 (Guidance for any LLMs use) was found to be present. Presence of P1 was omitted from analysis as P1 only refers to presence of any GAI related guideline as mentioned by Ganjavi et al (2024). Fig. 2 presents the detailed findings.
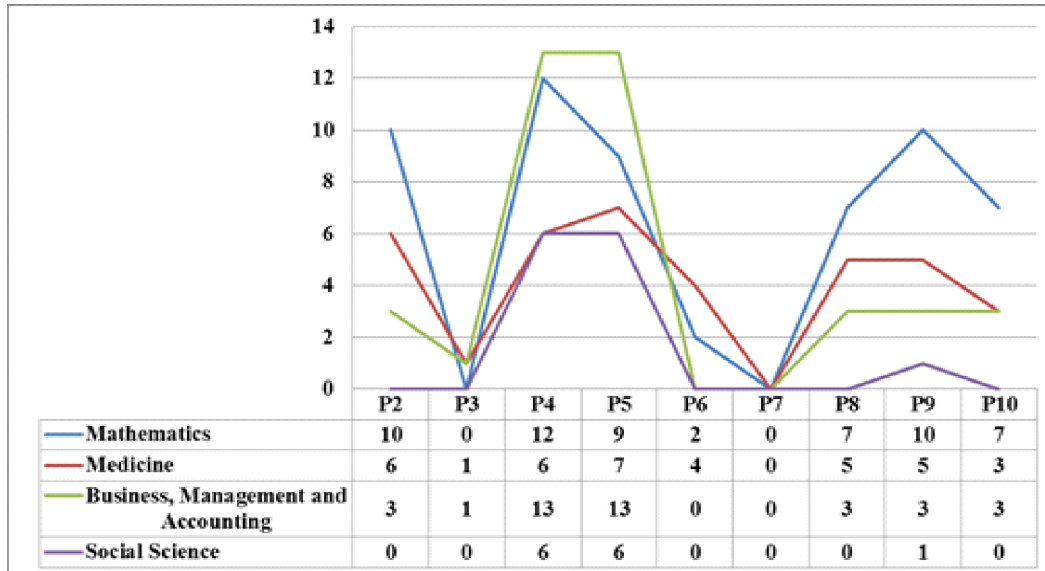
	P2	P3	P4	P5	P6	P7	P8	P9	P10
Mathematics	10	0	12	9	2	0	7	10	7
Medicine	6	1	6	7	4	0	5	5	3
Business, Management and Accounting	3	1	13	13	0	0	3	3	3
Social Science	0	0	6	6	0	0	0	1	0

Figure 2: Presence of Parameters in different subject disciplines

4.3. Popular GAI parameters across the studied disciplines

Fig. 3 presents the most popular GAI guideline across the studied disciplines that journals are adopting. It is observed that P4 (Guidance specific for ChatGPT use) and P5 (Guidance for any LLMs use) are the most popular parameter followed by P2 (Guidance available on what to disclose), P8 (Discloser of GAI use required), P9 (Images generated by GAI is prohibited). It is also observed that P7 (Authors accountability statement required) is yet to be adopted by any of the studied journal, while P3 (Guidance on GAI assisted writing process) and P6 (Guidance for ethical GAI use (COPE-AI statement)) are the least pushed guideline by the studied journals during studied the period. Fig. 3 presents the detailed findings.
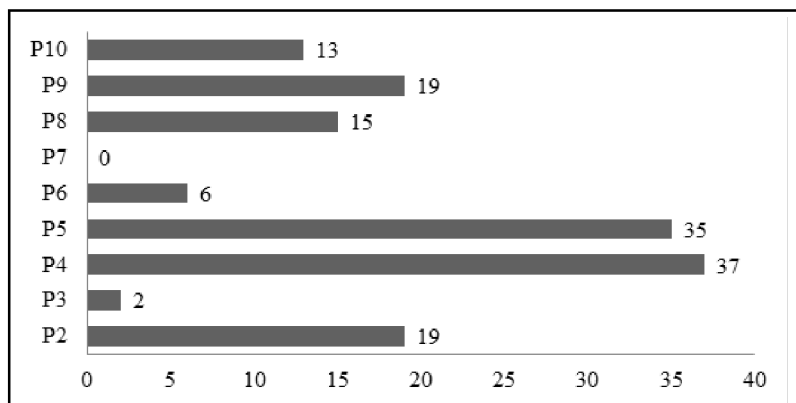

Figure 3: Presence of GAI parameters across the studied disciplines

5. Conclusion

The study took a parametric approach to find guidelines related to use of GAI in the top Indian journals indexed in Scopus from four subject disciplines. The study finds that out of the studied journals, more than 50% have at least some kind of guideline on the use of GAI, with journals from Mathematics having most journal having GAI guidelines. The study used a 10-point parameters under the GAI usage, and finds that journals are giving most importance to guidelines on the use of ChatGPT and any LLMs amongst the 10 GAI parameters. One of the important point observed during the study is the lack of standardized and structured information about GAI guidelines provided by the journals for the authors. Although more than 50% of the journals have provided guidelines on the use of GAI but non-centralized location for those guidelines can be a major issue for the authors, so the responsibility falls onto the author to find and understand those guidelines. Some journals provided only the link of their publishers' guidelines on the use of GAI and some journals not only provided their own guideline but also provided such links. As the GAI technology is growing very rapidly the use of such technology will be maximum in future, therefore it is necessary to have some standardized guidelines on the use of GAI in research publication to protect the integrity of research output as GAI contents may be inaccurate, biased and can produce misleading output.

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