

THEME EDITORIAL

Authorship controversies in academic publication: implications for science and the research environment

TRUDO LEMMENS, SANDHYA SRINIVASAN

The inspiration for this theme issue came from one of the biggest challenges that the journal has faced since its inception.

On April 30, 2018, *IJME* published a submission from a person declaring affiliation to a respected research institution. The submission had been sent for external peer review and was revised before acceptance. Within a few days, the editor-in-chief learned that the author had used a false name and affiliation. The editors immediately removed the affiliation from the website, later replacing it with a notice that the author's name was a pseudonym. An investigation by the editor-in-chief led to the verification of the author's identity. It also confirmed that the author was competent to make the analysis published, and did face a "credible threat of harm," requiring protection of their identity.

The article which was an analysis of a public database, requiring no special data access to be critiqued, remained on the journal website for some days. It was eventually retracted following extensive discussion among the members of the editorial board, on the grounds that "there should be zero tolerance to the author's deception, irrespective of the content of the paper" [1]. Its publication under a pseudonym had also received strong criticism in the academic community. The fact that the paper touched on the potential harm of a particular vaccine may have played a role in the vehemence of the critiques.

The discussions at the time inspired the journal's editors to explore, with some targeted publications, the subject of authorship in academic publication. One of us has been involved in a related initiative in the past, which focused specifically on ghost and guest writing in scientific publications [2, 3]. This topic also comes up in several essays in this theme issue on authorship, and is the specific focus of one; but this special issue also explores the broader context in which authorship controversies occur, and not only controversies associated with commercial interests.

Why authorship is a contentious issue

In general, criteria for authorship require that all those who have made a substantial contribution to the research and writing be named authors, and all those who made contributions not amounting to authorship be acknowledged. Authors must disclose all competing interests, financial or otherwise, that might influence, or be seen to influence, the content of the manuscript.

Several guidelines set out criteria for who should be listed as an author in a research paper. The most authoritative guideline in the medical sciences, by the International Committee of Medical Journal Editors (ICMJE) [4], lists four criteria which have to be fulfilled to count as an author:

1. substantial contributions to the conception and design of the work, or the acquisition, analysis, or interpretation of the data (research contributions);
2. substantial contributions to the writing or critical revisions;
3. agreement with the final manuscript, and
4. agreement to be accountable, with all other authors, for all aspects of the work.

Authors: **Trudo Lemmens**, (trudo.lemmens@utoronto.ca), Professor and Scholl Chair in Health Law and Policy, Faculty of Law, University of Toronto, Toronto, Ontario M5S 2C5 CANADA; **Sandhya Srinivasan** (sandhya199@gmail.com), Independent Researcher and Journalist, Seadoll, 54 Chimbai Road, Bandra (W), Mumbai 400 050 INDIA.

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The criteria for the Nature group of publications are slightly different [5]; one need not have participated in any way in the research itself in order to be considered an author; it is sufficient to meet the other three criteria. The Contributor Roles Taxonomy [6], an initiative aimed at creating a detailed standardised set of scientific contributions to a published article, may be applied within these criteria, and is meant to identify all the contributions towards a particular research — from funding, to data collection, to writing the paper. Authorship criteria may differ slightly in the case of non-empirical or non-medical research. For example, the guidelines of a group of bioethics editors require authors to agree with the argument and conclusions only at the level of consensus [7].

However laudable the ICMJE and similar guidelines are, the criteria they put forward, often enumerated explicitly in journal submission forms, tend to be treated as boxes to tick off. Authorship can and is granted to the provider of data who is willing to sign off on the final manuscript. The vagueness of some of the criteria also contributes to this. There is no clear definition of “substantial contribution”, “critical revision” or “important intellectual content” — concepts mentioned in these guidelines. “Authors” may therefore sometimes all too easily feel comfortable to tick the authorship boxes.

Because of the flexibility embedded in the criteria, but even more so because of the challenge of verifying the veracity of the claims reflected in the boxes that were checked and signed, authorship claims may often be unsubstantiated. Authorship-related controversies are therefore not uncommon. Several factors contribute to the prominence of authorship disputes or controversies in relation to academic publications. The concept of authorship is associated in scientific publications with credit and with authors’ accountability for a particular body of research. Those who are named authors get credit for the work, which comes with numerous advantages, particularly in the context of academic career advancement and obtaining research funding. Academic careers are largely built on publications, and often fail in their absence. Salary increments and promotions tend to be in line with the number of publications in prestigious journals. The resulting pressure may lead to adding names of those who are in a hierarchical position of power, or to “beat the hell out of the data” (as one researcher caught for research fraud once told one of us) in order to get a new publication out, preferably in a top ranked journal. It has often been emphasised that the “publish or perish” culture in academia contributes to fraud and misrepresentation.

Authors must also take responsibility, and are, in principle, also held accountable, for the accuracy and the scientific and ethical integrity of published work. As a result of the significant role that scientific publications play in the broader society, many other matters, including commercial and lobbying interests, are also intimately connected to authorship. This is particularly the case when scientific publications are invoked to influence public policy or to support marketing efforts or claims in litigation. In these settings, scientific publications are invoked both as evidence in support of or to reject a claim, as well as to credentialise an expert as an “authoritative”— meaning widely published — expert.

The pressures and interests associated with authorship thus provide fertile ground for controversies. The essays in this theme issue on authorship discuss some key issues in authorship as well as the environment in which science and publication of science take place, and how these shape journal publications. Some essays come back to questions around ghost (naming people as authors who do not fulfil the criteria) and ghost authorship (absence of the names of those who fulfil the criteria). Others discuss potential remedies to problems of authorship, or to pressures that may result from being an author on a controversial study that may harm commercial interests.

We hope that these articles inspire further discussion.

The author publishing under a pseudonym

One of the essays touches on the issue of the use of pseudonyms, even if its overall focus is on the reasonableness of permitting anonymous publications. Peter Gøtzsche argues that allowing anonymity in authorship could help promote research integrity [8]. Gøtzsche is a well-known critic of how the pharmaceutical industry often uses flawed or fraudulent publications in academic journals as a marketing tool. In his essay, he emphasises that he would normally oppose any practice that impeded holding scientists accountable for their work, for example through anonymity, and that he values transparency. Yet his work on industry-controlled research and publication practices also leads him to recognise the role of whistleblowing in exposure of data falsification and fabrication. Insiders who blow the whistle risk severe retribution, from loss of work to personal attacks, isolation from the scientific community, and loss of earnings. This is true, he puts forward, not only in drug-related research but also in controversial research areas, with the polarisation surrounding Covid-19-related research being a case in point. Gøtzsche argues that these situations may justify granting anonymity to authors or considering publication of their work under a pseudonym. Gøtzsche also makes the provocative suggestion that, given that editors too often have conflicts of interest, there may be circumstances in which authors should be allowed to submit an article without even revealing their identity to the editors. Gøtzsche does not elaborate on the circumstances in which anonymous submission might be appropriate — what would warrant anonymous submissions, and what safeguards should there be to prevent misuse? These are certainly a few questions to be explored further.

David Healy, an equally staunch critic of pharmaceutical industry practices, strongly disagrees with Gøtzsche's idea and argues that it does a disservice to the cause it is purported to serve [9]. If the objective is to put documents and data in the public domain in order to change medical practice and to hold industry accountable, authentication is key, and authentication will end up involving disclosure of the author's identity. Healy expresses scepticism that anonymous publications by whistleblowers will have an impact, since most medical professionals practise "evidence-based" medicine without access to the data on which that evidence rests.

An important context in which anonymisation would create problems, he points out, is in court proceedings. It is indeed not the mere fact of exposing a problem anonymously, but the use of that exposure, including in court proceedings, that facilitates holding industry accountable. Publications without authors amount to hearsay, so he provocatively states.

While Healy rightly emphasises the role of authorship in lending credibility to court submissions, changing norms in scientific publications could presumably also lead to changes in judicial evaluation of admissibility and weight of evidence. Nothing prevents judges from declaring anonymous analyses admissible, although it is indeed unlikely that they will currently give them much weight.

Healy also makes a broader point about anonymity, criticising the tendency to hide and strip important adverse event reports, for example, of identifying details. We need names, and identifying details, if we want change in scientific and industry practices, so he concludes.

It is worth pointing out that there are circumstances other than whistleblowing in the pharmaceutical industry which might warrant an editor's publishing an article under a pseudonym. The goal in such cases is to highlight a wrongdoing of some kind, and possibly stimulate a further investigation. This may lead to action, if not against that instance, then at least against the unethical practice in general. IJME has published at least one such article [10], an insider's views on the National Rural Health Mission. Before that, an article reporting sexual harassment of medical students and sexual assault of patients was submitted for publication without the author being named. This was debated fiercely within the editorial board but eventually rejected despite the importance of the subject because the author wanted to remain anonymous. Such an article might be considered differently if submitted today.

Attribution beyond authorship

When it comes to manipulation of authorship in industry-controlled research, ghost and guest authorship have received a lot of attention. Alastair Matheson argues in his essay, which builds on an earlier body of work on authorship, that focusing on these practices is not sufficient to capture the complex biases that affect the conduct and reporting of research [11]. What is needed, for Matheson, is to move towards a more sophisticated process to evaluate attribution bias. Ghost and guest authorship, as well as some forms of self-plagiarism, are part of a wide spectrum of practices aimed at creating spin. Matheson's essay provides a sketch of the broader landscape of "attribution bias." This attribution bias is, he convincingly puts forward, a particular concern in industry-managed publications, where authorship ranking and the information in the authorship byline are part of the "management of perceptions." The goal is to make a publication look scientifically credible, in support of commercial interests.

Matheson briefly discusses the Contributor Roles Taxonomy and similar initiatives, and the importance of requesting more detailed information about various contributions. But he urges the journals and institutions supporting these initiatives to go beyond focusing on bylines of authors, and to include information about all contributions, including corporate roles. Attribution should provide information about the origins of the work, who contributed to what, and what the motives were of all contributors. How motivations can adequately be captured may require further exploration. Matheson situates this proposal in the context of his earlier call for journals to establish an independent standard of integrity that would function as a quality label.

Authorship in exchange for data access

T R Dilip writes on two emerging trends in publications by large multi-authored groups, both with serious ramifications [12]. First, articles reporting research on national level datasets by groups of dozens, even hundreds of "authors" conceal the fact that few of these publications would actually meet the criteria for authorship laid down by guidelines such as those by the ICMJE. (Not only does such authorship give undeserved credit to those whose contribution is data alone, but the credibility of those controlling these datasets is used to bolster the credibility of the publication though they might have made little or no contribution to the work). Another phenomenon is that of publications in which a number of people from one family are named as authors. This may or may not make a difference to the research findings but can be a reflection of corruption in research. Dilip suggests that following the ICMJE guidelines would ensure that authorship is assigned only to those who deserve it. However, this may be putting more faith in the guidelines than they deserve. As pointed out earlier, the vague language in the guidelines permits one to interpret them according to one's interests. Those who want data are willing to offer authorship to those supplying it, and those with the data are willing to be named as author without any intellectual contribution to the paper. As long as all those listed as authors agree to say that they have contributed appropriately, they cannot be challenged.

Authorship and the academic environment

Joe Varghese and Molly Jacob provide a comprehensive discussion on the practice of gift and ghost authorship in academic research, focusing in particular on the academic environment that fosters the practice [13]. Their discussion is relevant anywhere in the world, but their article provides particularly interesting details on how it plays out in India, and how the academic reward structure and culture may contribute to it. They cite studies indicating that more than 60% of articles published in Indian biomedical journals listed as authors those who did not meet the ICMJE criteria. They discuss the limitations of the ICMJE guidelines and the challenges with their implementation, and potential remedial measures.

As Varghese and Jacob note, gift authorship is almost universally practised in institutions of science and medical research in India. To a large extent this is a reflection of hierarchical functioning in Indian academia. It is standard practice for department heads to add their names to all publications from their department. Even otherwise, junior authors who have done all the work may feel obliged to add their professor's names to the manuscript — or they may be coerced into doing so. While gift authorship is often viewed as a “minor transgression”, it corrupts relationships within the academic community and the environment in which research is conducted and published, and in general stifles academic growth. This point is also made in a letter by Dutta et al [14], published in this issue: authorship disputes may actually deter Indian medical students from pursuing research.

With authorship comes accountability for the integrity of all aspects of the work, and when the work is found to be fraudulent, all authors must take responsibility. However, that does not happen easily. Sayantan Datta reports on a case of data manipulation in an article from a prestigious science research centre in India (the published article was retracted once the fraud was discovered) and the academic culture which may have contributed to the institution's internal inquiry concluding that the junior author alone was responsible for the falsification; neither the department head nor any of the other co-authors were held responsible [15]. The second investigation, by an independent committee, concluded that the fraud was the product of two authors; it also held the department head responsible for “scientific carelessness and lack of diligence” without which the fraudulent research would not have been submitted. Perhaps most important, the investigation commented on the research environment in the lab and the working conditions of junior researchers. Datta uses the retraction, and the investigation that followed, to discuss the power dynamics in authorship of scientific publications, and the accountability of seniors named as authors, especially in cases of scientific fraud.

One major shortcoming in this collection is that of gender representation of authors, particularly egregious when gender inequities in academic research are replicated in the publication environment. We have been conscious of this and did make considerable efforts to address this but did not succeed. We apologise for the shortfall and will reach out and continue to solicit contributions on this topic.

In a 2011 commentary on ghost authorship, *PLoS Medicine* editors wrote that “Everyone involved in the medical publishing industry, including journals, institutions, and the bodies that oversee research, need to take specific action to eradicate the seemingly endemic corrupt authorship practices.” [3] The editorial accompanied articles on ghost and guest authorship, several written by contributors to this issue. It seems that more than a decade later, there is still a need to explore “the extent of the problem” of authorship challenges, which this issue does in the broader context of scientific publications. As in *PLoS Medicine* at the time, some novel suggestions are put on the table in this special issue that at least deserve further reflection. We invite institutions, funding agencies, scientific organisations, journal editors, and the broader scientific community, to pick up from here, and hope this issue contributes to reinvigorating discussion.

Note: One of the authors of this editorial, Sandhya Srinivasan, was manuscript editor of the *IJME* article that was eventually retracted.

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