

## SOME ETHICAL DIMENSIONS OF SCIENTIFIC AUTHORSHIP

**Ramona-Niculina JURCAU, Dr.**

Physiopathology Department, Faculty of Medicine,  
"Iuliu Hațieganu" University of Medicine and Pharmacy, Cluj-Napoca, Romania

**ORCID ID: 0000-0002-1070-2191**

E-mail: ramona\_mj@yahoo.com

**Ioana-Marieta JURCAU, Dr.**

Emergency Clinical Hospital for Children,  
Cluj-Napoca, Romania

**Aurelia GLAVAN, Dr. hab., Univ. Prof.**

"Ion Creangă" State Pedagogical University, Chișinău

**ORCID ID: 0000-0002-2549-5367**

**CZU: 174**

**DOI: 10.46727/c.25-04-2024.p134-140**

**Abstract.** Scientific authorship is an avenue for professional validation and professional credit. Unethical behavior is the cause of the reduction of the scientific quality of publications and the deterioration and devaluation of research. In the beginning, most scientific publications were signed by a single author. The number of authors per manuscript in peer-reviewed medical journals has increased substantially over the past few decades. Despite all efforts by the ICMJE and journal editors to reduce the number of inadequate authors for a publication, author inflation is increasing. There are different factors that contribute to the increase in pluralism in scientific authorship.

**Keywords:** ethics, scientific authorship, scientific monism, scientific pluralism.

## **Introduction**

Scientific authorship is a very important topic for various disciplines, and for most scientists, the publication of scientific manuscripts is closely linked to their authorship and avoiding potential ethical problems [1]. This process can be altered by publications that have purposes other than true research [2].

## **Definition and criteria for scientific authorship**

An author is a person who has contributed substantially to a work [3]. Scientific authorship is an avenue for professional validation and professional credit, but it can also be blamed in certain research contexts [4].

The International Committee of Medical Journal Editors (ICMJE) defines authorship through four criteria [5]:

- a. Contributions to the conception of the work, analysis, interpretation of data - personal contribution;
- b. Editing the paper or revising it critically for important intellectual content;
- c. Agreement for the final version of publication;
- d. Work Responsibility Agreement.

## **Scientific authorship and unethical behaviors**

Research integrity and publication ethics are interdependent with authorship, which provides assurance of research results and quality credit, but which also has an important impact on academic careers; in certain contexts influenced by complex and competing interests, authorship has been shown to be inappropriate [6].

In such situations, the integrity of the research process can be seriously affected [7]. An example of this is the manipulation and distortion of data in human embryonic stem cell research, from private industry, or data fabrication in federally funded science [4].

Unethical behavior is the cause of the reduction of the scientific quality of publications and the deterioration and devaluation of research; it is possible that the phrase "public or perish" is behind such attitudes of some authors, more frequently found in countries with scientific power in the process of development [8].

Previous studies have highlighted several problems in scientific authorship, namely:

- a. unethical practices include various forms of fraud, such as plagiarism, unethical conflicts of interest, fabricating data etc. [9]
- b. difficult credit allocation can lead to a variety of situations, such as coercion of authorship, mutual support of authorship, gifts of authorship, ghostwriting, duplicate production of authorship, and attribution and ordering of authorship [10].

In another study, four common problems of authorship were identified [5], [7]:

- a. author perceptions, definitions and practices,
- b. defining the order of authors,
- c. ethical and unethical authoring practices,
- d. authorship issues related to student/non-researcher-supervisor collaboration.

But this type of unethical behavior can be prevented by existing platforms where authors' works are registered and monitored and by recommendations made by editors to authors for submitting manuscripts [11]. Thus, in order to reduce the ethical problems they faced, most editors developed guidelines regarding publications, comments and editorials [1]. In the same sense, in a study several directions were formulated by which ethical deficiencies could be prevented [10]:

- a. the need for controlled studies on the author's problems;
- b. greater awareness and acceptance of opinions from non-editorial groups – managers, authors, scientific reviewers, society;
- c. solving authors' dilemmas, which could also be solved by the greater understanding and flexibility of publishers.

### **Number of authors per publication**

#### *Scientific monism*

In the beginning, most scientific publications were signed by a single author, as collaborative research was not as common as it is today [12]. Scientific monism refers to a single, universal scientific account of the natural world [13]. When there was only one author, full responsibility rested with him [14].

### *Scientific pluralism*

Scientific pluralism holds that the natural world cannot be fully explained by a single ordered account and that the multiplicity of approaches in scientific fields is important; there are several aspects of scientific pluralism: epistemic, methodological, eliminativist [13]. The number of authors per manuscript in peer-reviewed medical journals has increased substantially over the past few decades [15]. Over time, although there has been adjustment of authors to the topic, size and visibility of a study, the number of authors per publication has increased, for both randomized and non-randomized studies [16].

The ethics of scientific transparency requires that the authors of a publication jointly establish the contribution of each and announce this aspect to the readers, a requirement adopted as a standard by the International Committee of Medical Journal Editors; thus, in the case of multiple authors, the responsibility for publication rests with all authors [14].

The presence of a larger number of authors and, implicitly, the division of the scientific contribution for the publication among them, could induce the false idea that the originality of individual contributions is affected; in addition, in the case of multi-authored publications, it could be interpreted that the work done is more laborious and the overall conclusions are more significant [12]. In recent decades, both the total number of papers published by early career researchers and the average number of co-authors have increased. However, counting the papers published as first author did not increase, therefore it is not an increase in productivity [17].

#### **Reasons for the increase in scientific authorship**

Despite all efforts by the ICMJE and journal editors to reduce the number of inadequate authors for a publication, author inflation is increasing. Among the reasons that could explain the increase in authorship are [15]:

- a. increased pressures for funding and promotion;
- b. increased collaboration of researchers;
- c. the idea that including senior authors facilitates publication;

- d. increasing the complexity of medical research;
- e. insufficient encouragement of reducing the number of authors for a publication;
- f. the increased pressure in academic circles to publish, which leads to a real "inflation" of authors.

In a recent study it was shown that there are at least six different factors that contribute to the increase in pluralism in scientific authorship [12]:

- a. the methodology and technology of contemporary science have become very complex;
- b. technical roles that justify author status are increasingly important as well as recognition;
- c. more diverse project groups require a larger number of international researchers from various fields, project coordinators, supervisors, project managers and principal investigators;
- d. academic and research institutions exert important pressure for publication, through performance evaluation criteria and the force to increase the number of institutional publications;
- e. most personal and professional goals in academia, as well as the acquisition of funding, allocation of resources, tenure, promotions, salary increases, and improvements in academic status depend on publications achieved;
- f. attributing authorship to those who do not have a contribution, as well as mentioning in the acknowledgment section those who do not meet the criteria, is an unethical practice.

### **Teaching about scientific authorship**

Three main sources of guidance and policies regarding scientific authority have been named [18]: a) publishers; b) scientific societies; c) associations and editorial committees. The National Institutes of Health emphasizes the importance of education about authorship in science [19]. The Scientific Societies' Guidelines are useful in teaching authorship and publishing practices. For example, the publication guide of the American Chemical Society [20]. (20) contain sections on

the ethical obligations of: a) editors of scientific journals; b) the authors; c) manuscript reviewers and d) scientists who publish outside the scientific literature.

The use in the scientific community of various forms of education, in order to create an ethical environment, especially for young researchers and students, is one of the most effective ways to prevent the occurrence of dishonesty and scientific and publication fraud [21]. Guidelines for authors and official publication policies are often interconnected, covering similar topics in varying degrees of detail [18]. Education in this field is necessary to raise awareness of the importance and necessity of knowing the principles of scientific communication, the fair allocation of an author's position in a publication, the ethics of research and the publication of results [21].

### **Conclusion**

The publication of scientific manuscripts is based on the observance of basic ethical principles and represents the main method for the dissemination of advanced scientific research.

### **References:**

1. American Chemical Society. In: *Ethical guidelines to publication of chemical research*, 2010 [online]. Available: <http://pubs.acs.org/userimages/ContentEditor/1218054468605/ethics.p> [accessed: January 24, 2024].
2. CLAXTON, L.D. Scientific Authorship. Part 1. A Window into Scientific Fraud? In: *Mutation Research*. 2005, vol. 589, no. 1, pp. 17-30.
3. CLAXTON, L.D. Scientific Authorship. Part. 2. History, Recurring Issues, Practices, and Guidelines. In: *Mutation Research*. 2005, vol. 589, no. 1, pp. 31-45.
4. DONEV, D. New Developments in Publishing Related to Authorship, Pril (Makedon Akad Nauk Umet Odd Med Nauki). 2020, vol. 1-9.
5. FANELLI, D., LARIVIÈRE, V. Researchers' Individual Publication Rate Has Not Increased in a Century. In: *PLoS One*. 2016, vol. 11, no. 3, pp. e0149504.
6. GASPARYAN, A.Y, AYVAZYAN, L., KITAS, G.D. Authorship problems in scholarly journals: considerations for authors, peer reviewers and editors. In: *Rheumatol Int*. 2013, vol. 33, no. 2, pp. 277-284.
7. HOSSEINI, M., GORDIJN, B. A review of the literature on ethical issues related to scientific authorship. In: *Account Res*. 2020, vol. 27, no. 5, pp. 284-324.

8. HOSSEINI, M., LEWIS, J., ZWART, H., GORDIJN, B. An Ethical Exploration of Increased Average Number of Authors Per Publication. In: *Sci Eng Ethics*. 2023, vol. 28, no. 3, pp. 25.
9. International Committee of Medical Journal Editors. In: *Uniform requirements for manuscripts submitted to biomedical journals: Writing and editing for biomedical publications*, 2017 [online]. Available: <http://www.icmje.org/> [accessed: January 24, 2024].
10. KIM, S.H., JUNG, J.I. 电影 윤리적 관이라의 아이니다과 부적절한 아이니다 [Authorship and Inappropriate Authorship from an Ethical Publication Perspective], *J Korean Soc. Radiol.*, 2022, vol. 83, no. 4, pp. 752-758.
11. MACRINA, F.L. Teaching authorship and publication practices in the biomedical and life sciences. In: *Sci Eng Ethics*. 2011, vol. 17, no. 2, pp. 341-354.
12. MARUŠIĆ, A., BOŠNJAK, L., A., JEERONČIĆ. *A Systematic Review of Research on the Meaning, Ethics and Practices of Authorship across Scholarly Disciplines*, *PLOS ONE*. 2016, vol. 9, pp. e23477.
13. MOFFATT, B. Scientific authorship, pluralism, and practice. In: *Account Res*. 2018, vol. 25, no. 4, pp. 199-211.
14. National Academy of Sciences, Information for Authors. Proceedings of the National Academy of Sciences (U.S.A.), 2024 [Online]. Available: <http://www.pnas.org/misc/iforc.shtml> [accessed: January 24, 2024].
15. National Institutes of Health. NIH Guide for grants and contracts. In: *Requirement for instruction in the responsible conduct of research in national research service award institutional Teaching Authorship and Publication Practices 353 123 training grants*, 1992 [online]. Available: <http://grants.nih.gov/grants/guide/notice-files/not92-236.html> [accessed: January 24, 2024].
16. PAPTAEODOROU, S.I., TRIKALINOS, T.A., IOANNIDIS, J.P. Inflated numbers of authors over time have not been just due to increasing research complexity. In: *J Clin Epidemiol*. 2008, vol. 61, no. 6, pp. 546-551.
17. RENNIE, D. Who did what? Authorship and contribution in 2001. In: *Muscle Nerve*. 2001, vol. 24, no. 10, pp. 1274-1277.
18. SHAMOO, A.E., RESNIK, D.B. *Responsible Conduct of Research* (Third Edition). Oxford: Oxford University Press, 2015.
19. TILAK, G., PRASAD, V., JENA, A.B. Authorship Inflation in Medical Publications, *Inquiry*. 2015, vol. 52, pp. 0046958015598311.
20. WALLACE, M.B., SIERSEMA, P.D. Ethics in publication. In: *Endoscopy*. 2015, vol. 47, no. 7, pp. 575-578.
21. ZIMBA, O., GASPARYAN, A.Y. Scientific authorship: a primer for researchers. In: *Rheumatology*, 2020, vol. 58, no. 6, pp. 345-349.