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## Debate

### Promoting Responsible Authorship: Who Deserves to be an Author of a Paper?

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## Abstract

Authorship (being named on the list of authors of a paper) is both a credit to the contributions of research and an endowment of responsibility for the published work. Although international standards indicate author qualifications and required contributions, there are many cases of inappropriate authorship in which those who do not meet the authorship criteria are considered authors, or those who meet the criteria are not identified as such. In particular, honorary authorship, where the heads of department or institution or distinguished researchers are added as authors without having contributed substantially to the research, is often recognized even in prominent international biomedical journals. It seems difficult to reduce authorship misuse because of the structural factors behind it such as severe competition for research funds and hierarchy among researchers. However, as with other research misconduct, inappropriate authorship raises various ethical problems and results in negative consequences as it violates research integrity and undermines not only trust of the researcher concerned but also public trust in the research area or biomedical science itself. It is often used as a means of academic harassment against junior researchers. To promote responsible authorship, it is necessary to educate medical students and researchers to raise awareness of this issue, foster a sound research culture by promoting authorship initiatives at research institutions, and establish regulations on authorship by biomedical journals.

**Keywords:** authorship, research integrity, inappropriate authorship, responsible authorship, publication ethics

## Introduction

An author of a paper is defined as “a person who has made a substantial intellectual contribution to the core research of the paper,”<sup>18)</sup> and the inclusion of a name in the author list is termed authorship. Authorship serves both as a credit acknowledging contribution to the research and as a set of obligations and responsibilities toward the research<sup>17)</sup>; it concerns all authors submitting a paper. However, understanding and recognition of authorship and its importance remain insufficient within Japan's medical community. In fact, despite recommendations in the Japanese Medical Association's ‘Guidelines for Medical Journal Editors,’ only about half of medical journals include statements regarding authorship in their submission guidelines, and among those, only 13% provide clear criteria.<sup>10)</sup>

As an editorial board member for several specialized journals, including *Psychiatria et Neurologia Japonica* (hereinafter referred to as the journal), I frequently review submitted manuscripts and encounter situations where authorship raises questions, such as: when a single case report lists ten or

more co-authors; when a paper's content appears unlikely to have met the standards of a renowned researcher listed as the last author; or when researchers from different specialties are listed as co-authors, yet their contributions are not discernible from the paper's content. However, because authorship is difficult for third parties to judge, it rarely becomes a subject of discussion during peer review. Ultimately, it must be left entirely to the discretion of the submitting authors. This is precisely why it is critically important for all researchers to possess correct knowledge and high-level ethical awareness regarding authorship.

The editorial board of this journal annually organizes workshops on manuscript submission at the Annual Meeting of the Japanese Society of Psychiatry and Neurology. The author presented at Committee Workshop 14: “How to Summarize Research and Write Papers,” during the 118th Annual Meeting in June 2022, entitled: “Ethics in Manuscript Submission: Regarding Authorship.” This article is based on that presentation.

## I. International Standards for Authorship: ICMJE Standards

Several international guidelines exist that outline the criteria for contributions required to be listed as an author of a paper. However, the standard most widely used in biomedical journals, and adopted by this journal, is that of the International Committee of Medical Journal Editors (ICMJE).<sup>9)</sup> \*1 The ICMJE criteria have been revised multiple times. The current version defines an author as someone who meets all four of the following criteria; this is a translation from Japanese quoted from the journal's submission guidelines, "Author Qualifications":

1. Made substantial contributions to the conception or design of the work, or acquisition, analysis, or interpretation of data.
2. Drafting the manuscript or critically revising it with respect to important intellectual content.
3. Approved the final manuscript.
4. Is accountable for all aspects of the work, ensuring that any questions regarding accuracy or integrity are appropriately investigated and resolved.

Furthermore, each author must be able to identify not only their own contributions but also the parts of the research for which the co-authors are

responsible, and must be confident in the integrity of their co-authors' contributions.

ICMJE stipulates that individuals designated as authors must meet all four criteria, and that anyone who meets all four criteria must be listed as an author. Individuals who contributed to the paper but do not meet all four criteria should be recognized in the acknowledgments section, and specific contributions, whether involving an individual or a group, must be explicitly described (e.g., "served as a scientific advisor," "critically reviewed the research proposal," "collected data," "provided and treated study subjects," "participated in drafting and professional editing of the manuscript," etc.). It should be noted that activities such as securing research funding, supervising or providing administrative support for the entire research group, assisting with writing, professional editing, textual editing, or proofreading are not, by themselves, regarded as sufficient contributions to merit authorship.

## II. Inappropriate Authorship

### 1. Specific Misconduct and Inappropriate Conduct in Research Activities

Guidelines from the Ministry of Health, Labour and Welfare (MHLW),<sup>12)</sup> Ministry of Education, Culture, Sports,

Science and Technology (MEXT),<sup>15)</sup> and others define “fabrication, falsification, and plagiarism of data or survey results included in research findings published in papers” as “specific misconduct” in all research activities carried out with budget allocations or measures from ministries, such as competitive funding. When specific misconduct is confirmed through investigation, the findings are made public, and measures such as repayment of acquired competitive funding and restrictions on eligibility to apply are imposed. However, misconduct not subject to such measures is classified as “inappropriate or irresponsible conduct,” with inappropriate authorship cited as one example (Table 1).<sup>22)</sup> MEXT guidelines state: “Regarding what specific acts constitute violations of research ethics, such as duplicate publication or inappropriate authorship, it is strongly desired that each scientific community clarify this within its academic associations’ ethical regulations, codes of conduct, and journal submission guidelines, based on suspected misconduct cases within each research field and international trends, and specify the response policy when such acts are discovered.” This underscores the fact that each scientific community must take responsibility for addressing inappropriate conduct.

## 2. Types of Inappropriate Authorship<sup>1-3)13)14)</sup>

Inappropriate authorship is broadly categorized into honorary and ghost authorship.<sup>2)</sup> \*2 Honorary authorship refers to adding individuals to the author list who have not made a substantial contribution to the research or manuscript preparation, and most cases of inappropriate authorship fall into this category. According to Luiten, J.D. et al.,<sup>14)</sup> honorary authorship has three subtypes depending on its purpose. The first is gift authorship, where individuals are added to the author list out of respect or gratitude. This may be done with the expectation of reciprocal favors, such as having one’s own paper cited in the recipient’s work or being listed as a co-author. When multiple researchers exchange authorship in this way, it is sometimes referred to as a publication cartel, and when they cite each other’s papers, it is called a citation cartel. The second is guest authorship, in which a renowned researcher in the field is added to the author list to make the paper appear more valuable and prominent, thereby increasing its chances of acceptance or citation. The third is coercive authorship, in which a senior researcher forces subordinates or students to be listed as co-authors. These three subtypes may overlap.

Ghost authorship, in contrast to honorary authorship, refers to the

exclusion from the author list of individuals who made substantial contributions to the research or manuscript preparation and who meet criteria such as those of ICMJE. This occurs in two patterns: one is the omission of graduate students or junior researchers who made substantial contributions from the author list; the other pattern involves papers reporting the results of clinical trials funded by pharmaceutical companies that are authored by the company's employees.<sup>11)</sup>

### 3. Investigations into Inappropriate Authorship

Since the 1980s, awareness of issues surrounding inappropriate authorship has increased within the life sciences, leading to numerous studies.<sup>6)7)14)16)21)23)</sup>

Flanagin, A. et al.<sup>7)</sup> and Wislar, J.S. et al.<sup>23)</sup> each examined six high-impact international medical journals that adhered to ICMJE standards at the time. Mowatt, G. et al.<sup>16)</sup> conducted a questionnaire survey of corresponding authors of Cochrane Reviews. They reported the rate of papers that included: (i) honorary authors and (ii) ghost authors (Table 2). Across the three studies, the rate of (i) ranged from 17.6 to 39.0%, and (ii) from 7.9 to 11.5%. In the Flanagin et al. and Mowatt et al. studies, papers that included both (i) and (ii) accounted for 1.6 to 2.5%. Wislar

et al. noted that, compared with Flanagin et al.'s study, the overall rate of inappropriate authorship in major international journals decreased from 29.2% in 1996 to 21.0% in 2008; however, the rate of (i) was largely unchanged, and this remains problematic. Furthermore, following Mowatt et al.'s study, the Cochrane Collaboration began recommending that its Handbook for Review Authors include a list of researchers' contributions, and that review authorship complies with the ICMJE standards.<sup>16)</sup>

Furthermore, according to Eisenberg, R.L. et al.,<sup>6)</sup> who conducted a questionnaire survey of first authors of radiology papers, the rate of honorary authorship was significantly higher among papers from Asia (38.9%) and Europe (34.3%) than from North America (19.1%). Among these, responses indicating that department heads automatically become honorary authors were more frequent in Asia (42.7%) and Europe (40.0%) than in North America (6.6%), highlighting regional differences.

Although no survey on authorship in medical journals has been conducted in Japan, Kitanaka et al.<sup>11)</sup> distributed questionnaires to researchers from the natural sciences, excluding medicine and dentistry, at 15 major universities. They investigated the contributions of each author in 678 papers with three or

more authors, drawn from the respondents' major achievements over the past five years. The findings were striking: only three papers met criteria 1 and 2 of ICMJE standards (version 3 at the time) for all authors, and only one paper met all criteria. Almost all papers included honorary authors. Kitanaka et al. explained that medical and dental researchers were excluded from this survey because: "Japanese medical schools have unique power structures, such as the departmental system [omitted], and preliminary interviews indicated that obtaining cooperation from medical and dental researchers would be difficult." This suggests that authorship and related matters may be a more sensitive issue in Japan's medical community than in other scientific fields.

Inappropriate authorship rarely becomes known unless disputes arise between the parties involved, making it difficult to objectively assess the situation in the Japanese medical community. However, as exemplified by cases reported in the Japan Agency for Medical Research and Development's "Near-Miss Collection on Research Integrity,"<sup>20)</sup> it has become customary in Japan to list immediate supervisors, department heads, or project leaders as co-authors or last authors on papers, regardless of their actual contribution. This suggests that many researchers

still lack sufficient awareness that honorary authorship constitutes inappropriate behavior.

#### 4. Ethical Issues of Inappropriate Authorship

Why has inappropriate authorship become so widespread? Aliukonis, V. et al.<sup>2)</sup> cite Hungarian bioethicist Kovacs, J.,<sup>13)</sup> who stated that "authorship is the currency of academic capitalism." They explain the persistence of inappropriate authorship as follows: researchers are evaluated by the number of papers they publish. The accumulation of authorship leads to positions, research funding, and academic authority, thereby establishing hierarchies among researchers. In intense competition, the papers of renowned researchers attract greater attention and are more likely to be chosen and cited, resulting in more frequent honorary authorship and a further rise in their authority, thus institutionalizing a vicious cycle. However, when prominent researchers accumulate academic capital through authorship, it facilitates further acquisition of research funding and positions, yielding marked benefits for their affiliated institutions and colleagues. Thus, even the exchange of authorship is perceived as "a win-win situation where no one loses." Therefore, the fierce competition for research funding implicitly "justifies" academic

capitalism, constituting a major factor in the persistence of inappropriate authorship.

However, inappropriate authorship entails various ethical problems and can lead to harmful consequences.<sup>2)</sup> Most importantly, similar to specific forms of misconduct, it severely undermines research integrity. Research that fails to clearly indicate who made substantive contributions and bears full responsibility undermines not only the credibility of its methods, results, and the researchers involved, but also trust among researchers, within the research field, and ultimately society's trust in science. Furthermore, inappropriate authorship in contexts such as clinical trials of new drugs may be accompanied by other forms of research misconduct, including analyses that are favorable to pharmaceutical companies or data falsification. If left undiscovered, this could result in situations seriously detrimental to patient welfare, including health hazards. Moreover, when senior researchers coercively claim credit for junior researchers' work (coercive authorship), intentionally exclude contributing collaborators from the author list (ghost authorship), or monopolize the right to decide who is included on the author list and the order, authorship becomes a tool of distorted power and academic harassment among researchers, particularly those in

hierarchical relationships. Even when confronted with unfair or inappropriate practices, most junior researchers refrain from objecting for fear of harming their careers. Nevertheless, because such practices have become entrenched, many researchers regard them as "normal," and inappropriate authorship is seldom discussed as an issue of research ethics.<sup>13)</sup>

### III. Promoting Responsible Authorship

As noted above, honorary authorship may be viewed as a "necessary evil" to survive intense competition. However, to uphold the paramount importance of research integrity in scientific research and maintain society's trust in science, the scientific community must prevent inappropriate authorship just as it prevents other forms of misconduct. Clement, T.P.<sup>4)</sup> argues that to achieve this, authorship should emphasize responsibility for the research over credit for contributions. He states: "I would like to define an author as a contributor who is willing to take responsibility for their scientific contributions." Based on multiple reports,<sup>1)2)6)14)21)</sup> we propose the following specific measures to promote responsible authorship:

1. Conduct education and awareness campaigns on authorship

Inappropriate authorship often arises from insufficient understanding or

awareness of authorship itself. A survey of Canadian residents by Rajasekaran, S. et al.<sup>21)</sup> reported that more than 90% were unaware of ICMJE standards and had insufficient understanding of honorary authorship. Furthermore, Eisenberg et al.<sup>6)</sup> demonstrated that papers by first authors whose institutions offered lectures on publication ethics, including authorship, had a significantly lower rate of honorary authorship than those by first authors without such training (13.2 vs. 34.7%, respectively). To prevent researchers from becoming entrenched in past practices or perpetuating inappropriate behaviors, it is essential to provide education and awareness programs on responsible authorship for all individuals engaged in research, including medical students, residents, and junior researchers.

2. Biomedical journals should provide clear authorship guidelines in their submission policies

While researchers bear full responsibility for authorship, it is beneficial for biomedical journals to provide clear authorship criteria in their submission policies to prevent inappropriate practices. Many biomedical journals in Asian and Central/Eastern European countries do not explicitly state guidelines such as ICMJE standards, which is considered

one factor contributing to the high frequency of honorary authorship.<sup>2)</sup> In Japan, as mentioned earlier, many biomedical journals also lack any mention of authorship in their submission guidelines, indicating that awareness of this issue within the medical community and among publishers remains insufficient.

3. Establish mechanisms at each research institution to support responsible authorship and change customs and research culture

It is also desirable for each research institution to clearly define its authorship policies. If there are practices such as automatically granting honorary authorship to supervisors or immediate superiors who do not meet authorship criteria, or colleagues mutually including each other as authors, these practices should be corrected. The research culture should shift to fairly recognize only those researchers who made substantive contributions as authors. This effort is directly connected to the important responsibility of research institutions to nurture young researchers and contribute to the advancement of science. In practice, the most effective approach would be for the heads of research institutions and senior researchers to set an example by practicing responsible authorship. For

example, this means refusing to add subordinates to author lists when they have not made substantive contributions, even if requested to do so.

Furthermore, research institutions must be organizationally involved in establishing procedures for determining authorship within research teams, reviewing researchers' contributions, and developing consultation and support systems to resolve authorship disputes. Establishing such mechanisms not only ensures research transparency and fairness, but also contributes to creating a healthy research environment free from academic harassment.

#### IV. Challenges and Recent Trends in Authorship

In recent years, authorship has faced not only ethical but also technical challenges. In large-scale, multi-institutional collaborative studies or those requiring complex data analysis, researchers' roles are often subdivided into partial contributions, making it difficult for all of them to be directly involved in manuscript preparation. Consequently, critiques have arisen questioning whether ICMJE criteria can adequately address such large-scale studies and whether it is necessary to examine how to evaluate the "substantial contributions" specified in

the criteria, both quantitatively and qualitatively.<sup>1)2)4)</sup>

Against this backdrop of criticism, a growing trend in recent years has been to emphasize contributorship rather than authorship. Consequently, many international journals in medicine and life sciences now require an "author contributions statement" that specifies the detailed contributions of each researcher listed as an author. An example of such a statement in an English-language journal is presented in Table 3.

Furthermore, CRediT (Contributor Roles Taxonomy),<sup>5)</sup> a 14-category framework, is recommended as a method for concretely and comprehensively describing researchers' contributions (Table 4). This taxonomy was developed at an international workshop in 2012 and subsequently refined by groups including ICMJE members, researchers, and publishers. Since 2014, its use has been widely recommended in international journals.<sup>19)</sup> The application of CRediT enables concise and appropriate documentation of author contribution statements, even in papers involving numerous researchers (Table 5). However, it should be noted that CRediT does not define the qualifications for authorship.<sup>3)</sup>

## Conclusion

This paper has discussed the current status, challenges, and measures to promote responsible authorship based on existing reports. Researchers engaged in medical research and paper submission are expected to thoroughly read guidelines and recommendations on research misconduct,<sup>3)12)15)17)20)22)</sup> acquire accurate knowledge of research and publication ethics, and maintain a strong awareness of research integrity while adhering to these principles. The “Guidelines for Medical Journal Editors” issued by the Japanese Association of Medical Sciences’ Japanese Medical Journal Editors’ Conference in 2015 were revised in March 2022, and the revised version<sup>19)</sup> contains substantial additions on inappropriate authorship and CRediT. Awareness of this issue is also increasing in Japan, and it is hoped that responsible authorship will be further advanced.

There are no conflicts of interest to disclose in relation to this paper.

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Table 1: Misconduct and Improper Conduct in Research Activities

Research Misconduct (Specified Misconduct)	<b>Fabrication, Falsification, or Plagiarism</b> of research results published in the form of papers, conference presentations, research reports, etc., or in research proposals submitted to obtain research funding.
Questionable /Irresponsible Practices	<ul style="list-style-type: none"> <li>• Loss of research data due to poor data management</li> <li>• Use of hazardous research methods</li> <li>• Inappropriate authorship practices</li> <li>• Practices that inappropriately increase publication counts, such as splitting papers, dual submission, or duplicate publication</li> <li>• Improper conduct in the peer review of papers or research proposals (e.g., intentional delays, excessive demands beyond legitimate scientific concerns)</li> </ul>

(Compiled by the author from Reference 22)

Table 1: Misconduct and Improper Conduct in Research Activities

Table 2: Questionnaire Survey of Responsible Authors  
at Major International Medical Journals

	Flanagan et al. (1998) <sup>7)</sup>	Mowatt et al. (2002) <sup>16)</sup>	Wislar et al. (2008) <sup>23)</sup>
Subjects	6 journals: Annals, NEJM, JAMA, AJC, AJM, AJOG	Cochrane reviews	6 journals: Annals, NEJM, JAMA, Lancet, Nature Medicine, Plos Medicine
Number of Papers Included	809	362	630
Honorary authors*	19.3%	39.0%	17.6%
Ghost authors**	11.5%	8.8%	7.9%
Both	1.6%	2.5%	—

Annals: Annals of Internal Medicine, NEJM: The New England Journal of Medicine, JAMA: Journal of American Medical Association, AJC: American Journal of Cardiology, AJM: American Journal of Medicine, AJOG: American Journal of Obstetrics and Gynecology

\* Individuals not meeting ICMJE criteria at the time of the survey

\*\* Individuals who made contributions meeting ICMJE criteria at the time of the survey but were not listed in the author list, or who participated in writing but had no name anywhere in the paper

Table 2: Questionnaire Survey of Responsible Authors at Major International  
Medical Journals

Table 3: Example of an author contributions statement explaining compliance with ICMJE standards

Contributions:

AA, BB, CC, DD, EE and FF conceived and designed the study. AA, BB, CC and FF acquired the data. AA and BB accessed and verified the data. DD conducted the statistical analysis, with supervision from EE and FF. All authors interpreted the data.

AA and BB drafted the manuscript.

All authors critically revised the manuscript for important intellectual content, approved the final version of the manuscript, and agree to be accountable for the integrity of the work. FF supervised the study.

All authors had full access to all data in the study and accept responsibility for the decision to submit for publication.

(AA, BB, ... are the authors' initials. Content created by the author based on existing materials.)

Table 3: Example of an author contributions statement explaining compliance with ICMJE standards

Table 4: Classification of Contributions by CRediT

1. Conceptualization	8. Data curation
2. Methodology	9. Writing–Original Draft Preparation
3. Software	10. Writing–Review and Editing
4. Validation	11. Visualization
5. Formal analysis	12. Supervision
6. Investigation	13. Project Administration
7. Resources	14. Funding Acquisition

(For explanations of each item, refer to Reference 3.)

Table 4: Classification of Contributions by CRediT

Table 5: Example of an author contributions statement using CRediT

<p>Contributions:</p> <p>AA: Conceptualization, Methodology, Writing-Original draft preparation, Writing-Reviewing and Editing; BB: Data curation, Software, Investigation; CC: Visualization, Investigation; DD: Software, Validation; EE: Writing- Reviewing and Editing, Supervision</p>
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(AA, BB, ... are the authors' initials. Content created by the author based on existing materials.)

Table 5: Example of an author contributions statement using CRediT

#### Note

Among the examples of “gift authorship,” it is stated that: “Principal Investigator B added Professor A’s name as an author, following local custom, without obtaining prior consent from Professor A, who was the project leader.