

# Tips for publishing an original article

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## ■ INTRODUCTION

Writing an article is a goal for not only many researchers, but also for many clinicians. Publishing is the confirmation of medical excellence and is a source of pride for the institutions where the authors work. Policymakers have recently perceived the importance of publication and thus of clinical research, and so approved the 2015 Medical Research Program Regulation to support the development of research carried out by physicians at all stages of their training<sup>1</sup>.

Research without reporting is bad scientific practice<sup>2,3</sup>. Reporting inadequately is as bad as not reporting at all. Paraphrasing Marcia MacNutt, “*Even the most brilliant scientific discovery, if not communicated widely and accurately, is of little value*”<sup>4</sup>.

In this article the authors set out some tips and rules of successful publication.

## ■ HOW TO PUBLISH

The publication of the original article should be planned as soon as the research project begins to be drawn up. Beginning to write the Introduction and Methods sections even before the results are known is a good plan. Communicating effectively is a time-consuming process, time that, unfortunately, is not assigned in Portuguese physicians’ daily clinical practice<sup>5,6</sup>. Authors have to be methodical, rigorous and captivating. After all, while evidence of originality, reproducibility and application of the scientific method corroborate an article’s scientific value, in addition, and in particular, the peer-review process may determine acceptance or

rejection of the work. In this way, poor communication of that which authors wish to convey can be fatal.

The likelihood of a publication relates to not only good writing, but also to the relevance of the scientific **question** authors set out to study and to the way authors present their **findings**.

### ■ The scientific question

One of the most critical points for success in the publication of an original article is the topic and the specific question we want to answer. It should be added that, before carrying out the research, the topic to be investigated should be deeply studied to achieve expertise in the subject matter and to be certain that the investigation will add something to the discussion of the topic. In fact, that is the purpose of research: to add something to the discussion, otherwise the investigation will turn out to be waste of research<sup>7</sup>. With a view to ensuring greater acceptance by publishers, is essential to clarify why the question raised is relevant.

On the other hand, it is important to choose a topic that is relevant to patients, preferably irrespective of the outcome. It is advantageous for the researcher to invest in research the negative results of which are also important to report, thus avoiding the inconvenience of developing a research paper that proves to be useless.

### ■ The report

Presenting our findings is the aim of an original paper. The way in which this is done is crucial for the acceptance of the manuscript.

First of all, it is necessary to be enthusiastic about our research. Enthusiasm tends to be contagious, influencing the readers (and publishers and reviewers), which increases the chances of publication.

Second, as stated before, the article must be written with clarity, simplicity, objectivity, precision and consistency. These attributes are fundamental to help the reader to perceive the work developed and its importance. The reader cannot mobilize an excessive effort of interpretation, which can discourage even the best and most interested physician, and can lead the reader to consider the manuscript useless, if he or she cannot follow the ideas of the authors.

The devaluation of an important research work is a problem not only for the authors but also for their peers, patients and scientific developments. Scientific articles in medicine exist to spread science, to change or establish the approach to certain diseases, to clarify aspects of pathophysiology and so that others (or the same people) can, on the basis of the work already developed, advance science. It is impossible to know what is being investigated around the world if the investigation is not disclosed. And, in order for it to be effectively disseminated, it should be written simply and clearly.

### **IMRAD**

Despite all the above, the way to present the findings in an original article is already structured. Currently, most periodic journals only accept original articles organized according to a format known as IMRAD (Introduction, Methods, Results And Discussion). Although not part of the acronym, the Abstract, a summary of the article, which appears after the title and before the Introduction, is a mandatory section. To give an example of the most respected journals, the *New England Journal of Medicine* adopted this structure in 1975; the *BMJ* in 1980 and, finally, *JAMA* and *The Lancet* in 1985<sup>8</sup>. However, there are still some journals that have not fully adopted this format, as is the case of *Kidney International*, which places the Methods after the Discussion<sup>9</sup>. It is always worth checking the submission rules of the journal where authors want to publish.

Currently there are several tools on the internet that help authors report the results of their studies. These are authentic checklists and guidelines for publication<sup>10,11</sup>, explaining what each section of the IMRAD acronym should contain. Additionally, we have the CONSORT guidelines for the clinical trials with intervention<sup>12</sup>, STROBE and its extensions STROBE-ME and

RECORDE, for observational studies<sup>13,14</sup>, and PRISMA, which replaced QUOROM for meta-analysis and systematic reviews<sup>15</sup>.

As above-mentioned, the article will not be written in the order in which is published. Authors can start with the Methods, followed by the Introduction, tables and figures, highlighting the most significant findings of these tables and figures in the supporting text (the Results), moving to Discussion and Conclusions. Finally, the abstract will be written, as a summary of the work.

### *Introduction*

The best way to write the introduction is to divide it into 3 sections: start with a panoramic view of the subject (the so-called bird's-eye view), which evolves to a more specific question (the existing knowledge gap), culminating in the strategy and aims of the study<sup>16</sup>.

This way of ordering the Introduction is fundamental because the researcher, with the purpose of drawing attention to the theme and to the knowledge gap that motivated the study in question, transmits the key information that emphasizes the importance of the work done. All this briefly, no more than a page! After all, an original is not a review article.

The background information should be 25% of the introduction, and be accompanied by 3 to 5 references. The existing knowledge gap should convince the readers for the need of that study, should be 50% of the introduction and should cite all references related to the study. Finally, the strategy of the investigation should be 25% of the introduction and should not have any bibliographic reference.

### *Methods*

The Methods section is the heart of the article. After reading the methodology, others should be able to reproduce the study<sup>17</sup>, and reproducibility gives authority to the article. The section of the methodology article addresses all the details of the research, not only with regard to the study design and the subjects (inclusion and exclusion criteria), but also materials, exposures and outcomes, data collection, and detailed statistical analysis. Is necessary to include in this section ethical considerations (informed consent, approval by the ethics committee).

Obtaining help in the development of this section is fundamental: asking the statistician to write or approve the description of the data analysis; talking to

colleagues in the laboratory to detail how the determination of variables is made. Also, diagrams, drawings and flowcharts may be useful to use.

It should be noted that the great majority of the reasons given by the editors for article rejection are either poor study design – population choice and materials, small samples; or poor report of the methodology – statistical analysis described in an inappropriate or incomplete way and incomplete description of the population and materials<sup>17</sup>.

It is important to note that writing “methodology has already been published elsewhere” is inappropriate. It is not the reader who should go to the other article to read the methodology already described. The author should describe it, so that readers can judge the relevance and importance of the results.

### Results

Results should be reported with simplicity and clarity. It is almost obligatory for the authors to rely on pictures and figures, to which readers should be referred throughout the text, a text that contains only the main findings.

Remember, all relevant scientific articles have the ubiquitous Table 1, containing the demographic characteristics of the study population, or the handy Figure 1, with a flow diagram of the study population<sup>12,14</sup>.

Some authors defend the presentation of the results according to their relevance. Others, the presentation of the results in a chronological sequence: what was done first and what came next. We feel an article is a story, and thus we prefer the chronological sequence.

### Discussion

The discussion is the most difficult section to write. The objective is to interpret the results in the context of the current literature, assess the benefit of the investigation for the present, and to do this, an in-depth knowledge of the topic under analysis is necessary.

The discussion must be structured as follows: 1) summarize the main findings of the study (as it helps the reader to remember what he or she has already read); 2) describe and explain the limitations of the study (there are always limitations); 3) comment on and compare the results obtained with the results of other studies; 4) comment on the implications of the study, clinical relevance and its practical applications; 5) highlight

future needs and directions based on what has been discovered; 6) conclude with a concise summary of the significance of the study, its importance and clinical relevance<sup>18</sup>.

### Abstract

After all the work done, authors are ready to write the abstract, since it is a summary of all the information in the article. Although concise, the abstract is the element that can persuade the editor of a journal to publish the article or the reader to read the full text after publication. Even if an original article is excellent, if the abstract does not maintain this excellence, the publisher may not be interested in the article and may not forward it for peer review. It is therefore a key piece in the publication process<sup>19</sup>.

Its structure can follow the structure of the original article (IMRAD) or the format of the “eight titles”, as proposed by Haynes et al<sup>20</sup>. The IMRAD structure is simpler and easier to follow, provided it contains the hypotheses clearly described, the most important and interesting results clearly presented and the conclusion to highlight what the work adds to clinical practice and science.

### Title

Finally a title is chosen, which thousands probably will read. The title should be appealing, concise, specific, small and adequately describing the content of the manuscript<sup>21,22</sup>.

### References

The seriousness and ethics of this whole process are of utmost importance. Citation is fundamental to avoid plagiarism, which is also a crime. References should appear in the same order in which the citations appear in the text, or in alphabetical order of the authors cited, depending on whether a numbered style or an author-date style is used<sup>23</sup>.

Most periodical journals and academic institutions have tools to identify duplicate publication and plagiarism, such as CrossCheck (iThenticate)<sup>24</sup> or Turnitin (for teachers and students)<sup>25</sup>. Citation and referencing becomes much simpler if authors use bibliographic citation management software<sup>26-29</sup>, mitigating the drawbacks associated with the need to change the order of citation or to introduce a new reference in the middle of the references already introduced. Rearranging the references manually is sometimes an impossible task. And it should be remembered that time is rarely on the side of the writing scientist.

## CONCLUSIONS

“Answering the right question in the right population in the right way at the right time” (30, 31) is almost incompatible with daily practice.

In view of the importance of scientific work towards the clinician, the scientific community and the population in general, is mandatory to strive for the recognition of the right of each physician to have protected and privileged time for research. A research culture should be implemented, educating the young clinician and encouraging the experienced one to take the time to reflect on the findings of their research and / or clinical work.

In order to learn to write and report, clinicians should have time to read and practice. It is not enough to read original articles already published, to read books and articles on how to publish, to go to postgraduate courses of publication<sup>31</sup>; it is not enough to seek help from a tutor. The key is to practice writing and not give up at the first, the second, or even the third rejection.

Time and experience to acquire writing competencies are crucial in the process of publication.

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