



COVID-19 impact on research and publication ethics

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KEY WORDS

COVID-19, research, publication ethics, retraction, biomedicine, ethics

INTRODUCTION

The COVID-19 pandemic has caused immense hardship and human tragedy over the past year, affecting all aspects of life. The human community that boasted of modern diagnostic and treatment technologies continues to remain in a state of shock.

The pandemic has once again proved that science still has a long way to go. Given the challenges that COVID-19 has brought with it, it is imperative for different disciplines of the research community to study this contagion [1]. The impact of this disease on human life cannot be remedied for many years to come. Furthermore, COVID-19 has affected the path of medicine and research as well. This editorial offers a brief outline of the challenges COVID-19 has created in publication ethics.

Acceleration or Precision

The pandemic has distorted the scientific pathway since the beginning of 2020. The lockdown imposed following its outbreak made an increase in the number of papers submitted by researchers. Several journals have shown haste both in peer review and acceptance of COVID-19-related papers [2]. Studies revealed that in the initial months of the pandemic, submissions to journals showed an irregular and exponential growth. In the first wave of the pandemic, compared to other time periods, there were fewer research articles by female authors compared to their male colleagues, which could be attributed to the additional responsibilities that women shoulder at home [3].

“The pandemic has given incredible opportunities for researchers but it has also been a shock to the academic system, with an explosion of publications and citations for COVID-19 papers. This is distorting the rewards of science. We need to make sure these things are taken into account when promoting and hiring in the years ahead,” says Professor Flaminio Squazzoni [2], a social scientist at the University of Milan, Italy.

A sense of social responsibility amid the lockdown prompted researchers, who were mostly confined to their houses, to suspend their respective fields of interest, and switch to COVID-19 studies. The large number of submissions on the one hand and journals' inclination to publish more papers on COVID-19 on the other, made the ethical process of peer reviewing challenging, with many papers being retracted in a short timeframe.

Furthermore, studies other than those assessing life-saving therapies ceased, and new strategies were developed to protect research subjects, physician-scientist careers, and the research community [4]. Meanwhile, funding agencies focused on the ongoing health crisis by investing in various aspects of the disease.

The Retraction Tsunami

Committee on Publication Ethics (COPE) guideline defined that “Retraction is a mechanism for correcting the literature and alerting readers to publications that contain such seriously flawed or erroneous data that

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their findings and conclusions cannot be relied upon. Unreliable data may result from honest error or from research misconduct" [5].

The rate of COVID-19 related publications is estimated to be 137 papers a day since February 2020 and is exceptionally high. Based on the Retraction Watch Database, a tool for monitoring retracted papers, on May 19, 2021 109 research articles concerning COVID-19 were retracted. Furthermore, 12 papers were retracted owing to journal error, 4 were retracted and reinstated, and 6 expressions of concern were published [6, 7].

Although studies show that retractions take around three years on average, for COVID-19 literature, this timeframe has been reduced to only a few months. However, considering the short timeframe, a fair comparison may not be possible. One possible reason for this exceptionally high rate is that COVID-19-related studies are under strict scrutiny [8].

Consequently, journals revised their peer review processes in haste. For instance, a study on the effects of hydroxychloroquine on COVID-19 was published in the *Lancet*, which was later retracted and led to the designing of a new independent peer review system concerning papers containing large datasets or real-world data. This even led to the use of experts in data science, besides statistical peer reviewers, with particular focus on data sharing statement [9]. The logic behind the retraction justification of those papers could be easily found in related journals' websites as well as in the Retraction Watch Database, which also contains data of papers with expressions of concern and corrections. However, research communities who are concerned about science integrity believe that the standards of peer reviewing and publication are in a dire need of restructuring in order to reduce the incidence of retraction owing to misconduct. Nonetheless, these revisions should not by any means lead to the emergence of a new bureaucracy.

One of the suggestions includes arranging for three independent peer reviewers for papers that introduce new medical treatment and/or are multi-centered studies with a large dataset; and we call this three-member jury, "important authorities" in peer reviewing to verify the qualification of the research article. One is a field expert peer reviewer who reviews the subject in his/her specialty field. A reviewer should peer review the subject in terms of compatibility with the principles of ethics, and an expert checks the details of the datasets and statistical integrity of the research article. Perhaps with the three-member teams that we call FES (Field expert, Ethics expert, and Statistical peer reviewer), the volume of retracted papers could be reduced.

Undoubtedly, one must consider the major challenges faced by journals as well as the shortage of peer reviewers. This means that as the number of papers increases, journals should proportionally hire more peer reviewers. Of note, impartial peer reviewers who independently and without any conflict of interest peer review the subjects for a fee could be considered practical. However, to materialize this suggestion, further elaboration and more papers are needed on this subject by different experts in this area.

Is preprint good or bad? It's actually both!

A preprint is a full-draft research paper that is publicized prior to the formal peer review process. The pandemic has increased the volume of preprint papers. The first preprint study on COVID-19 was published on January 19, 2020, and thousands of articles were published subsequently. Although studies show that the average normal period for the peer reviewing process is 125 days, many of preprints published papers in less than a week [10]. What they do is an initial screening with a few editorial formalities, the details of which are available on preprint websites. Although preprints as open publishing platforms provide early access to research outputs, the fact that the papers are not peer reviewed in formal processes has created deep controversies and concerns. Table 1 briefly lists the advantages and disadvantages of preprints [11-15].

CONCLUSIONS and OUTLOOK

Many studies on subjects, other than COVID-19, have been stopped taking into consideration public and researchers' health. The future of medical science and chronic diseases has been intensely affected. Despite the vast propaganda, statistics show that COVID-19 was the third most common cause of death in the US after heart disease and cancer [16]. Accordingly, addressing COVID-19 should not compromise the flow of research on other risk factors of human health. Meanwhile, the future of COVID-19 remains unclear.

Despite advancements in vaccines, one cannot give a definite view of the future perspective of preventing and treating this disease and people's restoration of their normal lives. It seems that simple health recommendations, such as social distancing and using masks, continue to be effective in controlling COVID-19. Despite the inter-connectiveness of the human community, no consistent and universal agreement is seen globally on conducting a universal collaboration to combat this crisis.

Although most reliable publishers have given free access to COVID-19-related papers, based on a study,

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three quarters of the papers, are charged for accessibility. In this regard, open access to all health-related scientific papers is necessary [10]. One must be alert, trust the scientists, and wait for additional research.

Nonetheless, a major risk is threatening the world alongside COVID-19, that is, inefficient policymakers and some greedy commercial companies. The policymakers help in the durability of this disease and, subsequently, its enhanced damages by bringing political interests into science. Conversely, commercial companies are looking to gain more profits, which do not necessarily appear in line with the path of scientific growth, even if they appear in alignment. It is the duty of civil organizations and authorities to publicize corruption and prevent people's lives from becoming a means to satisfy greed.

There are still many conflicts in vision science; for example, in most low- and middle-income countries, primary eye care services are deficient and are negligently integrated into primary health care [17]. Although many people around the world suffer from avoidable causes of blindness, some of the investments are on facilities and medications that do not aim to solve major problems in the world population to treat and prevent avoidable causes of blindness.

Meanwhile, many useful modalities of treatment for ocular health are off-label, including intravitreal antibiotics for endophthalmitis and bevacizumab for neovascular age-related macular degeneration [18]. It seems that there is no one to undertake the necessary budget for the registry and lead associated studies.

These conflicts indicate the involvement of power and wealth in science that have in turn affected vision science. Effective policy making can save humanity and address an upcoming crisis that threatens communities.

ETHICAL DECLERATIONS

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Table 1. Summary of advantages and disadvantages of preprint publication [11-15]

Advantages	Disadvantages
Prompt dissemination of outcomes	Lack of peer-review
Contributes to free flow of information	Absence of quality (controversy)
Increased chances of early feedback and comments	Concerns about premature data
Increased citations	Media coverage without robust evaluation
Chances of academic collaborations	Risk of double citation (By publishing a peer- reviewed article, the preprint may also be cited)
Make authors enthusiastic	Lack of ethical and statistical guidelines
May reduce predatory publishing	Lack of respect for COPE and ICMJE
Increases transparency	Breach of intellectual property regulations in some countries
May publish negative outcomes and controversies	Possible harm to health in certain cases
May receive DOI, link to ORCID, and plagiarism check	Information overload
Chance to receive grants and awards	Breach of Ingelfinger rule (a strategy conducted to discourage dissemination of research reports before they are published in the journal)
Promotion of young researchers	Rush to post low-quality research
Early credit	
Good place for hypothesis	
Early detection of science misconduct	

Abbreviations: DOI, digital object identifier; ORCID, Open Researcher and Contributor ID or identifier; COPE, Committee on Publication Ethics; ICMJE, International Committee of Medical Journal Editors.

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