Most common mistakes when writing medical original articles

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Abstract

One of the skills that is more in need to be strengthened in the medical area is the dissemination of knowledge. For this reason, it is necessary to provide elements that promote training in scientific writing. Identifying the most common problems when writing medical original articles for publication will provide useful resources that should contribute to the generation of knowledge. There are multiple reasons that intervene for an original article not to be accepted in a medical journal, among which failure to follow instructions for authors and methodological, design and structural problems stand out. However, the aspect that most influences and that is seldom pointed out, is inadequate writing of research manuscripts, which becomes evident in the different sections that make up manuscripts. All the above-mentioned factors are the responsibility of the authors, and therefore must be taken care of properly. The purpose of this article is to identify the most common mistakes when writing original medical manuscripts, which, if avoided, will increase the possibility for research papers to be accepted for publication.

KEY WORDS: Publication. Manuscripts. Rejection. Peer review. Journal article.

Errores más comunes al redactar artículos médicos originales

Resumen

Una de las habilidades que más requiere ser fortalecida en el área médica es la difusión de conocimiento, por tal motivo, es necesario brindar elementos que promuevan la capacitación en redacción científica. Identificar cuáles son los problemas más comunes al redactar artículos médicos originales para su publicación proporcionará recursos útiles que contribuyan a la generación de conocimiento. Existen diversos motivos que intervienen para que un artículo original no sea aceptado en una revista médica, entre los que destacan falta de apego a las instrucciones para autores, problemas metodológicos y de diseño, así como de estructura, sin embargo, el aspecto que más influye y pocas veces se señala, es la redacción inadecuada de los escritos de investigación, la cual se hace patente en las diferentes secciones que componen los manuscritos. Todos los factores mencionados son responsabilidad de los autores, por lo que deben ser atendidos apropiadamente. El presente escrito tiene como objetivo señalar los errores más comunes al redactar escritos médicos originales, los cuales, de ser evitados, incrementarán la posibilidad de que sus trabajos de investigación sean aceptados para su publicación.

PALABRAS CLAVE: Publicación. Manuscritos. Rechazo. Revisión por pares. Artículo de revista.

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Scientific publication is the broadest means of communication for the dissemination of findings in the medical community. The goal of any research project is, or should be, that its results can be successfully disseminated;^{1,2} however, an important part of medical writings does not get published after being submitted to specialized journals. The rejection rate in some journals reaches up to 96 %, ^{3,4} which is attributed, in part, to errors in the structure of manuscripts.⁵

Prior to submitting an article for publication, it should be considered that a study protocol based on an irrelevant research question, with poor methodological designs, lack of information, small sample values, inadequate use of statistical tests, lack of updating and scope, conflicts of interest, can be discredited by the editor from the beginning.^{6,7} A negative decision is also influenced by a lack of adherence to original articles standard model (Introduction, Methods, Results and Discussion), as well as by editorial criteria.⁸⁻¹¹ However, the main reason for rejection is associated with poor writing, which, according to editors and reviewers, predominantly impacts on the quality and presentation of manuscripts, regardless of the content or novelty of the findings reported in the study.⁹⁻¹³

Most authors write by individualized learning and through trial and error. This is because in universities there are no formal courses of writing or presentation of scientific papers for publication;¹⁴ despite these limitations, the responsibility of writing properly lies directly in the authors. The findings of an investigation should always be effectively and clearly communicated.^{10,13,15-17}

It is essential to identify the central subject of the manuscript, in order to specify the type of audience and a suitable journal for submission.¹ Many authors tend to submit their articles to journals where the scope of their work does not correspond, i.e., the conducted research is not compatible with the profile or impact of the journal. Once the journal has been identified, authors should read and adhere to editorial standards, an issue that, despite being obvious, is not always considered.^{18,19}

Owing to the need to encourage and strengthen scientific writing skills in specialists and doctors in training, the purpose of this paper is to point out the most common mistakes when writing original manuscripts to be published in specialized medical journals. Below, said errors are indicated according to the different sections that make up research articles.

Title

Writing an appropriate title is highly significant because it is the first impression of the article the editor and reviewers will have. Its importance lies in that it should immediately generate interest in the readers and identify the content of the manuscript; it is written in simple present tense. The most common mistakes in its preparation are:^{1,2,10,15,20-23}

- Too long (> 15 words) or too short titles
- Title unattractive to the reader.
- The title is not consistent with the subject and purpose of the study.
- Incomprehensible, redundant or incomplete title.
- Title with spelling mistakes.
- Use of abbreviations or acronyms.
- Wrong use of capital letters.

Abstract

The abstract contains the key elements of the research; it is the second most consulted element. Its correct preparation will attract the reader to conclude the full reading of the manuscript; it is carried out at the completion of the article to properly convey its essence. It is written using the corresponding tense for each section. The most common problems in its writing are: ^{2,9,10,16,17,21,22}

- Extension errors: it is often longer than 200 or 250 words or very short.
- Its sections do not adjust to those indicated by journals.
- It does not properly synthesize the most relevant aspects to the study.
- Fragments of different sections of the manuscript are copy-pasted.
- It contains information that is not mentioned in the rest of the article.
- It is written as an introduction or conclusion.
- Meaningless abbreviations are included.
- Citations are included in this section.

Keywords

Keywords are an important tool that optimizes the quick search for results by topics in different electronic databases such as PubMed, Web of Science or Google Scholar, among others.^{6,15} The most common mistakes are: ^{1,2,6,23,24}

- Omission of keywords.
- MeSH (Medical Subject Headings) terms are not used.

- Insufficient number of keywords (depending of the journal, from 3 to 8 are used).
- Use of the same words that were employed in the title.
- They are not related to the subject under study.
- Inappropriate use of compound words.

Introduction

The introduction defines the importance and relevance of the study and establishes its rationale by means of a critical and current bibliographic analysis, in addition to determining the purpose of the research.^{2,18} It should be written in present tense for currently accepted findings and in past tense to describe previously used methods in other articles and for statements that are no longer considered true.²¹ Most common errors in its drafting are:^{2,15,17,18}

- Extension problems, exceeding 15 % of the article.
- Not clearly defining the importance of the research, or its context in the international and local fields.
- Not citing sources used in the development of the introduction.
- Informal, subjective writing, with grammar problems and detached from the title and objective.
- Use of unnecessary, insufficient or inadequate citations for the subject under study.
- Use of unofficial, improvised abbreviations or do not define them.
- The objective of the research is not indicated.

Methods

The method section represents the experimental foundation of the manuscript,¹ since it describe the process by means of which the research was conducted, provides information and specific details for the study be reproduced under the same working conditions.¹⁸ Its writing is always in simple past tense.^{21,22} Errors that are often observed in its drafting originate since the conceptualization of the study design; these errors are:^{2,9,10,15,16,20,23}

- The type of study is not indicated.
- Wrong choice of study type to answer the research question.
- The period, place and dates of the study are omitted.
- Lack of description of sample size, type of sampling and variables.

- Omission of the selection criteria (inclusion, exclusion and censoring)
- Approval by the ethics committee or signature of the informed consent are not indicated,.
- Instruments are used that are not validated for the study population.
- The variables measured by the applied instruments are not adequately described, and neither are their cutoff points.
- The use and relevance of the statistical tests used or their significance is not properly indicated,
- The guidelines or manuals used to refer clinical parameters are not mentioned.
- Obsolete instruments, classifications or clinical parameters are indicated.
- Lack of controls or other measurements of bias.

Results

The results section specifically highlights the study findings, always taking as a guide the purpose of the work, and it should not contain interpretations or personal comments. Articles with deficiencies in the results section generate multiple inconveniences, which diminish the impact of the research paper.²⁵ It is appropriate for the results to be drafted in past tense, although, exceptionally, the present tense can be used.^{21,26} The most common mistakes found in this section are:^{10,15,16}

- The results are not related to the objective of the work.
- Statistical procedures and tests not mentioned in the methods section are described.
- Statistical tests are incorrectly used.
- Tables, graphs or figures are not justified in the text.
- Repeats the same information in the text, tables and figures.
- Absolute numbers reported are not accompanied by percentages.
- There are missing data and values in tables that when added do not correspond to the total result.
- There is discontinuity of results with regard to how they were presented in the methods section.
- Data or parameters are presented without units of measurement.
- Citations are incorporated.

Discussion

Depending on the journal, the conclusion and discussion may be contained in the same section,

whereas, sometimes, a clear division between both is required.⁶ The discussion contextualizes the most relevant research findings in relation to current international literature; in it, the author objectively expresses the interpretation of the results, in order to answer the research question.^{9,10} Its writing should be in past tense to refer to methods or results and in present tense to express the analysis and interpretation of the obtained results.^{21,26} Below, the most frequent errors are mentioned:^{9,10,16,23}

- Not explaining how the obtained results contribute to the strengthening of medical discipline, or not mentioning the advantages of their applicability.
- Tables, graphs or figures are not duly discussed.
- The results are overrated.
- Only the results of other investigations are extensively described.
- Works with little relation to the addressed subject are compared.
- Statistical findings are indicated without a significant support endorsing them.
- Findings are referred that were not addressed in the methods and results sections.
- The most significant findings are belittled or incorrectly interpreted.
- Subjective or partial opinions are included (bias).
- Insufficient and outdated references are used (using references not older than five years is recommended).
- The scope and limitations of the study are not mentioned.

Conclusion

The conclusion should contain the most relevant research findings and their contribution to current knowledge, propose future lines of research and focus on the objective of the study.^{6,16,23} It is correct to write the most relevant findings in present tense and in future tense when suggesting new investigations.^{21,26} The most common mistakes in this section are:^{2,6,15,16,23}

- Too extensive or too brief conclusions.
- Generalities on aspects related to the work are described.
- The reflections do not focus on the study objectives and results.
- Subjective judgments are made on the contribution of the research.

- The most relevant findings of the study are not emphasized.
- A summary of the entire article is made.
- A brief proposal that attenuates the analyzed problems is not presented.

References

The purpose of the references section is to provide a list of current and international sources of information related to the manuscript and that provide scientific support to the presented content.⁶ The largest number of errors are detected in this section, because the authors do not put emphasis on its preparation.²³ The most common problems in its development are the following:^{2,9,10,12,15,23,27}

- They are cited in a different format than that indicated by the journal or use various citation styles.
- An insufficient or excessive number of references is used for an article.
- Works not related to the study subject are cited.
- Outdated references (> 5 years) are used.
- Summaries or works without scientific support are cited.
- Lack of numbering, messy presentation and lack of correlation of citations in the text and the references section.
- Non-existent references are indicated.
- Incomplete references.

Graphic resources

Tables, images, charts, graphs and algorithms included in articles are illustrative elements that facilitate the reading and understanding of the manuscript.¹⁶ They are useful for organizing, synthesizing, comparing and schematizing the results.²⁷ The most common mistakes in these resources are:^{2,16,20,27}

- Reference to non-existent tables, charts or figures.
- Excessive or deficient use of graphic resources (the journal can indicate the maximum number of them).
- Omission of titles and explanatory notes that define the graphic resources.
- They do not maintain a correct number sequence.
- Submission of images and tables in inadequate electronic formats or with poor resolution (standard

parameters are 300 dots per inch (DPI) and depending on the figure or image, minimum dimensions are 12 cm).

- Use of photographs of patients without their informed consent.
- Use of graphic resources that were not explained or justified in the manuscript.
- Not indicating what the “X” and “Y” axes correspond to or incorrect values are referred in these axes.

General considerations

It is necessary mentioning that there are inadequate behaviors related to authors' ethics, such as copy-pasting of information and plagiarism. In recent years, a larger number of manuscripts has been observed where plagiarism has been detected at different levels.^{28,29} Plagiarism represents serious ethical and academic misconduct in research and is more common than estimated.²⁹⁻³² It is defined as the act of using published or unpublished ideas or words from people or working groups, as well as the use of other intellectual property and presenting them as original works.^{29,33-35} It can range from sentences or short paragraphs up to full texts.³⁰ Its mention is important since it also represents a cause of rejection of articles.

When submitting an article for publication, the following should be avoided at all times:^{9,10,12,29,36-40}

- Plagiarism or self-plagiarism.
- Resubmitting previously rejected articles to the same journal.
- Simultaneously submitting the same article to several journals.
- Lack of information on author affiliations, author for correspondence, authors full names and contribution, conflict of interests or granted support disclosure.
- Ignoring all documents requested by journals for the article be duly registered, such as a cover letter, ethics and research committees registration, conflict of interests disclosure letter or transfer of rights letter, among others.

Conclusions

Due to the limited academic training in terms of scientific writing in medical schools different curricula and in the medical field, it is necessary to strengthen and systematize the key aspects in the generation and dissemination of knowledge; the production of medical

documents is a rewarding activity; however, it is also arduous and complex, and thus it requires a high level of commitment by all authors. The writing errors occurring in the different sections that make up original medical manuscripts represent a common cause of rejection, and thus they need to be taken care of and be avoided prior to submitting an article to a specialized journal.

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