Editorial

TJ Tumori Journal

Ethics in the evaluation of the quality of scientific research: An AIOM-TJ roundtable

Tumori Journal
1–3

DOI: 10.1177/03008916261441119
journals.sagepub.com/home/tmj
Sage

Alessio Vittorio Adani[1], Paolo Crosetto[2], Laura Galbiati[3], Elena Giglia[4], Aldo Scarpa[5] and Francesco Perrone[6]

Abstract

The current scientific ecosystem is characterized by a systemic crisis driven by the *Publish or Perish* culture and an exponential growth in publication volumes that outpaces the number of active researchers. Here, we highlight the limitations of traditional bibliometric indicators, such as the Impact Factor and H-index, which have become targets for manipulation and enable inflationary business models, including the proliferation of special issues. To address these distortions, we explore the transformative potential of Open Science and the adoption of FAIR data principles to move from a model based on blind trust to one rooted in verifiability. Furthermore, we examine innovative evaluation frameworks, such as the independent peer review model, and the integration of artificial intelligence through Technology Assisted Research Assessment (TARA), emphasizing that human judgment must remain central to ensuring research integrity. Ultimately, the transition from quantitative metrics to qualitative assessment is an ethical duty necessary to safeguard the credibility of oncological research and the quality of patient care.

Keywords

publication ethics, open science, research integrity, bibliometrics, peer review, artificial intelligence, oncology

Date received: 27 February 2026; revised: 23 March 2026; accepted: 26 March 2026

Introduction

As highlighted in the roundtable discussion promoted by *Tumori Journal* and held at the 27th AIOM National Congress in Rome, we are witnessing a systemic crisis where purely numerical indicators, such as the H-index or the Impact Factor (IF), have effectively become the main arbiters of a scientific career. The current framework for assessing a researcher's impact is deeply entrenched in the publish or perish logic, an environmental pressure that compels the mass production of scientific articles, frequently at the expense of genuine innovation and rigorous methodology.[1] This phenomenon has catalyzed the emergence of numerous new titles and publications driven by economic interests that often lack transparency. This quantitative obsession has distorted the very engine of scientific publishing, which is now in desperate need of emergency maintenance.

The scale of this crisis is best illustrated by the exponential growth in publication volumes[2]; the number of articles published annually has doubled in the last decade alone, while the global pool of researchers has reached a stable plateau. This imbalance creates unsustainable pressure on individual scientists, forcing them to struggle for visibility in an increasingly crowded field, which in turn leads to significant fractures throughout the editorial process. Exploiting this demand, scientific publishers have transformed knowledge sharing into a highly profitable

[1]Fondazione IRCCS Istituto Nazionale dei Tumori di Milano - Scientific Directorate, Milano, Italy
[2]Université Grenoble Alpes, INRAE, CNRS, Grenoble INP, GAEL, Grenoble, France
[3]Fondazione AIRC per la ricerca sul cancro ETS, Milano, Italy
[4]Università di Torino - Unità di progetto Open Science, Torino, Italy
[5]University of Verona - Department of Diagnostics and Public Health, Verona, Italy
[6]Istituto Nazionale Tumori - IRCCS Fondazione Pascale, Napoli, Italy

Corresponding author:
Alessio Vittorio Adani, Fondazione IRCCS Istituto Nazionale dei Tumori di Milano - Scientific Directorate, Via Venezian 1, Milano, 20133, Italy.
Email: alessio.adani@istitutotumori.mi.it

industry, boasting profit margins that exceed those of global technology giants like Apple, Amazon, and Microsoft. This shift has been accompanied by a fundamental change in the definition of a scientific journal. Once understood as a physical object with limited space and high rejection rates to ensure quality, the modern journal has largely become an infinite electronic archive where publishers seek to maximize the number of accepted papers to increase revenue from Article Processing Charges (APCs),[3] besides the traditional income guaranteed by subscriptions.

One of the most concerning symptoms of this industrialization is the proliferation of special issues.[4] Originally designed to explore specific, niche topics under tight editorial supervision, these have been repurposed by a number of commercial publishers into inflationary tools. In some instances, journals publish up to ten special issues per day, inviting guest editors via mass email campaigns and relaxing traditional quality controls. Italy occupies a particularly precarious position in this global landscape, ranking first in the world for the number of papers per researcher published with outlets utilizing these aggressive, inflationary models. This trend risks creating a credibility bubble where the signals of scientific quality become indistinguishable from background noise, potentially leading to a total loss of trust in the published literature.

In response to these systemic failures, Open Science is a transformative bridge between scientific practice and society. It advocates for a paradigm shift away from viewing the final publication as the only valuable product of research, focusing instead on the transparency and the availability of the entire process, including protocols, source codes, and raw data.[5] The lessons of the COVID-19 pandemic demonstrated that the rapid sharing of open data can save lives. But to be "open", data must be FAIR by design (Findable, Accessible, Interoperable, Reusable). Opening is not in conflict with security or intellectual property; the core principle is as open as possible, as closed as necessary, ensuring patient privacy and patent protection. Furthermore, Open Science seeks to correct the bad science incentivized by current metrics: studies have shown a direct correlation between IF and retraction rates, suggesting that the pressure to publish in prestigious outlets can drive falsification or the reporting of irreproducible results. International initiatives like COARA are promoting radical reform to abandon the inappropriate use of quantitative metrics. Open Science enables this reform by suggesting new indicators and transforming science from a model based on blind trust (trust me) to one based on verifiability (show me). The transition toward this transparent model, where data and methodologies are open to scrutiny, is essential for restoring research integrity.[6]

However, the implementation of Open Science, particularly in oncology, must be balanced with practical sustainability and clinical interpretation. While the obligation to deposit original data serves as a vital deterrent against fraud and a tool for post-hoc verification, raw data alone is often unintelligible without professional analysis and narrative mediation. There is a risk of creating a divide between those who generate data and those with the resources to analyze it, potentially undermining the traditional role of the publication as a synthesized interpretation of clinical results. In the oncological field, where publication integrity directly impacts the quality of patient care and the credibility of the physician-patient relationship, these ethical considerations are paramount, and the mechanism of traditional publication, understood as the synthesis and interpretation of results, remains a fundamental pillar for the medical community.[7]

The need for reform extends into academic and funding institutions. For example, the Italian university system manages an evaluation apparatus that, despite being born with meritocratic intentions, has shown worrying vulnerabilities over time.[8] Moreover, it has historically relied on bibliometric parameters that measure the work rather than the person. Roles that were once markers of prestige, such as serving as a journal editor, have been devalued by editorial policies that appoint hundreds or even thousands of editors to a single title, rendering such criteria nearly meaningless for meritocratic selection. Experience from major international centers suggests that the future lies in the ability to intelligently use the mass of data produced globally through robust bioinformatic structures. Open Science can be one way to facilitate the identification and recruitment of the best talents, overcoming national qualifications that often remain anchored to outdated timeframes. Evaluation should evolve toward a model where candidates present their work in an articulated manner, allowing evaluators to delve into the actual scientific contribution rather than just scrolling through bibliometric lists.

Institutions like the AIRC Foundation are leading the way by adopting comprehensive evaluation models. While using bibliometrics as an initial filter for high-volume applications, from the beginning AIRC adopts an approach based on independent peer review, where each project is evaluated by at least three experts with no conflict of interest. The final evaluation is always contextualized to the researcher's career stage: young researchers are not judged by the same parameters as seniors because they are submitting proposals in different dedicated Calls for Grants, avoiding the stress of unstable indicators like the H-index. Furthermore, through structured questionnaires in final reports, they are developing alternative indicators to measure impact beyond simple bibliometric parameters such as citations, including researchers' ability to mentor the next generation of scientists, the creation of biobanks, and the successful establishment of

international collaborations and the ability to attract further funding. This system aims to value the entire ecosystem created by a research project, recognizing that scientific value is expressed in multiple forms.

The future and the sustainability of research evaluation will also likely involve what Mike Thelwall has defined as Technology Assisted Research Assessment (TARA), perhaps utilizing artificial intelligence to manage the increasing administrative burden of peer review. For example, algorithms can already optimize the matching of research proposals with appropriate reviewers, significantly reducing costs and time.[9] However, the use of Large Language Models (LLMs) for qualitative assessment remains fraught with ethical risks. While these models can simulate critical prose, they often lack the granularity required to identify true scientific merit and tend to produce overly positive, non-discriminatory judgments.[10] Consequently, the consensus among experts is that AI should serve as an assistant, while the human evaluator must remain the central, responsible arbiter.[11]

Conclusions

According to Goodhart's Law, any metric that becomes a target for rewards inevitably loses its value as a reliable measure.[12] Whether through the manipulation of citations to inflate Impact Factors or the industrial production of low-quality papers, the current system is failing.[13] It is essential for all stakeholders, ministries, agencies, publishers, and researchers to collaborate to define homogeneous and transparent rules. The transition from a quantity-based model to one centered on quality and transparency is not just a methodological preference but an ethical duty that requires a radical cultural change. As we look toward the future, the credibility of science depends on our collective ability to move from a model of blind trust to one of verifiable integrity, ensuring that the research we conduct remains a reliable foundation for the health and trust of our patients.

Declaration of conflicting interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

ORCID iDs

Alessio Vittorio Adani https://orcid.org/0000-0003-3790-0013
Elena Giglia https://orcid.org/0000-0003-4927-2632
Francesco Perrone https://orcid.org/0000-0002-9738-0526

References

1. Grimes DR, Bauch CT, Ioannidis JPA. Modelling science trustworthiness under publish or perish pressure. *R Soc Open Sci* 2018; 5: 171511.
2. Hanson MA, Barreiro PG, Crosetto P, et al. The strain on scientific publishing. *Quant Sci Stud* 2024; 5: 823–843.
3. Khoo SY-S. Article Processing Charge Hyperinflation and Price Insensitivity: An Open Access Sequel to the Serials Crisis. *LIBER Quart* 2019; 29: 1–18.
4. Crosetto P, Barreiro PG, Hanson MA. The Issue with special issues: when guest editors publish in support of self. Epub ahead of print 12 January 2026. DOI: 10.48550/arXiv.2601.07563.
5. Giglia E. Open Science e valutazione: non solo una questione di "alternative". *Quad Sociol* 2024; 95: 125–153.
6. Directorate-General for Research and Innovation (European Commission). *Towards a reform of the research assessment system: scoping report*. Publications Office of the European Union, https://data.europa.eu/doi/10.2777/707440 (2021, accessed 23 March 2026).
7. Grainger DW. Peer review as professional responsibility: A quality control system only as good as the participants. *Biomaterials* 2007; 28: 5199–5203.
8. Baccini A, Nicolao GD, Petrovich E. Citation gaming induced by bibliometric evaluation: A country-level comparative analysis. *PLOS ONE* 2019; 14: e0221212.
9. Kousha K, Thelwall M. Artificial intelligence to support publishing and peer review: A summary and review. *Learn Publish* 2024; 37: 4–12.
10. Thelwall M. Research quality evaluation by AI in the era of large language models: advantages, disadvantages, and systemic effects – An opinion paper. *Scientometrics* 2025; 130: 5309–5321.
11. IAES, CGIAR Independent Advisory and Evaluation Services. Considerations and Practical Applications for Using Artificial Intelligence (AI) in Evaluations https://iaes.cgiar.org/evaluation/publications/considerations-and-practical-applications-using-artificial-intelligence-ai (2025, accessed 23 March 2026).
12. Fire M, Guestrin C. Over-optimization of academic publishing metrics: observing Goodhart's Law in action. *Gigascience* 2019; 8: giz053.
13. Beigel F, Brockington D, Crosetto P, et al. The drain of scientific publishing. Epub ahead of print 17 November 2025. DOI: 10.48550/arXiv.2511.04820.