

Commentary

Navigating the Madness of Academic Publishing

Jhonny José Magalhães Guedes¹

1. Departamento de Ecologia, Universidade Federal de Goiás, Brazil

The academic publishing industry, while essential for disseminating scientific knowledge, is riddled with ironies and challenges that often leave researchers in disbelief. Here I briefly explore the convoluted journey of scientific research from conception to publication, highlighting the immense effort scientists invest in their work only to face a complex and often costly publishing process. Despite the critical role of peer review, performed without financial compensation, many researchers must pay substantial article processing charges (APCs) to make their findings accessible. Alternatively, they encounter subscription-based journals that profit from paywalls, leaving researchers without royalties. While no-fee open access journals offer a glimmer of hope, they often lack the impact factors crucial for academic career progression. This paper delves into these issues, examines the disparity in APC affordability between the Global North and South, and discusses potential solutions. I advocate for a more equitable and collaborative scientific community, emphasizing the importance of venues controlled by scientific societies and the promise of preprints. I hope this brief contribution will provoke thought, renew discussions and, hopefully, lead to changes in the academic publishing landscape.

Some time ago, while chatting with a relative at a family gathering, I was congratulated on a recent paper I had published^[1]. During our conversation, this relative asked how much money I would make from the publication. Although it might sound like a naïve question to anyone in academia, it is actually a pretty logical thought for non-scientists—after all, book authors usually receive royalties for their work. But that simple question left me momentarily speechless. I laughed and explained—to my relative’s surprise—how the process of publishing a scientific paper actually works.

If you are new to academia, such as an undergraduate or a graduate student in the early stages of a master’s program, and haven’t had the chance to publish a research paper yet, brace yourself for some

madness in the scientific publishing industry. As I told my relative, the process goes something like this:

You spend months—or perhaps years—conducting your research alongside your research team, which generally involves: (i) identifying a question or problem you want to investigate; (ii) delving into the current literature to better understand the issue; (iii) defining the study design, including what variables will be collected and which analyses will be used; (iv) collecting data, either through experiments or from existing literature; (v) analysing the data using qualitative or quantitative methods; (vi) writing down the results and making sense of the outcomes; (vii) crafting the manuscript, including introduction, methods, results, and discussion sections.

After all this effort, you finally have the first draft of your manuscript, a ‘child’ to which you have somehow grown attached. Then, you circulate your child among your co-authors (such as your supervisor and other collaborators), who will point out its ugly features and provide useful feedback to help improve your work. After a few rounds of revisions and everyone being reasonably satisfied with the final outcome, another step awaits: submitting your manuscript to a scientific journal. These journals serve as platforms for scientists to share their discoveries with the scientific community through a—hopefully—rigorous peer review process. At this stage, your work will initially be appraised by an academic editor, who can either reject your manuscript—forcing you to resubmit it elsewhere—or send it to reviewers (typically 1-3 anonymous researchers in your field). These reviewers can recommend that the manuscript be rejected or accepted, though usually, if not rejected, it goes through rounds of revisions based on the reviewers’ feedback until it’s finally published.

It is at this step that the true madness of academic publishing begins, the part that made my relative’s eyes widen in disbelief. Why is that? First, you need to understand that all scientific journals rely heavily on the contributions of scientists. The peer review process, critical for maintaining the quality and integrity of scientific literature, is performed by scientists who review papers without any financial compensation. Second, numerous scientific journals today charge researchers to publish their findings through what they call article processing charges (APCs), supposedly to make research open access (OA)—i.e., freely available to anyone. I think you can already see the irony here, right? Other journals do not charge researchers upfront but have subscription fees (paywalls), so individuals or institutions must pay to access the published paper. In this scenario, journals still profit from researchers who, unlike book authors, do not receive any royalties from their research.

But of course, not everything is doom and gloom. There are also many journals that do not charge researchers and make papers freely available to anyone (no-fee OA journals). As of June 2024, the Directory of Open Access Journals (DOAJ) listed more than 20,000 periodicals, of which 66% (13,521) did not have APCs^[2]. However, it is not all roses either. More than 80% of journals in DOAJ are not listed in the Journal Citation Reports (JCR) or Scopus database^[3], meaning that most of them lack an impact factor (IF). Despite being heavily criticised^[4], the IF remains important for career progression in academia, especially for young scientists^{[5][6]}. Furthermore, among periodicals with IFs, there is a positive correlation between impact and price (JCR low-impact journals charge an average of US\$1,231, while high-impact ones charge an average of US\$2,133;^[3]).

After explaining this to my relative, they asked in disbelief if there was anything we could do to change this madness. I'd like to think we are trying, but as the saying goes, "old habits die hard." We have been entrenched in this insanity for far too long, making change a slow process. Additionally, we must not underestimate the adaptability of huge commercial publishers. The largest publishing houses—Elsevier, Wiley, Taylor & Francis, Springer Nature, and SAGE—have embraced the OA movement^[7] to charge huge APCs while justifying these fees as necessary to cover publication costs. However, they conveniently omit that estimated revenues from APCs exceed billions of dollars annually^{[8][9][10]}.

Moreover, I believe that many researchers do not really think much about this madness, especially those in institutions from North America and Europe (the Global North), where financial resources—including for paying high APCs—are plentiful. Furthermore, many research funding agencies demand elevated productivity from their researchers, who, hostage to the vicious circle of 'publish or perish'^[11], end up neglecting this problem, especially if they are from regions where investment in science is high. Consequently, a more fundamental problem arises: the financial burden that exorbitant APCs places on researchers from the Global South, where prohibitive prices can hinder publications e.g.,^[12] and affect career progression given that most no-fee OA journals lack impact factors^[3], while APC-OA journals have on average higher citation counts and impact^[13].

As you can see, it is a complex and ironic problem. Scientists spend months conducting their research, then often pay to publish their findings—likely driven by a 'publish or perish' culture^[11]—while reviewing papers for journals without compensation, expect for some recognition of being a reviewer^[14]. One potential solution for this dilemma may lie in encouraging researchers to publish primarily in venues controlled by scientists themselves, such as platforms and journals backed by

robust scientific societies^[15]. Many of these have no APCs or much more affordable prices compared to corporate publishers^[3].

One crucial point to highlight in APCs is the disparity in currency values across countries. What might be a manageable fee for researchers in wealthier countries can be insurmountable for those in less developed regions. For instance, while the average minimum wage in the United States is significantly higher than in Brazil, APCs are not adjusted accordingly. A fairer model would standardise prices based on, for example, minimum wages or research and development expenditure (see World Bank data), thus ensuring more equitable access to publication opportunities. Another option is for authors to request waivers from APC-OA journals. In this case, authors can cite political and financial instabilities in their home countries to justify the waiver request. For instance, the paper I published^[1], which sparked the conversation with my relative, was in a journal that charges APCs for OA. However, we requested and received a full waiver, without which we could not have afforded to publish there.

Preprints, or preliminary versions of research papers shared publicly before formal peer review, also offer a promising alternative to these issues, as they can potentially reduce researchers' dependency on traditional publication venues^{[16][17][18]}. However, they are reliant on researchers' engagement in terms of reading and providing constructive feedbacks on submitted studies, a service they already perform for free for many periodicals. This model can foster a more collaborative scientific community where authors can update their preprints as reviews accumulate, incorporating feedback and improving their work. Essentially, publications would not rely solely on the assessment of a few editors and reviewers, but on the broader scientific community.

In conclusion, the academic publishing industry is fraught with complexities and ironies that leave many, both within and outside academia, baffled. Scientists dedicate immense time and effort to conduct research, only to face a convoluted and often costly publishing process. They engage in peer review without compensation, only to potentially pay hefty APCs to make their work accessible. The open access movement, though well-intentioned, has been co-opted by major publishers who impose significant financial burdens on researchers, especially those from less affluent regions.

Despite these challenges, hope is not lost. There are no-fee open access journals and platforms controlled by scientific societies that offers more affordable and equitable publishing options. These publishing venues still uphold the spirit of making knowledge freely available without significant

financial barriers. However, the lack of or low impact factors for many of them presents a challenge for career advancement in a system that still heavily relies on these metrics. Moreover, the rise of preprints presents an innovative solution, fostering a more collaborative and transparent publication process. By embracing preprints, researchers can share their findings more freely and receive broad-based feedback, thus reducing reliance on traditional, often exploitative, publishing models.

Ultimately, meaningful change in academic publishing will require a collective effort from the scientific community to prioritize ethical and equitable publishing practices. By shifting towards venues controlled by scientists and embracing preprints, we can begin to dismantle the current system's financial and structural barriers, paving the way for a more just and accessible dissemination of scientific knowledge.

References

1. ^{a, b}Guedes JJM, Moura MR, Diniz-Filho JAF. "Species out of sight: elucidating the determinants of research effort in global reptiles." *Ecography (Cop.)*. 2023 (3): 1–14. doi:10.1111/ecog.06491.
2. ^ΔDOAJ, "Directory of Open Access Journals." Accessed: Jun. 03, 2024. [Online]. Available: <https://doaj.org/>
3. ^{a, b, c, Δ}Morrison H, Borges L, Zhao X, Kakou TL, Shanbhoug AN. "Change and growth in open access journal publishing and charging trends 2011–2021." *J. Assoc. Inf. Sci. Technol.* 73 (12): 1793–1805. Dec. 2022. doi:10.1002/asi.24717.
4. ^ΔArchambault É, Larivière V. "History of the journal impact factor: Contingencies and consequences." *Scientometrics*. 79 (3): 635–649. Jun. 2009. doi:10.1007/s11192-007-2036-x.
5. ^ΔMcKiernan EC, Schimanski LA, Muñoz Nieves C, Matthias L, Niles MT, Alperin JP. "Use of the Journal Impact Factor in academic review, promotion, and tenure evaluations." *Elife*. 8: e47338. Jul. 2019. doi:10.7554/eLife.47338.
6. ^ΔKrauss A, Danús L, Sales-Pardo M. "Early-career factors largely determine the future impact of prominent researchers: evidence across eight scientific fields." *Sci. Rep.* 13 (1): 18794. Nov. 2023. doi:10.1038/s41598-023-46050-x.
7. ^ΔBudapest Open Access Initiative, "Read the Budapest Open Access Initiative. Retrieved from <https://www.budapestopenaccessinitiative.org/read>." Accessed: Jun. 03, 2024. [Online]. Available: <https://www.budapestopenaccessinitiative.org/read>

8. [△]Buranyi S. "Is the staggeringly profitable business of scientific publishing bad for science?" *The Guardian*. 2017.
9. [△]Mark Ware Consulting Ltd, "Scientific publishing in transition: an overview of current developments," 2006.
10. [△]Butler L-A, Matthias L, Simard M-A, Mongeon P, Haustein S. "The oligopoly's shift to open access: How the big five academic publishers profit from article processing charges." *Quant. Sci. Stud.* pp. 1–22. Dec. 2023. doi:10.1162/qss_a_00272.
11. [△]_a [△]Fernandez-Cano A. "Letter to the Editor: publish, publish ... cursed!" *Scientometrics*. 126 (4): 3673–3682. Apr. 2021. doi:10.1007/s11192-020-03833-7.
12. [△]Jain VK, Iyengar KP, Vaishya R. "Article processing charge may be a barrier to publishing." *J. Clin. Orthop. Trauma*. 14: 14–16. Mar. 2021. doi:10.1016/j.jcot.2020.10.039.
13. [△]Björk B-C, Solomon D. "Open access versus subscription journals: a comparison of scientific impact." *BMC Med.* 10 (1): 73. Dec. 2012. doi:10.1186/1741-7015-10-73.
14. [△]Teixeira da Silva JA, Nazarovets S. "The Role of Publons in the Context of Open Peer Review." *Publ. Res. Q.* 38 (4): 760–781. Dec. 2022. doi:10.1007/s12109-022-09914-0.
15. [△]Kowaltowski AJ, Oliveira MF. "Plan S: Unrealistic capped fee structure." *Science* (80-). 363 (6426): 461. 2019.
16. [△]Aquino-Jarquín G, Valencia-Reyes JM, Silva-Carmona A, Granados-Riverón JT. "Preprints in biomedicine: alternative or complement to the traditional model of publication?" *Gac. Med. Mex.* 154 (1): 66–70. Mar. 2023. doi:10.24875/GMM.M18000116.
17. [△]Biesenbender K, Smirnova N, Mayr P, Peters I. "The emergence of preprints: comparing publishing behaviour in the Global South and the Global North." *Online Inf. Rev.* Jan. 2024. doi:10.1108/OIR-04-2023-0181.
18. [△]Sever R, Carvalho T. "What is the Future of Preprint Peer Review?" *Acta Med. Port.* 36 (4): 225–226. Mar. 2023. doi:10.20344/amp.19675.

Declarations

Funding: This work was supported by Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brasil (CAPES) (finance code 001), as a PhD scholarship provided to J.J.M.G. (proc. 88887.478942/2020-00).

Potential competing interests: No potential competing interests to declare.