Publishing Scientific Research Articles: The Role of Preprints

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Abstract:

In the dynamic world of scientific research, rapid and open exchange of novel findings plays a vital role in advancing knowledge and improving human health. In this context, we are witnessing a major transformation in the way scientific articles are published with the emergence of "preprints". This innovative approach, which has gained increasing popularity in recent years across various scientific fields, particularly in medical sciences, allows researchers to share their research findings quickly with the scientific community without going through the time-consuming processes of peer review and publication in traditional journals. In this article, we discuss the applications and considerations of preprints.

Key Words: Pre-Print, Open Access, Peer Review

Background and Objective

One of the significant challenges confronted by researchers is the timely dissemination of their proposals and ideas while safeguarding their intellectual property rights. Scientific assessments indicate that there is typically a two-year interval between the initiation of a research project and the subsequent publication of its findings. Furthermore, the average duration from the submission of a manuscript to its acceptance by various journals is approximately 100 days.[1] Consequently, a solution that addresses the concerns of researchers regarding the expedited communication of their scientific activities is imperative. In recent years, preprints have emerged as an effective mechanism for researchers to present their discoveries while maintaining the integrity of their intellectual property. Preprint servers generally do not adhere to a standardized format for article submissions and do not implement a peer review process, thereby facilitating the public availability of manuscripts online within 24 hours of submission.

The practice of preprinting in the health sector can be traced back to 196, when the National Institutes of Health (NIH), under the leadership of H. Albertson—one of the pioneers of preprints—initiated the publication of preprints in biology under the title "Information Exchange Groups." This initiative engaged approximately 3,600 participants and resulted in the publication of over 2,500 scientific contributions. However, due to a lack of interest from journals in accepting articles previously submitted as

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Received: 19/06/2024
Accepted: 14/10/2024

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preprints, this avenue remained largely underutilized for an extended period.[2,3]

The COVID-19 pandemic has significantly rejuvenated interest in preprints among researchers. Under current regulations, preprints are not recognized in the promotion criteria for researchers and faculty members, even though they can be cited. It is anticipated that preprints will eventually be integrated into alternative bibliometric metrics, thereby enhancing their citations as a contributing factor to improving bibliometric indices.

Presently, there are over 60 preprint servers categorized into three primary groups: 1. General Servers: Such as Authorea, which encompass a wide array of topics. 2. Subject-Specific Servers: Including BioRxiv, MedRxiv, SSRN, and ChemRxiv, which concentrate on specific fields of study. 3.Regional Servers: Such as AfricArxiv and Arabixiv, which serve particular geographic regions. Moreover, preprints can also be classified by ownership, encompassing private publications like PeerJ PrePrints, institutional repositories such as EarthArXiv, university-hosted platforms like arXiv, and independent non-profit organizations like HAL.[4-6]

Once a manuscript is published as a preprint, authors retain the option to revise certain sections, resulting in what is termed a postprint. This revised version may differ from the original preprint in various respects. Following the publication of their manuscript as a preprint, researchers may subsequently submit it to open-access journals that allow this practice. This enables the Digital Object Identifier (DOI) assigned to the preprint to be linked to the DOI of the peer-reviewed article upon publication.

Researchers in the field of surgery can also leverage preprint servers to present innovations related to surgical techniques and treatment methodologies while protecting their intellectual property rights. Each preprint article is assigned a DOI, which establishes a connection to the author's ORCID identifier. The prompt dissemination of research findings through preprints facilitates faster access to information, enhances the likelihood of receiving feedback and preliminary comments, and increases citation opportunities. Furthermore, it promotes academic collaborations, engages authors, and mitigates the risk of scholarly achievements being appropriated by predatory journals. The use of preprints also enhances the prospects of publishing non-significant results, thereby providing researchers with opportunities to secure funding and grants.

Conversely, the expedited publication of articles in preprint format presents considerable advantages for the advancement of early-career researchers and the enhancement of their motivation.[7] Nevertheless, the practice of preprinting is accompanied by certain challenges. The lack of a rigorous peer review process raises concerns regarding the quality of the articles published. Although numerous reputable studies have been disseminated as preprints, the debate surrounding this issue persists. Significant concerns related to preprints include the premature release of data, media exposure without comprehensive evaluation, the potential for duplicate citations, and occasional violations of ethical and statistical guidelines. Furthermore, preprints may not consistently adhere to the standards established by the Committee on Publication Ethics (COPE) or the International Committee of Medical Journal Editors (ICMJE). Other considerations include the potential for infringements on intellectual property rights, possible adverse health implications in specific instances, excessive disclosure of information, and violations of the Ingelfinger Rule, which seeks to prevent the publication of research findings prior to their appearance in peer-reviewed journals.[8,9]

Each journal maintains its own policies regarding the acceptance of articles previously published as preprints. When submitting a manuscript, authors are obligated to inform the editor of the preprint publication in their cover letter. If the article is accepted by the journal, the author must provide a link between the accepted manuscript and the preprint on the respective server. Additionally, when indicating the preprint publication date, authors are advised against fully transferring ownership of the article to the preprint. In citing preprints, authors should include the names of the authors, the title of the article, the name of the preprint server, the designation "preprint," the publication date, and the Digital Object Identifier (DOI) of the article.

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(Received: 19 June 2024 Accepted: 14 Oct 2024)

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