

CAN PUBLICATION STANDARDS BE LOWERED DURING A PANDEMIC?

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Abstract

The peer-review system is the guarantee of the quality of publications. It has its flaws and is sometimes contested, but we have no better alternative. The SARS-CoV-2 pandemic has led to an increased demand from researchers, journalists and citizens for rapid information. How have scientific journals evolved to rapidly disseminate research data that is as valid as possible? The number of manuscript submissions has doubled or tripled compared to similar periods in 2019 for most journals. Editorial boards were faced with unexpected volumes of articles to review, with a shortage of reviewers, in an environment of competition between researchers and journals to publish quickly. New sections have been created, peer-review has been accelerated and even simplified, with open access publications. Questionable research practices were observed; prestigious journals published articles whose quality standards were no longer those of normal times. Journals were manipulated with the complicity of the scientific community. These practices show that open science principles and declarations such as the Singapore Declaration on Research Integrity have little impact on the behaviour of some researchers.*

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1. Introduction

The main objective of editorial boards and editors is to apply quality control to the content of the manuscripts they review. Quality control is a responsibility shared by authors and editors, and this relationship is based on trust. An independent expert review provides a useful assessment of the work submitted for publication. Typically, two to three reviewers, selected by the Editor-in-Chief, provide advice to help the editor decide whether to accept or reject a manuscript. This peer-review system has flaws and is sometimes contested, but we lack a better alternative.

These flaws occur when reviewers start with an assumption of good faith and honesty on the part of the authors; reviewers have neither the mission nor the possibility of verifying the source data of a study. They cannot go into laboratories to examine the data. Peer review is contested because it is subject to controversy, undeclared conflicts of interest, and decisions that are not always based on scientific evidence. A report by the UK Parliament evaluated the peer-review process following the scandal when the measles, mumps, and rubella vaccine was accused of being linked to autism.¹⁵³ This 2011 report is still relevant 10 years later:

We found that despite the many criticisms and the little solid evidence on the efficacy of pre-publication editorial peer review, it is considered by many as important and not something to be dispensed with..... Innovative approaches—such as the use of pre-print servers, open peer review, increased transparency and online repository-style journals—

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¹⁵³ H. Maisonneuve and D. Floret, 'Affaire Wakefield: 12 ans d'errance car aucun lien entre autisme et vaccination ROR n'a été démontré', *La Presse Médicale*, 41 (2012), 827-34.

should be explored by publishers, in consultation with their journals and taking into account the requirements of their research communities..... Finally, we found that the integrity of the peer-review process can only ever be as robust as the integrity of the people involved. Ethical and scientific misconduct—as in the Wakefield case—damages peer review and science as a whole. Although it is not the role of peer review to police research integrity and identify fraud or misconduct, it does, on occasion, identify suspicious cases.¹⁵⁴

In 2021, peer review is still the main mission of journals and, according to surveys, it is much appreciated by researchers.¹⁵⁵ Researcher satisfaction with peer review increases over time and goes hand in hand with the trend toward quality over quantity of publications.¹⁵⁶

One of the goals of open science is to publish manuscripts and explain the accessibility of research data. Most developed countries have adopted regulations to develop open science similar to those in France.¹⁵⁷ Journals are transforming to meet open science requirements, and FAIR principles have been established (Findability, Accessibility, Interoperability, and Reuse of digital assets). The principles of open science should be better implemented concerning peer review: reviewers' opinions should be made available online when articles are

¹⁵⁴ House of Commons. Science and Technology Committee, *Peer Review in Scientific Publications. Eighth Report of Sessions 2010-2011* (London: The Stationery Office Limited, 2011).

¹⁵⁵ 'In Peer Review We Trust', *Communication Physics*, 3 (2020), Article 165.

¹⁵⁶ Elsevier and Sense about Science, *Quality, Trust and Peer Review: Researchers' Perspectives 10 Years On. A Study by Elsevier and Sense about Science* (2019).

¹⁵⁷ Ministère de l'enseignement supérieur, de la recherche et de l'innovation, *Plan national pour la science ouverte*, 4 July 2018.

published. However, open peer review is not accepted by scientific communities.¹⁵⁸

The SARS-CoV-2 pandemic in 2020 has led to an increased demand for rapid, validated information from researchers, journalists, and citizens. The pandemic has increased competition among researchers; in general, competition is a source of both innovation and questionable practices. How have scientific journals evolved to participate in this rush to obtain research data quickly—validated, if possible?

2. Fake news has overwhelmed the editorial offices of scientific journals

For most journals, during the first half of 2020, the pandemic led to a doubling or tripling of manuscript submissions compared to similar periods in 2019. This increase was observed in all scientific journals, primarily in biology and medicine, but also in social sciences, mathematics, and economics. For example, *Journal of the American Medical Association* received 11,000 manuscripts between 1 January and 1 June 2020, compared with 4,000 for the same period in 2019.¹⁵⁹

In PubMed alone, more than 80,000 articles were published between February and December 2020. A realistic assumption is that at least 160,000 COVID-19-related articles would be indexed in all databases beginning December 2020. There were approximately 30,000 COVID-19 pre-publications deposited in data warehouses in the same period. All pre-publication platforms put manuscripts online; in decreasing order of the number of manuscripts, they included medRxiv for medicine, SSRN

¹⁵⁸ T. Ross-Hellauer and E. Görögh, ‘Guidelines for Open Peer Review Implementation’, *Research Integrity and Peer Review*, 4 (2019), Article 4; ‘In Peer Review We Trust’.

¹⁵⁹ H. Bauchner, P. Fontanarosa, and R. Golub, ‘Editorial Evaluation and Peer Review During a Pandemic. How Journals Maintain Standards’, *Journal of the American Medical Association*, 324(5) (2020), 453-54.

for social sciences, ResearchSquare for all fields, RePEc for economics, and bioRxiv for biology. Only a little more than half of these manuscripts may be published by peer-reviewed scientific journals, according to bioRxiv data estimating that 30% of pre-prints are not published.¹⁶⁰

COVID-19-related manuscripts competed with non-COVID-19-related manuscripts within journals. Sometimes the priority was to find ‘hot papers’, the so-called innovative articles cited in the media. Were publications on non-COVID-19 research delayed by editorial boards? The journal editors say no.

3. Editorial boards were not prepared

Editorial boards have faced unexpected volumes of articles to review and a shortage of reviewers in an environment of competition in which researchers and journals compete to publish quickly. Typically, a manuscript is reviewed by one or two journal editors, who either reject it out of hand or decide to seek the advice of reviewers and have the authors make changes later.

Journals have developed a variety of strategies to manage the volume of information while trying to attract readers. These include creating new columns to publish more articles; increasing correspondence, letters, and viewpoints without evidence; publishing research abstracts; accepting poorly evaluated preliminary results; decreasing the number of reviewers per article; allowing reviews by associate editors of the journal without soliciting external reviewers; decreasing the number of comments made to authors; and deciding not to require further analysis because confined researchers cannot go to

¹⁶⁰ K. R. Anderson, ‘bioRxiv: Trends and Analysis of Five Years of Pre-Prints’, *Learned Publishing*, 33 (2020), 104-09.

their laboratories. All COVID-19-related publications were made open access, which required adaptation of the publication process.

According to the editors of the journals, these changes did not impact the quality of the articles published. Reading some so-called innovative articles that present hypotheses and opinions instead of evidence, we have enough arguments to speculate that poor-quality articles are archived for eternity in the literature.¹⁶¹

The pressure on journals has encouraged dubious practices on the part of researchers: double submission of manuscripts, double publications, plagiarism, publication of articles that would never have been accepted outside of the pandemic, lack of disclosure of conflicts of interest, and rapid data analysis. For example, one article was submitted to three journals, all of which accepted it. The editorial boards, also subject to reminders and pressure from researchers and the media, wanted to work quickly. Speed and haste do not always guarantee quality. In prestigious journals, it has been observed that articles were published rapidly and that their quality standards were no longer those that would normally be followed.¹⁶²

Some journals are not aware of good practices in the retraction of articles. An editorial board decides on retraction after obtaining evidence of misconduct or honest errors. As of 20 September 2021, 139 COVID-19-related articles had been retracted, and 12 were retracted because of errors by the journals; seven articles with ‘expressions of concern’ should be followed by a decision on the validity or retraction of the article.¹⁶³ Retractions are also occurring faster than usual—only a few weeks after the publication. For the remaining COVID-19-related

¹⁶¹ H. Maisonneuve, B. Plaud, and E. Caumes, ‘Pandémie à SARS-CoV-2: éthique et intégrité oubliées devant la précipitation pour publier’, *La Presse Médicale Formation*, 1 (2020).

¹⁶² Maisonneuve, Plaud, and Caumes.

¹⁶³ RetractionWatch. *Retracted Coronavirus (COVID-19) Papers*, 2021.

articles, the retractions were mainly due to misconduct and never because of honest errors. This is evidence of the competition between researchers and journals and also of the weak response by the scientific community in recognizing misconduct. How is it imaginable that only 139 retractions have occurred for approximately 250,000 published articles, some of which should have never been published? If publication quality was an objective of the scientific community, there would have been fewer articles published and many more retractions.

4. Journals have been manipulated with the complicity of the scientific community

We will take just one example of the manipulation of an editorial board. Dr. Didier Raoult (of the Marseille university hospital institute, France) published a study showing the efficacy of a combination of hydroxychloroquine and azithromycin in treating COVID-19. This publication is not cited in this chapter so as not to contribute to the journal's undeserved impact factor. Indeed, this article was cited nearly 5,000 times in the seventeen months following its publication, an unprecedented record given that an article cited 50 or even 100 times is already remarkable. In this study, twenty-six patients were treated, compared to sixteen untreated patients from other clinical sites, which is already alarming because the treated and untreated patients were from different locations. Of these twenty-six treated patients, six were excluded from the analysis, contrary to good clinical practice (three were transferred to intensive care, one died, one was lost during follow-up, and one exhibited intolerance). The efficacy criterion was not clinical but biological, with a PCR test that is sometimes fallible, done on the fifth day and not on the sixth and fourteenth days as planned in the protocol. The publication was submitted to a journal whose Editor-in-Chief was one of the authors of the manuscript, suggesting that a conflict of interest facilitated and accelerated the decision to publish the

article. The publication appeared fourteen days after the authorization of the ethics committee for a fifteen-day study. There are several sources for the list of questionable practices in this research, including an article by an independent expert. The conclusion of this opinion is as follows:

As outlined below, this study suffers from major methodological shortcomings which make it nearly if not completely uninformative. Hence, the tone of the report, in presenting this as evidence of an effect of hydroxychloroquine and even recommending its use, is not only unfounded, but, given the desperate demand for a treatment for Covid-19, coupled with the potentially serious side-effects of hydroxychloroquine, fully irresponsible.¹⁶⁴

This assessment was not the only one, and despite the evidence of bad practice, the journal was unwilling to retract the article, which would have been the only reasonable decision.

The manipulation of editorial boards, which are generally complicit, is well known. It is a sign of complacency in publishing articles by colleagues or a search for a higher profile by artificially increasing the number of citations. Certain manipulations can increase the impact factor rapidly. The well-known manipulation of journals was described during this pandemic, using the journal *New Microbes and New Infections* as an example.¹⁶⁵ This type of behavior is neither new nor surprising, since researchers control the editorial board. Such journals

¹⁶⁴ F. R. Rosendaal, 'Review of: "Hydroxychloroquine and Azithromycin as a Treatment of COVID-19: Results of an Open-Label Non-Randomised Clinical Trial Gautret et al 2010, DOI:10.1016/j.ijantimicag.2020.105949"', *International Journal of Antimicrobial Agents* 56 (2020), Article 106063.

¹⁶⁵ Y. Gingras and M. Khelifaoui, 'Être juge et partie, ou comment contrôler une revue scientifique', *The Conversation*, 21 June 2020.

have been described as self-promotional journals.¹⁶⁶ As of 2022, increases in impact factors will be linked to publications on the pandemic. These are clear conflicts of interest, but none of the few whistle-blowers have been listened to.

5. A failure of open science

Research communities have rapidly adopted open science movements. Its definition in the French plan is: ‘Open science is the unfettered dissemination of research publications and data. It builds on the opportunity presented by the digital transformation to develop open access to publications and—as much as possible—to research data’.¹⁶⁷ The unfettered dissemination of research data does not mean imposing free online access without access codes but imposing at least communication with researchers about a research project. These are the FAIR principles. Social conventions and *omertà* in the scientific community have made us forget these good intentions during the pandemic. To claim that open science should lead to better dissemination of the principles of scientific integrity seems optimistic and unsupported by evidence.

If open science had been applied, asking for a spreadsheet on the twenty-six patients in Raoult’s initial study would have been a simple way to verify the analyses of the initial research on the hydroxychloroquine-azithromycin combination. Having these data analyzed by independent third parties approved by all stakeholders would have been simple. It is the basis of the normal function of

¹⁶⁶ C. Locher and others, ‘*Publication by Association: How the COVID-19 Pandemic Has Shown Relationships Between Authors and Editorial Board Members in the Field of Infectious Diseases*’, *BMJ Evidence-Based Medicine* (Published Online First: 30 March 2021).

¹⁶⁷ *Plan national pour la science ouverte*.

scientific journals and the principles of open science.¹⁶⁸ How many legitimate players could have demanded data from this research? First and foremost, those cited or thanked in the initial article: the French National Research Agency, the Health Agencies, the National Agency for the Sanitary Safety of Medicines and Health Products; the manufacturers of the molecules concerned; the presidents of the University of Aix-Marseille and the University of Nice; and the directors-general of the hospitals in Marseille and Nice. Other parties not mentioned in the article should have come forward, such as the National Council of Physicians, the decision-makers who based recommendations on these unverified preliminary data, and the scientific integrity officers of the universities concerned. They knew that their careers were threatened if they spoke out. Only the *Société de pathologie infectieuse de langue française* has filed a complaint, but it is isolated in the face of political lobbying.

6. A failure of the Singapore Statement

The rereading of the declaration on research integrity is both pleasant and worrying: all the great principles propagated by institutions and researchers have been flouted due to social convention.¹⁶⁹ There are 14 responsibilities, of which the following three are proposed for our consideration:

- Responsibility 1: Integrity: Researchers should take responsibility for the trustworthiness of their research;
- Responsibility 3: Research Methods: Researchers should employ appropriate research methods, base conclusions on

¹⁶⁸ ICMJE, *Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals* (International Committee of Medical Journal Editors, 2019).

¹⁶⁹ World Conferences on Research Integrity, *Singapore Statement on Research Integrity*, 22 September 2010.

critical analysis of the evidence and report findings and interpretations fully and objectively;

- Responsibility 4: Research Records: Researchers should keep clear, accurate records of all research in ways that will allow verification and replication of their work by others.

We all agree with this statement, but continuing to issue charters, consensuses, declarations, and recommendations every two or three years since 2010 is pointless. Continuing to say that we need to change, that we need to abandon ‘publish or perish’ research evaluations is exciting but it has no effect. Yet we keep on doing this.

Was it possible to publish poor-quality papers during this pandemic? There are arguments that the publication standards of some journals have declined, but the research and editorial communities assess them differently. Most editorial boards are run by honest researchers who have done their best under pressure from other researchers and the media. The basis of the system is trust between the research community and the editorial boards of journals, which is all the more necessary because the same people can be both authors and editors of journals.

Societies for editors, such as EASE (European Association of Science Editors), issued advice in April 2020 along the lines of:

We recognise that in times of crisis it may not always be possible to obtain all required data, and that reporting may—of necessity—be curtailed. To avoid misinterpretation, but also to facilitate the rapid sharing of information, we encourage editors to ensure that authors include a statement of limitations on their research.¹⁷⁰

The goal was to request transparency from authors who could not ensure the integrity of all their data and to discuss the limitations of the

¹⁷⁰ EASE statement on quality standards

research. Is it acceptable to publish data that may be incomplete, to inform the population as quickly as possible?

7. Lessons learned by scientific journals

Many scientific journals reacted well to this unexpected influx of manuscripts in just a few months. They were able to process them, sometimes rapidly, and perhaps to the detriment of articles considered to be of lower priority. They reduced the time needed to make decisions and made articles that are usually accessible by subscription or with a per-article payment freely available. Could practices learned in emergency situations become sustainable? Will open access to COVID-19-related articles (and possibly others) be permanent? All procedures have been adapted, and some decisions will have a lasting impact on the functioning of journals. Journals that faced difficult situations have learned from them. For example, *The Lancet* and *New England Journal of Medicine* published articles with data from an administrative database owned by a private company. When they requested access to the data, they were denied. These journals were unable to verify the research data and eventually retracted the articles concerned.¹⁷¹ The argument for retraction was that the data were not verifiable because the company refused to make them available (if there was a suspicion of fraud, it was not proven). As a result, the twenty-one Lancet group journals amended their data evaluation procedures. Here is an excerpt from their decision:

Changes to the signed declarations by authors in the author statements form will require that more than one author has directly accessed and verified the data reported in the

¹⁷¹ M. R. Mehra, F. Ruschitzka, and A. N. Patel, 'Retraction—Hydroxychloroquine or Chloroquine with or without a Macrolide for Treatment of COVID-19: A Multinational Registry Analysis', *The Lancet*, 395 (2020), 1820.

manuscript. We will require that the authors who have accessed and verified underlying data are named in the contributors' statement. For research Articles that are the result of an academic and commercial partnership, one of the authors named as having accessed and verified data must be from the academic team.¹⁷²

It is clear that the pandemic has impacted scientific journals' practices and that this impact has pushed journals to improve. The pandemic may have had more power than learned societies and other organizations that issue recommendations for good practice (see the box below). The ultimate goal would be to have an accreditation-type mechanism for scientific journals to ensure the quality of their operations rather than waiting for further pandemics or scandals.

8. Conclusion

Health crises, like wars, require urgent and immediate decisions. To guide researchers, professionals, and even the media and politicians, it is important to publish sensitive data very quickly. Observations suggest that normal standards have been forgotten and the principles of scientific integrity have been ignored. Social conventions and the code of silence have facilitated the dissemination of unvalidated data during the SARS-CoV-2 pandemic. Scientific journals sometimes participated in these games. Institutions did not activate mechanisms to demand or share the research data. However, this pandemic has led some journals to become self-critical and thereby to improve their functioning. Most researchers do not want to promote bad science, which should never be published.

The practices observed during this pandemic show that the high principles of open science and the lofty declarations in the Singapore

¹⁷² The Editors of the Lancet Group, 'Learning from a Retraction', *The Lancet*, 396 (2020), 1056.

Statement on Research Integrity have little impact on the behavior of individual researchers. Is the scientific community prepared to take steps to prevent the recurrence of events that are so calamitous for science and society?

Scientific journal procedures and codes

There are many peer-reviewed scientific journals and they are listed differently by discipline. For the STM (Science, Technology, Medicine) segment, 2018 estimates report 33,000 journals in English and 9,400 in other languages.¹⁷³ These journals publish approximately three million articles per year, and private publishers manage most of them. There are no reports that have estimated the number for the HHS (Humanities and Social Sciences) segment. Journals in the HHS segment are more commonly university press journals in a wide range of languages.

Peer-reviewed journals all function on the basis of trust between authors and editors, with an identical process: submission of a manuscript, evaluation by an editorial board with or without external reviewers (blind or open peer review), transmission of a decision to the authors (rejection or acceptance with or without major or minor modifications), resubmission of a corrected version before the final decision. The differences relate to authorship practices: in the STM segment, there are often many authors, some of whom are not very involved in the article; for HHS journals, on the other hand, there is typically a small number of authors (three or fewer) and all of them are very involved in the writing. Journal owners manage resources and expenses and make decisions on editorial boards.

Editorial boards often follow the recommendations proposed by the learned societies of editors. The most important ones are the

¹⁷³ (Johnson, 2018)

Council of Science Editors and the European Association of Science Editors.¹⁷⁴ The International Committee of Medical Journal Editors annually updates recommendations, parts of which are adopted by all scientific disciplines.¹⁷⁵

Publishers come together in learned societies, such as the Society for Scholarly Publishing and the International Association of Scientific, Technical, and Medical Publishers.¹⁷⁶ Publishers have created the Committee on Publication Ethics.¹⁷⁷ This non-profit association, known as COPE, aims to specify good publication practices, with a key commitment to scientific integrity. COPE has a case bank to train editors (and researchers) in good practices.

Researchers can consult the organizations mentioned above, but they generally have guides to responsible research. These guides exist in most countries, provided by research organizations, universities, and scientific integrity organizations. Consider, for example, the European Code of Conduct for Research Integrity.¹⁷⁸ It contains paragraphs aimed at authors of publications, including data management and practices; collaborative work; publication and dissemination; editorial review, evaluation, and control; and scientific fraud and other unacceptable practices, including plagiarism. Similarly, the global network of academies has published a book on the conduct of responsible research and

¹⁷⁴ <https://www.councilscienceeditors.org/>; <https://ease.org.uk/>

¹⁷⁵ <http://www.icmje.org/>

¹⁷⁶ <https://www.sspnet.org/>; <https://www.stm-assoc.org/>

¹⁷⁷ <https://publicationethics.org/>

¹⁷⁸ ALLEA, *The European Code of Conduct for Research Integrity* (Revised edition) (Berlin: All European Academies, 2017).

appears to be interested in a publication control process that does not yet exist.¹⁷⁹

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