

Scientific Watch September 2023 (n°7)

The scientific watch led this month to the selection of 24 papers. Eight of them deal with misconduct and questionable research practices [1-8]. Seven are related to scientific publishing [9-15]. Five address integrity issues related to new research practices [16-20]. The last four relate to the institutionalisation of research integrity [21], [22], definition [23] or training [24].



FOCUS OF THE MONTH

Looking at the integrity of highly cited papers

Every year, *Clarivate* releases a list of highly cited researchers (HCRs). HCRs are selected according to two criteria: their number of highly cited papers (HCPs) and their total number of citations (if in the top 1% of their field). A team from Paris Sciences & Lettres University and from University of Vigo (Spain) examined the 136 HCRs affiliated to a French institution from the 2022 list [1]. They also analysed the 1,871 HCPs published by these authors between 2011 and 2021.

The number of citations remains a widely used indicator to quantify performance and measure scientific impact. However, this indicator can be distorted. Self-citation – i.e., a researcher referring to his or her own research work - can, in certain circumstances, manifest a dishonest desire to artificially increase research performance. For instance, as the authors point out, more than 70% self-citations for a single paper can be considered a questionable practice. French HCPs are far from this level: the average self-citation rate is 4%, and the maximum 20%. To avoid this kind of abuse, *Clarivate* excludes from the list HCRs with self-citation rate considered too high compared to other articles in the same field.



Additionally, HCPs should not include retracted papers, particularly when those retractions are the result of research misconduct. Authors estimate that 15 HCRs (around 10%) were excluded from the latest list because of their retracted articles - notably, controversial studies on COVID-19. Indeed, since 2022, *Clarivate* introduced additional ethical criteria. For example, HCPs are compared with papers found in the *RetractionWatch* database. These criteria led to the exclusion of 7% of HCRs across all countries for the 2022 list.

[1] L. Chaignon, D. Docampo, and D. Egret, « In search of a scientific elite: highly cited researchers (HCR) in France », *Scientometrics*, vol. 128, p. 5801–5827, Aug 2023, doi: [10.1007/s11192-023-04805-3](https://doi.org/10.1007/s11192-023-04805-3).




MISCONDUCT AND QUESTIONABLE RESEARCH PRACTICES

Conflicts of interests:


- [2] D. Dreyfuss and S. Gaudry, « Conflits d'intérêts financiers : un danger pour l'intégrité scientifique, la santé et les finances publiques », *Hépto-Gastro & Oncologie Digestive*, vol. 30, no 6, p. 579-586, June 2023, doi: [10.1684/hpg.2023.2594](https://doi.org/10.1684/hpg.2023.2594).
- [3] M. Mialon, P. Serodio, E. Crosbie, N. Teicholz, A. Naik, and A. Carriedo, « Conflicts of Interest for Dietary Guidelines Advisory Committee Members: Neither a New Nor Unexplored Issue », *Advances in Nutrition*, vol. 14, no 5, p. 1246-1247, Sep 2023, doi: [10.1016/j.advnut.2023.07.003](https://doi.org/10.1016/j.advnut.2023.07.003). 
- [4] V. I. Kraak, « Reply to M. Mialon et al. », *Advances in Nutrition*, vol. 14, no 5, p. 1248-1249, Sep 2023, doi: [10.1016/j.advnut.2023.07.002](https://doi.org/10.1016/j.advnut.2023.07.002). 
- [5] S. Mulinari and P. Ozieranski, « Unethical pharmaceutical marketing: a common problem requiring collective responsibility », *BMJ*, vol. 382, no 8400, Art. no 076173, Sep 2023, doi: [10.1136/bmj-2023-076173](https://doi.org/10.1136/bmj-2023-076173).

Other papers on misconduct or questionable research practices:

- [6] E. J. Calabrese, « Confirmation that Hermann Muller was dishonest in his Nobel Prize Lecture », *Archives of Toxicology*, vol. 97, no 11, p. 2999-3003, available online : Sep 2023, doi: [10.1007/s00204-023-03566-5](https://doi.org/10.1007/s00204-023-03566-5).
- [7] U. Schimmack and F. Bartoš, « Estimating the false discovery risk of (randomized) clinical trials in medical journals based on published p-values », *PLOS ONE*, vol. 18, no 8, Art. no 0290084, Aug 2023, doi: [10.1371/journal.pone.0290084](https://doi.org/10.1371/journal.pone.0290084). 


Case studies:

Researchers in the United States reaffirm of the importance of research integrity for the advancement of knowledge by compiling 11 case studies of misconduct and questionable research practices. These cases, most of them specific to biomedical research, cover a wide range of issues – anti-citation and pseudo-citation, plagiarism, conflicts of interest, fabrication, and falsification. Among them are famous cases such as that of Wakefield, whose work establishing a link between autism and the MMR (measles, mumps and rubella) vaccine turned out to be fraudulent and undermined vaccination campaigns. For each case, the authors explore the effect of these misconducts on science and society.


- [8] J. B. McAlpine, D. Ferreira, N. E. Pauli, S. Gafner, and G. F. Pauli, « The Ethics of Publishing Biomedical and Natural Products Research », *Journal of Natural Products*, vol. 86, no 9, p. 2228-2237, Sep 2023, doi: [10.1021/acs.jnatprod.3c00165](https://doi.org/10.1021/acs.jnatprod.3c00165). 



Insights from editors:

- [9] H. H. Thorp, « Generative approach to research integrity », *Science*, vol. 381, no 6658, p. 587-587, Aug 2023, doi: [10.1126/science.adk1852](https://doi.org/10.1126/science.adk1852). 
- [10] J. M. Anderson, « A checkmate in the scientific literature—An editor's dilemma », *Journal of Dental Education*, vol. 87, no 9, p. 1217-1218, Aug 2023, doi: [10.1002/jdd.13365](https://doi.org/10.1002/jdd.13365).

Requirements for publications:


- [11] J. K. Aronson, « When I use a word . . . The ICMJE requirements and recommendations », *BMJ*, vol. 382, Sep 2023, doi: [10.1136/bmj.p2069](https://doi.org/10.1136/bmj.p2069).
- [12] S. Kolstoe, « Why authors must provide evidence of ethical research practice », *Heliyon*, Art. no 20476, available online : Sep 2023, doi: [10.1016/j.heliyon.2023.e20476](https://doi.org/10.1016/j.heliyon.2023.e20476). 
- [13] X. Shi, Y. Liu, J. Liu, Q. Cheng, and W. Lu, « Integrity Verification for Scientific Papers: The first exploration of the text », *Expert Systems with Applications*, vol. 237, Part B, Art. no 121488, available online : Sep 2023, doi: [10.1016/j.eswa.2023.121488](https://doi.org/10.1016/j.eswa.2023.121488).

Integrity of abstracts:

Two orthopedic researchers assessed the quality of 55 abstracts of scientific papers published in three leading journals in the field between 2018 and 2022. They also evaluated if they were consistent with the full-text content of the associated papers. Most often, the abstracts failed to mention important information such as the age or gender of participants (87%), or some inclusion or exclusion criteria (71%). More rarely, the conclusions reported in the abstract were exaggerated or over-generalised in relation to the results reported in the whole article (18%). Discrepancies between the data reported in the abstract and those reported in the article were observed in 11% of cases. The latter situations can be problematic, as abstracts are sometimes used as the sole source of information, without reading the full article. The authors call for greater vigilance with regard to the content of abstracts.

- [14] S. A. Kamel and T. A. El-Sobky, « Reporting quality of abstracts and inconsistencies with full text articles in pediatric orthopedic publications », *Research Integrity and Peer Review*, vol. 8, Art. no 11, Aug 2023, doi: [10.1186/s41073-023-00135-3](https://doi.org/10.1186/s41073-023-00135-3). 

Retraction:


- [15] P. Sharma, B. Sharma, A. Reza, K. K. Inampudi, and R. K. Dhamija, « A systematic review of retractions in biomedical research publications: reasons for retractions and their citations in Indian affiliations », *Humanities and Social Sciences Communications*, vol. 10, Art. no 597, Sep 2023, doi: [10.1057/s41599-023-02095-x](https://doi.org/10.1057/s41599-023-02095-x). 



NEW RESEARCH PRACTICES

Generative artificial intelligence systems, such as *ChatGPT*:

An American research team tested two versions of ChatGPT to generate short literature reviews on 42 topics encompassing the humanities, social sciences and natural sciences. The 84 articles generated included over 600 citations, which were analysed for reliability. The previous version (ChatGPT 3.5) generated 55% of fabricated citations and errors in 43% of real (or non-fabricated) citations. The most recent version (ChatGPT 4) generated 18% of fabricated citations and errors in 24% of real citations. The authors thus observe a clear improvement, but point out that problems with the integrity of the generated content persist.


[16] W. H. Walters and E. I. Wilder, « Fabrication and errors in the bibliographic citations generated by ChatGPT », *Scientific Reports*, vol. 13, Art. no 14045, available online : Sep 2023, doi: [10.1038/s41598-023-41032-5](https://doi.org/10.1038/s41598-023-41032-5). 


[17] T. Bisi, A. Risser, P. Clavert, H. Migaud, and J. Dartus, « What is the rate of text generated by artificial intelligence over a year of publication in Orthopedics & Traumatology: Surgery & Research? Analysis of 425 articles before versus after the launch of ChatGPT in November 2022 », *Orthopaedics & Traumatology: Surgery & Research*, Art. no 103694, Sep 2023, doi: [10.1016/j.otsr.2023.103694](https://doi.org/10.1016/j.otsr.2023.103694).

[18] V. Grech, S. Cuschieri, and A. A. Eldawlatly, « Artificial intelligence in medicine and research – the good, the bad, and the ugly », *Saudi Journal of Anaesthesia*, vol. 17, no 3, p. 401-406, Sep 2023, doi: [10.4103/sja.sja_344_23](https://doi.org/10.4103/sja.sja_344_23).


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Issues related to science in times of crisis:

[19] M. Tremblett, T. Douglass, J. Joyce, A. Anderson, N. Flint, and T. Spratt, « Learning from pandemic precarity: The future of early career researchers in qualitative health research », *SSM - Qualitative Research in Health*, vol. 4, Art. no 100335, available online : Sep 2023, doi: [10.1016/j.ssmqr.2023.100335](https://doi.org/10.1016/j.ssmqr.2023.100335). 

[20] A. J. Blatch-Jones, A. R. Saucedo, and B. Giddins, « The use and acceptability of preprints in health and social care settings: A scoping review », *PLOS ONE*, vol. 18, no 9, Art. no 0291627, Sep 2023, doi: [10.1371/journal.pone.0291627](https://doi.org/10.1371/journal.pone.0291627). 

INSTITUTIONALISATION

[21] A. Jafarey, S. Shekhani, F. Raza, and S. Naz, « Situation analysis of research ethics governance in Pakistan », *Eastern Mediterranean Health Journal*, vol. 29, no 7, p. 500-507, July 2023, doi: [10.26719/emhj.23.069](https://doi.org/10.26719/emhj.23.069). 



- [22] A. I. Ko, S. S. A. Karim, C. Morel, S. Swaminathan, P. Daszak, and G. T. Keusch, « Threatening the Future of Global Health — NIH Policy Changes on International Research Collaborations », *New England Journal of Medicine*, vol. 389, no 10, p. 869-871, Sep 2023, doi: [10.1056/NEJMp2307543](https://doi.org/10.1056/NEJMp2307543).

DEFINITION

Ethical challenges for social sciences, some of which relate to research integrity:

- [23] R. M. Kiesow, « Les sciences sociales et les défis éthiques de la recherche », *Cahiers Droit, Sciences & Technologies*, no 16, p. 105-108, July 2023, doi: [10.4000/cdst.7124](https://doi.org/10.4000/cdst.7124). 

EDUCATION & TRAINING

- [24] S. Dubbaka, « Incorporating implicit bias into research integrity education: Response to 'Why and how to incorporate issues of race/ethnicity and gender in research integrity education' », *Accountability in Research*, available online: Aug 2023, doi: 10.1080/08989621.2023.2247974.

