



When Authorship Becomes a Burden: Learning About Authorship Issues in Scientific Articles

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Journal acceptance letters are possibly the climax of a researcher's career. Perhaps this is closely tied to when the research yields positive results. Although a passion for science still drives some individuals, the pressure to 'publish or perish' has become predominant among most academics. Many funding agencies and organizations that recruit faculty count the number of publications to determine which projects to award funding to and who is to be granted tenure. This tendency to rely on raw numbers of publications independently of quality has led to controversial phenomena, such as 'scientific salami slicing,' the practice of fragmenting a single research into as many publications as possible (Nature Materials 2005). Unsurprisingly, in this setting, authorship has gained a golden allure. To better define the role of authors and contributors, the International Committee of Medical Journal Editors (ICMJE) has developed and published standard criteria to qualify as an author on a publication byline. (ICMJE website). These criteria are based on intellectual contribution to the publication's design, drafting, writing, and revisions. Stringent adherence to this guideline should prevent

false attribution of authorship. Individuals who do not meet all ICMJE criteria should not be listed in the byline as authors, although other contributors can be mentioned in the acknowledgment section of the article. Despite the widespread knowledge of the ICMJE criteria and its acceptance in both the scientific and publication communities, disputes about authorship are common, requiring significant time and energy to resolve (Faulkes, Z. 2018)

Between 2017 and 2022, the Retraction Watch Database (RWD), a website tool that reports retracted scientific papers, identified 485 articles involving authorship concerns (Pinho et al., 2022). RWD subscribes to the notion that peer review should continue long after a paper is published and that such long-term peer science should become part of the scientific record (Marcus & Oransky, 2011). There are various reasons for retracting a paper, but journals are not always transparent about publishing the reason for each retraction (Collier, 2011). To contextualize the size of this problem, a recent review (Katakao et al., 2022) concluded that many systematic reviews (SR) and clinical practice guidelines (CPG) cited retracted randomized clinical trials. Even worse, these SRs and CPGs continued to be available without correction. Flawed research can potentially have an enormous harmful impact since many trial patients could be treated based on the (mis)information derived from retracted articles (Steen, 2011).

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Many specific authorship issues could contribute to the retraction of a paper. These include the authenticity of the authorship, third-party involvement, forgery, paper mills, and plagiarism. Authorship concerns include any question, controversy, or dispute over the rightful claim to authorship. This may range from unacknowledged researchers (Lee et al., 2023) to scandalous cases of authorship trading involving researchers who have careers in areas utterly unrelated to the topic of the publication but bought co-authorship (Widjaja et al., 2023). Another potential source of problems is the order of the authors. Planning the author's order at the beginning of the research and reviewing and discussing everyone's contribution as the project evolves is recommended. The first author should be the most engaged in the research planning, implementation, and draft writing. The last one should be the mentor of the team. In the middle, authors are ordered according to their intellectual and material contribution to the project (Dance, 2012).

The involvement of a third party in ghostwriting the article for the authors without any oversight or input is another source of ethical concern (Zhou et al., 2016). Some companies may be hired to write, review, and edit the manuscript without being acknowledged. Essentially, the authors listed in the byline have no intellectual contribution that merits inclusion as authors. Sometimes, the hired writers have undisclosed financial interests (e.g., being contracted by pharmaceutical companies that sponsor the research trial they are writing about). In this context, they can be paid to misrepresent research findings, highlight only positive results, mask the negative ones, or even suppress entire parts of research studies without any justification. This type of third-party ghost authorship violates the ICMJE criteria, and its discovery will lead to the retraction of such a publication (Zhou et al., 2016).

Ironically, even in papers dealing with academic integrity, issues concerning authorship may arise. In an exchange of letters in the *British Medical Journal* (BMJ) back in 1994, authors debated in favor of or against the need to disclose any sources of funding and possible bias in scientific publications, which is quite an unimaginable discussion nowadays (Smith, 1994 and Bird, 1995). However, the critical point is that BMJ later learned that Dr. James Bird from St. Mary's Hospital, the author arguing in these letters that there was no logic in stating financial conflicts of interest, did not exist! St. Mary's Hospital had never heard of him; he was not listed in their Medical Directory. A clear case of forged authorship. This publication was retracted. (Craft, 1995).

An emergent problem with authorship is termed

'paper mills' (PM). This is a process by which manufactured manuscripts are submitted to a journal for a fee on behalf of researchers or to offer authorship for a price (COPE website). Usually, PMs sell authorship in two main domains: pseudo-original research and ghostwritten reviews and meta-analyses. Possibly, the most maleficent damage that PM produces is caused by pseudo-original research, generating fake clinical evidence that puts patients' lives at risk (Pérez-Neri et al., 2022). The PM service portfolio is even broader, offering citations to papers already published by researchers (Candal-Pedreira et al., 2022). While this problem is relatively new, especially in the Americas and Europe, these organizations have been widespread in other countries, such as China, for several years. Between 2004 and 2022, 1,182 PM papers were retracted. In 1,143 papers, almost all listed authors (96.8%) came from Chinese institutions (Candal-Pedreira et al., 2022).

Last but not least is plagiarism. This inappropriate conduct refers to presenting someone else's work or ideas as one's own. There are different types of plagiarism, some of which may happen unexpectedly. For example, accidental plagiarism occurs when an author forgets to cite a source. Self-plagiarism refers to re-using the previous author's work without referencing it. Ironically, one dramatic example of self-plagiarism is a paper on metrics for career decisions as a source for malpractice and misbehavior retracted due to self-plagiarism (De Vecchis & Ariano, 2023). In this context, the exponential progress in artificial intelligence (AI) technologies brings other plagiarism concerns, such as using AI-generated content chatbots that manipulate data or fabricate non-existent results. (Elali & Rachid, 2023).

Undeniably, authorship issues lie in the ethical sphere. The ICMJE criteria do not seem to have influenced author conduct, as surveys have shown that various types of misconduct continue to occur despite the broad acceptance of these criteria by most publication houses and editorial boards. Improved ethics and scientific integrity education for students and researchers is undoubtedly a first step. Secondly, increased surveillance of scientific misconduct by journals and institutions is also required, and technology such as plagiarism-check software can be helpful if applied rigorously. However, it must be considered that in order to reach impactful results, sanctions may need to go beyond the purely academic scope. After a series of scandals in China, the stricter approach of new laws against scientific misconduct may have contributed to the sharp reduction in PM since 2020.

Nonetheless, the pressure exerted by academia on researchers cannot be ignored (Grieger, 2005). It

is essential to raise awareness among government agencies, evaluators, universities, research institutes, and development agencies about the problem that the current criteria create regarding scientific production. In parallel, there is an urgent need to shift from this academic evaluation system driven by quantity to another that may better reflect faculty work patterns, reducing the pressure to publish by numbers in only the most prestigious traditional formats.

How soon and to what degree the academic community will commit to such changes remains to be seen. We hope that highlighting the issues related to the ethics and authenticity of authorship in scientific publications will enhance the awareness of these issues and motivate the scientific community.

Conflicts of Interest

The authors declare no conflict of interest.

References

- Bird, J. (1995). Academic integrity: Proper review makes funding irrelevant. *BMJ*, 310, 1068-1069.
- Candal-Pedreira, C., Ross, J. S., Ruano-Ravina, A., Egilman, D. S., Fernández, E., & Pérez-Ríos, M. (2022). Retracted papers originating from paper mills: Cross-sectional study. *BMJ*, e071517. <https://doi.org/10.1136/bmj-2022-071517>.
- Collier, R. (2011). Shedding light on retractions. *Canadian Medical Association Journal*, 183(7), E385-E386. <https://doi.org/10.1503/cmaj.109-3827>.
- Committee on Publication ethics. (n.d.). <https://publicationethics.org/publishers-perspective-paper-mills> Accessed Sept 17, 2023.
- Craft, N. (1995). Letter fraud: easy to commit, hard to detect. *BMJ* 311: 523-524, 573. The cost of salami slicing. (2005). *Nature Materials*, 4(1), 1-1. <https://doi.org/10.1038/nmat1305>.
- Dance, A. (2012). Who's on first? *Nature* 489, 591-593.
- De Vecchis, R., Ariano, C. (2023). Retraction of: "Authorship growth and self-citations: a scholarly expedient that demonstrates that the use of the metrics for career decisions generates malpractice and misbehavior?". *Minerva Cardiology and Angiology*, 71(5). <https://doi.org/10.23736/s2724-5683.23.06422-0>.
- Defining the role of authors and contributors. (n.d.). *ICMJE*. <https://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html>.
- Elali, F. R., & Rachid, L. N. (2023). AI-generated research paper fabrication and plagiarism in the scientific community. *Patterns*, 4(3), 100706. <https://doi.org/10.1016/j.patter.2023.100706>.
- Faulkes, Z. Resolving authorship disputes by mediation and arbitration. *Res Integr Peer Rev* 3, 12 (2018). <https://doi.org/10.1186/s41073-018-0057-z>
- Grieger, M. C. (2005). Authorship: An ethical dilemma of science. *Sao Paulo Medical Journal*, 123(5), 242-246. <https://doi.org/10.1590/s1516-31802005000500008>.
- Katakoa, Y., Banno, M., Tsujimoto, Y., Ariie, T., Taito, S., Suzuki, T., Oide, S., & Furukawa, T. A. (2022). Retracted randomised controlled trials were cited and not corrected in systematic reviews and clinical practice guidelines: A meta-epidemiological study. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4032575>.
- Lee, W. J., Shah, Y., Patel, N., Ku, A., Rodriguez, A., & Salvador, M. (2023). Retraction. *Cureus*. <https://doi.org/10.7759/cureus.r77>.
- Marcus, A., & Oransky, I. (2011). The paper is not sacred. *Nature*, 480(7378), 449-450. <https://doi.org/10.1038/480449a>.
- Pinho, I., Pinho, J., & Nery, F. (2022). Ethics in authorship: Considerations and concerns. *Acta Médica Portuguesa*, 35(9), 699-700. <https://doi.org/10.20344/amp.18646>.
- Pérez-Neri, I., Pineda, C., & Sandoval, H. (2022). Threats to scholarly research integrity arising from paper mills: A rapid scoping review. *Clinical Rheumatology*, 41(7), 2241-2248. <https://doi.org/10.1007/s10067-022-06198-9>.
- Retraction watch database. (n.d.). <https://retractiondatabase.org/RetractionSearch.aspx?>
- Smith, R. (1994). Questioning academic integrity. *BMJ*, 309(6969), 1597-1598. <https://doi.org/10.1136/bmj.309.6969.1597>.
- Steen, R. G. (2011). Retractions in the medical literature: How many patients are put at risk by flawed research? *Journal of Medical Ethics*, 37(11), 688-692. <https://doi.org/10.1136/jme.2011.043133>.
- Widjaja, G., Jalil, A. T., Rahman, H. S., Abdelbasset, W. K., Bokov, D. O., Bokov, D. O., Ghaebi, M., Marofi, F., Navashenaq, J. G., Jadidi-Niaragh, F., & Ahmadi, M. (2023). Expression of concern: "Humoral immune mechanisms involved in protective and pathological immunity during COVID-19" [*Hum. Immunol.* 82(10) (2021) 733-745]. *Human Immunology*, 84(5-7), 355.

<https://doi.org/10.1016/j.humimm.2023.03.005>.

- Zhou, W., Zhang, S., Hu, Y., Na, J., Wang, N., Ma, X., Yuan, L., & Meng, F. (2016). Retraction note to: Meta-analysis of the associations between TNF- α or IL-6 gene polymorphisms and susceptibility to lung cancer. *European Journal of Medical Research*, 21(1). <https://doi.org/10.1186/s40001-016-0225-x>.