

Scientific paper management. How do articles get published in medical journals?

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ABSTRACT

The life-cycle of a manuscript from writing to publication is not usually taught during health care professionals' training. This article reviews the process that goes from the authors' decision to communicate to its eventual publication, detailing practical aspects to be considered in each step. The responsibilities of the different roles involved are specified: author, editor, and reviewer. International guidelines supporting the writing of medical-scientific papers are also described.

Key words: *medical manuscript, journal article, periodic publication, peer review of research papers, editing.*

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INTRODUCTION

The step-by-step process by which an article gets published is not usually taught during health care professionals' training. This leads to misconceptions regarding who publishes papers and how they get to do so. The central aspects of this process are outlined below.

Every professional or group of professionals who want to communicate a valuable contribution for their discipline or field of work can publish an article. It is therefore not an activity exclusively reserved for seasoned professionals. Although having experience might be an advantage in knowing how to write correctly, it is a skill that can be learned.^{1,2}

BEFORE WRITING

When writing a manuscript, several aspects should be considered. First of all, we must select a journal in line with the topic of our research and the audience we want to reach.^{3,4}

This has several implications: on the one side, in relation to the writing approach, since we need to consider who will be the reader and, on the other side, in relation to the format, since each journal has its own requirements regarding article types, length, maximum number of references, etc. Although these aspects are defined before writing, manuscript management actually starts much earlier: when planning the research study or caring for the patient whose case will be presented, for instance.

Secondly, we must decide which the most appropriate article type for our content is. For example, if we would like to report the results of a research study, we will write an original article; if we are presenting a patient's unexpected course, it will be a clinical case report, etc.⁵ The instructions for authors of every journal establish the article types that can be published, as well as formatting requirements.

In order to become familiar with good practices and procedures of academic scientific writing and editing, it is suggested to read *Recommendations for the conduct, reporting, editing, and publication of scholarly work in medical journals* by the International Committee of Medical Journal Editors (ICMJE).⁶ These are guidelines to which all scientific journals adhere. In order to make the actual writing of an article easier, it is advisable to follow the international guidelines that are listed on the Equator website, an initiative aimed at improving scientific communications. These guidelines suggest the key points that each article type should include.⁷ There are also many educational publications that address the step-by-step process of writing a scientific paper.⁸⁻¹⁰

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Journal selection occurs almost naturally, because writing about a topic entails having read enough about the discipline. But it is important to remember that only one journal must be selected since the manuscript cannot be sent to other journals during the editorial process and can only be “re-published” if the journal is addressed to another audience and both journals are aware and authorize it. In order to become familiar with this and other ethical aspects of publications, it is advisable to dispel doubts by reading the code of conduct issued by the Committee on Publication Ethics.¹¹

PAPER SUBMISSION

Most scientific journals exclusively receive manuscripts through easy-to-use electronic platforms.¹² Their settings prevent users from leaving empty fields or exceeding the allowed length; for this reason, it is essential to have read the instructions for authors and have prepared the documents according to these specifications.

It is important to consider the documentation that will accompany the submission of the paper to the journal, which is always clearly set out in the instructions or regulations. In general, these are the requirements:

- A letter presenting the article, stating the presence or absence of conflicts of interest and the fact that it is an original work. The corresponding author is also specified in the letter, i.e. the person whom the editors will contact. In the case of manuscripts related to a research study, it is suggested to mention the approval of the Ethics Committee, as well as the registration number in the corresponding study registry.¹³
- Full name of the authors with their affiliation and the details of authorship criteria, i.e. which was their participation in the writing of the paper. (This may be included in the letter or on the first page of the manuscript).
- The entire manuscript, presented according to the instructions, with the bibliography cited as required in the regulations and the annexes considered relevant by the authors.

For case reports, a copy of the informed consent form for the patient or their legal guardians must also be included.¹⁴

It follows from the above that it is essential to read the instructions for authors before starting to write. Asking a colleague to read the manuscript before its submission and verifying the requirement checklist are two useful suggestions.

Both steps allow to identify and correct mistakes or omissions.

Another aspect to be considered are potential costs related to submission. Some years ago, publishing a paper in a scientific journal did not entail costs for authors. Journal funding was obtained from advertising and/or subscribers. For different reasons, including growing costs related to translation, maintenance of electronic platforms, aspects related to database indexing, advertising restrictions, specialized staff, etc., it has become increasingly frequent for scientific journals to charge authors for processing costs when manuscripts are accepted for publication.^{15,16}

It is therefore necessary to gather information on these costs and determine if the authors or the institution where they work will cover them, in the event that the paper gets published. Nevertheless, asking for a payment before editorial assessment is not a good practice, since it may threaten the transparency of the process. In fact, authors must be warned of a growing phenomenon: that of predatory publications.¹⁷ These are journals that imitate the names and websites of other well-known publications and offer publishing papers after simply paying a fee, with no previous review process. The information there presented lacks quality controls from a scientific standpoint and, academically speaking, cannot be considered valid.

RECEPTION AT THE EDITORIAL OFFICE

Editors are in charge of the first assessment of the submitted article. At this stage, the following is checked:

- Consistency between the topic of the paper and the journal’s audience.
- Compliance with formatting requirements.
- Complete and adequate description of ethical and regulatory aspects.

Each of these points may be a reason for manuscript rejection. A manuscript can also be rejected if the editor identifies major methodological or conceptual limitations.¹⁸

Afterwards, at least two reviewers are designated in order to analyze and assess the paper. They are professionals from disciplines related to the topic of the manuscript and/or specialists in research methodology. The editorial office is responsible for ensuring that reviewers do not know the identity of the authors or their institution, so that this is a blind review that promotes objectivity.^{19,20} Although some current trends advocate for an open review with direct

communication between reviewers and authors, this is not usually the case.

Authors can suggest reviewers if they want to; nevertheless, this does not imply that editors are forced to accept this suggestion. The suggested professionals should not be personally or professionally associated with any of the authors in order to avoid a biased process.

Peer review

A review is a professional task that requires knowledge, takes time, and is unpaid.²⁰ This is why it is frequently difficult to find reviewers, and peer review takes more time than what authors generally expect. This period lasts at least one month, but it can be longer.

Peer reviewers are mainly asked to assess the following:

- Whether the research question is original and relevant for a specific field of knowledge.
- Whether the concepts on which the article is based are correct.
- Whether the study was conducted in such a way that it allows to meet the objective.
- Whether the supporting bibliography is up-to-date and relevant.

In addition to specific remarks regarding these points, peer reviewers can make suggestions in order to improve the manuscript. They are also asked whether they believe that the paper should be published or not. The methodological reviewer is responsible for verifying whether potential bias and study limitations have been minimized, and to which extent the latter may affect outcome validity.^{21,22}

Reviewers' recommendations are sent to the editors. It is common practice to specifically address a general comment on the paper to the editors and include a detailed description of remarks, and suggestions, if applicable, so that they can be later on shared with authors.

Editor's responsibilities

The ICMJE establishes that the editor is responsible for determining manuscript approval or rejection. The editor's perspective, which complements the reviewers' opinion, is focused on analyzing whether the text is coherent, whether its format is appropriate for the content, and whether the writing style conveys the message clearly.⁶ In addition, given that editors are professionals from the discipline on which the journal is focused, they can also make conceptual or methodological remarks.

Acceptance or refusal is determined based on the editors' and reviewers' assessment. Sometimes, when controversies arise, additional reviews may be requested.

This can result in the following scenarios:

- 1) *Accepting the manuscript as is for its publication.* This is very rare, since all papers can benefit from suggestions from other professionals.
- 2) *Rejecting the manuscript.* This is mainly due to study-related limitations that cannot be improved with writing. Writing itself seldom is a reason for rejection, although it can decrease the likelihood of publication in the case of papers that are not truly robust. The rejected manuscript cannot be re-submitted to the journal that has already assessed it. Complaining or appealing the final decision is not appropriate either. Nevertheless, it is possible to leverage the experience and consider the review in close detail so as to correct the manuscript and try to publish it in another journal, and capitalize on the learning process for the development and writing of future manuscripts.
- 3) *Requesting clarifications and modifications.* This means that the paper might be published if the corresponding clarifications and modifications were introduced.

It is worth noting that the cutoff point regarding paper quality, which determines its acceptance or rejection, may vary. It not only depends on the manuscript, but also on the flow of articles the journal receives and the topics that its editorial team considers a priority for its readers. This means that a rejection is not always a synonym of poor quality, and this explains why an article that is rejected by a journal might be accepted by another one.

Notifying authors and review response

The editor informs the author of the decision regarding the submitted manuscript and the remarks made by reviewers. If clarifications are requested, or modifications are suggested, the author will need to answer by a deadline.²² The answer to each remark must be precise. Although it is not necessary to accept all suggested modifications, it is essential to justify the author's stance on the topic.

It is advisable to be as clear as possible regarding changes to the text and mark them, so that the editor can read and analyze them more easily. The editor and the reviewers are the first readers of our paper: if there is something they do not understand, other readers might not either.

The answers to the review should be professional and detached from the emotions that are sometimes aroused by negative remarks on the manuscript. It is worth recalling that this is not a personal assessment, but a contribution made by other professionals in order to communicate your work in the most adequate and high-quality manner.

Based on authors' response and the submission of the new version of the manuscript with its corresponding modifications, editors carry out a new assessment. If the answers are not satisfactory or lead to a relevant limitation, whether ethical or methodological, the manuscript might be rejected. On the contrary, if the answers and modifications are satisfactory, it will be accepted. New remarks may also be made, which will extend the exchange between the editor and the author in order to guarantee an adequate assessment of the manuscript and the best possible article quality.

This exchange between the editor and the author is so relevant for the consolidation of the final version of the article that some specialists-imitating linguists who consider review and editing as stages of the writing process- describe it as responsible for a significant percentage of what the final published article will be.²³ Although this process takes place between the editor and the corresponding author, all authors should be aware of the manuscript status and participate in answering the reviewers' remarks and making adaptations for the new version of the article.

Editorial process of an accepted manuscript

If the article is accepted, it will be reviewed by a proofreader, who will make the necessary spelling, grammar, and punctuation corrections. The article will also be translated if the journal is published in more than one language.

Once corrected, a first version with its final format is sent to the author (if the journal is published in several languages, a version will be included for each language). The author will have to confirm that there are no printing errors. They cannot request content modifications; they should focus on reviewing details, such as names, affiliation, data in figures and tables, etc.²²

The editorial office will notify the author of the publishing date of the article. The electronic platforms used for manuscript submission to journals usually allow authors to follow up the editorial process.

Scientific publications enable the reporting

of new data and the adoption and updating of health care professional practices. Each discipline makes a different and particular use of language, which results in a community with its own text formats. Processes -from generating evidence in health to informing peers- also have distinctive features that must be known in order to be an active part in the construction of new knowledge.

In addition, science is constantly changing and correcting itself. Therefore, not only is it important to be familiar with the publication process, but also to be aware of the ethical obligation professionals have to report new findings. It becomes clearer every day that we do not only need to teach contents whose validity is, to say the least, uncertain, but also the tools that allow to generate and share them: researching, communicating, and reading critically. ■

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