





# Mastering the Art of First Impressions: Tips to Write a Title, Abstract, and Keywords for a Medical Manuscript

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## Abstract

### Keywords

- ▶ abstract
- ▶ article
- ▶ journal
- ▶ keyword
- ▶ manuscript
- ▶ research
- ▶ title

Formulating the title and abstract of a manuscript is crucial to convey the essence of the research paper to the reader at a superficial glance. The title should be short and crisp, yet it should define critical information about the paper, such as the disease highlighted, any intervention studied, or the primary outcome. A structured abstract is required in most journals for an original research article, conveying a summary of the research. The keywords used in the title and abstract also play a vital role in the article's discoverability on various search engines, thereby increasing the overall reach and impact of the article. In this article, we highlight a few key points to consider while drafting the title and abstract of a medical manuscript.

## Introduction

In the career of every medical professional, the number of publications significantly impacts the course of their professional journey. This is especially true for the faculty in the medical institutions for promotion.<sup>1–4</sup> Publications may help influence clinical practice and health care policy, play a vital role in recognition among peers, and open opportunities for collaboration with other medical professionals.

The title and abstract of any manuscript are of great importance as they are the first point of engagement for the readers. By looking at the title, one may decide whether to read the article. The title must succinctly convey the essence of the research paper to the readers in such a way as to capture their interest without misleading them. A well-crafted title will not only highlight the key features of the

paper but also contain specific key or focus words that aid in its discoverability in search engines.

The abstract briefly summarizes the research and gives an overview of the study's aims and objectives, methodology, results, and conclusions. In the field of radiology, where there is an overwhelming amount of research happening in the present day, a well-written abstract may determine whether the full text of the manuscript is read and eventually cited. The abstract often decides whether the research paper is included in systematic reviews and meta-analyses, thereby impacting its overall influence.

## The Title

Since the title of the article is the first point of contact with any reader, it needs to be objective and should provoke the interest of the reader. It should be simple and easily

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understood. Abbreviations may be avoided, though some frequently used abbreviations in day-to-day work may be permitted—such as MRI (magnetic resonance imaging). It should accurately and crisply convey the content of the paper without misleading the reader. Some journals require the type of study (e.g., randomized control study, cross-sectional study, case-control study) to be included in the title.<sup>5</sup>

Some key points to consider while formulating the title of a manuscript include:

### Clarity

The title should clearly and concisely convey the primary subject matter of the research paper. The title should not exaggerate or sensationalize the topic; however, a catchy title may engage the readers to read the abstract and full text of the manuscript.

### Key Components

The title can mention certain information—such as the type of study performed, the population group studied, any specific intervention or exposure studied, or the study's primary outcome. This provides a basic understanding of the research paper to the reader. This is so that some relevant information is provided to the reader at first glance and not just a clever title. Numerical data (such as sample size and study period) need not be included in the title unless it is deemed essential.<sup>6</sup>

### Length of Title

An extremely lengthy title may seem unfocused, whereas an extremely short title may not adequately convey the theme of the research paper. A middle ground has to be sought. Some journals may have a word limit for the title of a manuscript. A length of 10 to 15 words would be a good target to keep for the title.<sup>2,5</sup>

### Key/Focus Word

Incorporating certain keywords into the title is important not only to provide the reader with information about the contents of the article but also to increase the visibility of the article on various search engines. Electronic databases and Web search engines search for such words in the title and abstract to retrieve a particular paper during a Web search. The arrangement of these words is also crucial, as some search engines, such as Google, only display the first seven words of the title.<sup>2,7,8</sup>

### Avoidance of Redundant Statements or Words

It is recommended to avoid unnecessary words, which may add to the clutter and not provide any significant meaning to the title. Instead, focus can be placed on the unique aspects of the research paper. Avoid asking a query or using an interrogative style of writing—a study has shown that articles with a query in the title tend to have more views but fewer citations.<sup>9</sup>

### Journal Requirements

The authors should be attentive to following the guidelines specific to the journals. If there are any deviations, they must

be mentioned to the editor in the cover letter with justification. The requirements may differ regarding the length of the title and the inclusion of specific data in the title, such as the type of study performed.

### Ethical

Use nonbiased language, and avoid any discriminatory or inappropriate language. The title should be respectful to the population group studied.

## The Abstract

After the paper's title, the abstract is the most read section of the research paper. The editor of a journal may make a decision on a paper based on the abstract. The reviewers' invitation may have a copy of the abstract for a quick look. For the readers, the abstract may decide if a reader gives the article a read or a pass. The abstract is a synopsis of the research paper and needs to be simple, concise, unbiased, and balanced. The abstract should be clear to the reader. Most medical journals require a structured abstract for original articles.

A few key points to consider while writing the abstract include the following.

### Purpose

The purpose and importance of the study should be apparent to anyone reading the abstract. It should explain any potential knowledge gap it aims to fill and bring attention to any novel or unique aspect of the study. The abstract should be consistent with the key message of the paper.<sup>5,7,10</sup>

### Structure

Most medical journals require the submission of a structured abstract, especially for an original article (→Table 1). The structural pattern among the journals has more similarities than differences.

A commonly used format for a structured abstract is the Introduction, Methods, Results, and Discussion (IMRAD) format, which includes<sup>5,11,12</sup>:

*Introduction/Background:* A brief line about the issue or problem addressed by the study.

*Methods:* Briefly summarize the study design, setting of the study, the study population, interventions, and the methods of data collection.

*Results:* Highlight the key findings, including those of statistical significance.

*Conclusion:* A few sentences to highlight the implications and potential applications of the study's findings, as well as the scope for future research (The IMRAD format includes Discussion instead of Conclusion).

It is essential to follow the instructions to authors if they are present, including format, word limit, font size, and subheadings. If the manuscript is a resubmission, one should ensure that the appropriate modifications per the new journal are done.

**Table 1** A list of the different components of a structured abstract, with a brief description of each component

Components of a structured abstract	Brief description
1. Introduction/Background	A few sentences on what is already known about the topic of interest and why the study was conducted. It can state the known facts about the topic, and the scientific lacunae, and highlight the need for the study to be undertaken
2. Aims and Objectives	In this section, the primary and secondary outcomes which were studied need to be mentioned. It should be to the point
3. Methods and Methodology	This section explains to the reader how exactly the study was performed. Key points that need to be mentioned include the study design, study setting, sample size calculation, sampling methods, any intervention done, and the duration of the study
4. Results	The results of the primary objective and, if necessary, the secondary objectives require mention. The total study population and any adverse effects, if any, require mention
5. Conclusion	The final take-home message can be mentioned here. It can be explained how the study helped solve a research question, as well as potential applications in the future. The author may also present their perspective in this section

**Brevity**

Abstracts are usually limited to under 250 to 300 words. It is essential to convey the necessary details. Irrelevant background information and minor findings may be omitted. Anonymity is to be maintained, such as where the study was conducted. An error like this may result in a rejection from journals with a high rejection rate. Unnecessary details should be avoided.

**Clarity**

The abstract plays a crucial role in whether a research paper is considered for publication in a journal. Many times, the reviewers are only provided with the abstract before they agree to review the entire manuscript. Hence, clarity of the abstract is of great importance. It should be in simple language, direct, and unbiased. Redundant statements should be avoided. While the title may be catchy and intriguing, the abstract must be impartial and state facts.

**Key/Focus Word**

As in the case of the manuscript's title, the abstract's content also plays a vital role in the manuscript's discoverability. Web search engines and databases search for certain keywords in the abstract in addition to the title of the abstract. Incorporating such words that are likely to be used by other medical

professionals for studies in a similar field will aid in its discoverability and the number of citations. These words should be specific to the paper; listing vague or general terms is not advisable.<sup>13</sup>

**Writing Style**

The tone of the abstract should be formal, and the sentences should be scientifically accurate. There should not be any sensational sentences in the abstract. Proper grammar and punctuation are essential. Poor grammar may also give the impression that the quality of research is poor.<sup>14</sup> As a general rule, active voice (e.g., "He conducted a survey") is preferred over passive voice (e.g., "A survey was conducted by him").

**Journal Guidelines**

Many journals will have a specific set of guidelines for submission of the abstract. This may include a word limit, format, and subheadings, among others (–Table 2). It is necessary to adhere to the guidelines for that specific journal.

**Getting a Second Opinion**

A good trick may be to show the abstract to a coinvestigator or a supervisor for feedback, followed by showing the abstract to an individual who has no knowledge about the subject of interest. This practice can help identify mistakes that may have been overlooked.<sup>14</sup>

**Table 2** A list of a few prominent journals in the field of radiology with their specifications for abstract writing for an original research article

Journal name	Format of abstract	Word limit	Subheadings
<i>Indian Journal of Radiology and Imaging</i> <sup>17</sup>	Structured	250	Context (background), aims, settings and design, methods and material, statistical analysis used, results and conclusions
<i>Radiology</i> <sup>18</sup>	Structured	300	Background, purpose, materials and methods, results, conclusion
<i>American Journal of Roentgenology</i> <sup>19</sup>	Structured	350	Background, objective, methods, results, conclusion, and clinical impact

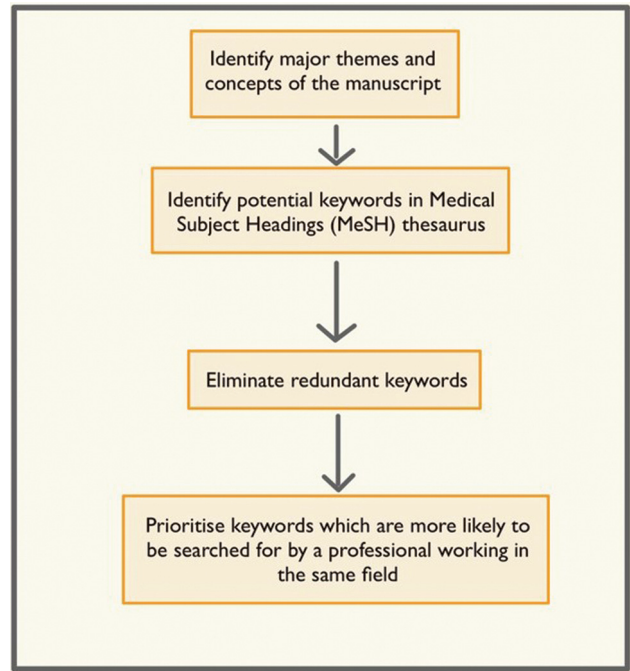
Common mistakes in writing an abstract include providing either too much or not enough background information, using the same sentence for the first line of the abstract and introduction, making claims that are not backed in the paper, using terms that are either too technical or too generic, and using abbreviations or jargon which are not common knowledge.<sup>15</sup> A simplified flowchart that can be followed is shown in ►Fig. 1. The use of online tools such as Grammarly and QuillBot may help in refining the language used, eliminating basic grammar mistakes and punctuation errors, and making the manuscript presentable.

**Keywords**

Following the end of the abstract, 3 to 10 keywords are provided so that various search engines can identify and retrieve the paper. These keywords are obtained through the Medical Subject Headings (MeSH) list of Index Medicus.<sup>16</sup> These keywords should be different from the words used in the title. The keywords can comprise the same words or variations of words used frequently in the main body of the manuscript.<sup>2</sup> A good keyword should be specific to the paper and a familiar term used by those within the field<sup>13</sup> (►Fig. 2).

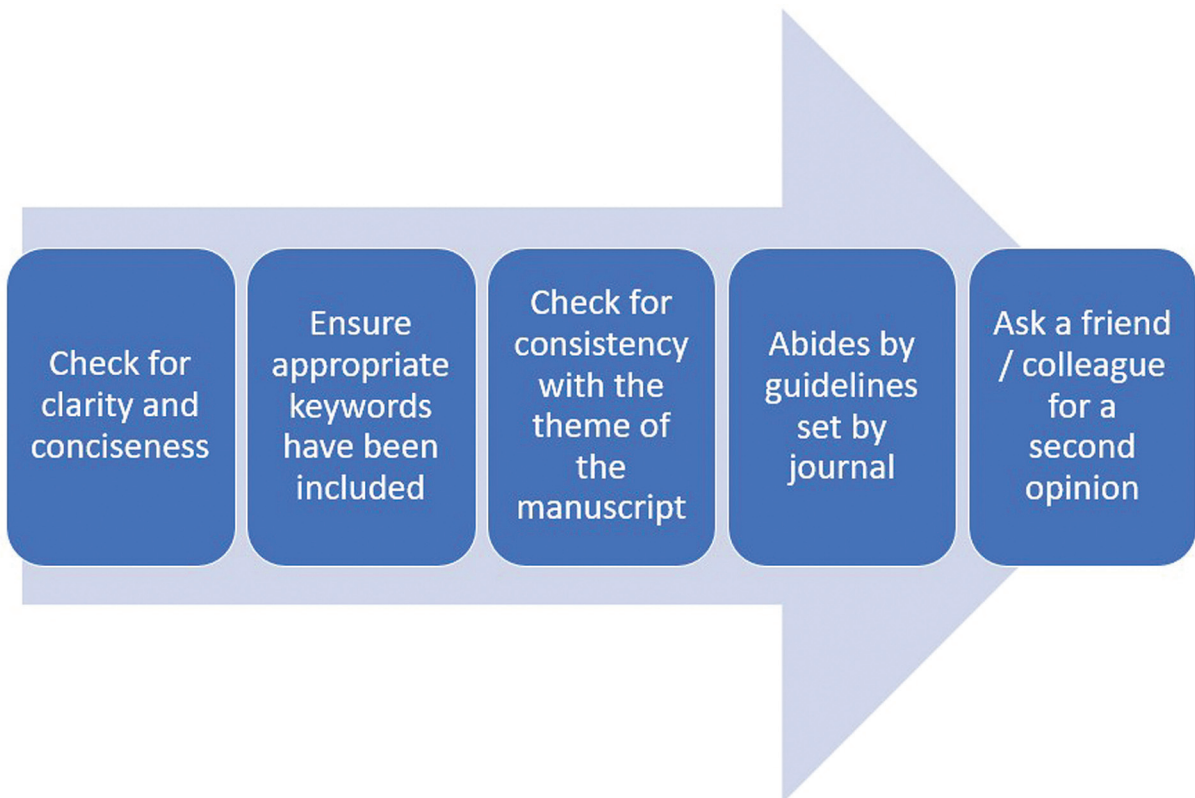
**Conclusion**

The title and abstract of any medical research paper, especially in the field of radiology, are of vital importance. These

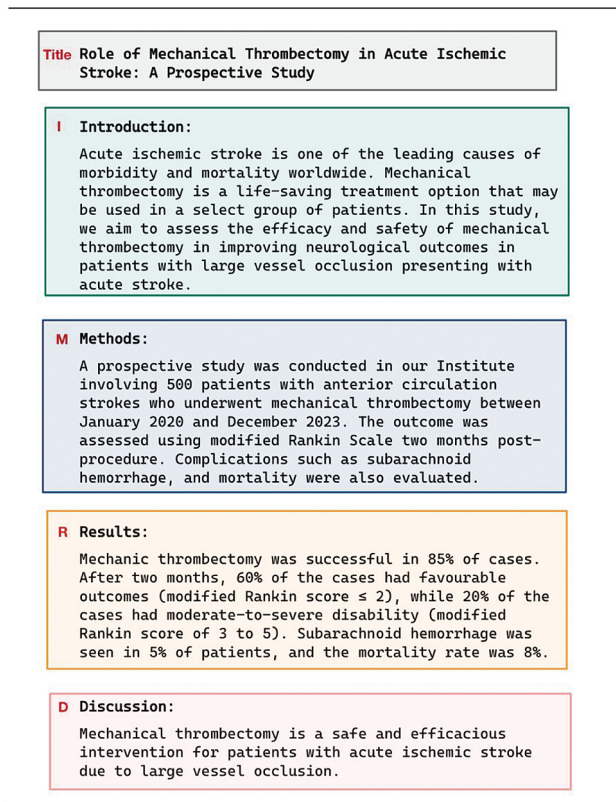


**Fig. 2** This flowchart depicts important factors to consider when creating a list of keywords for a medical manuscript.

play a crucial role in the consideration for publication in a journal, as in many instances, reviewers and editors decide based solely on the title and the article’s abstract. The title and abstract are also the first point of engagement with the



**Fig. 1** A flowchart demonstrating a structured checklist for drafting an abstract for a medical manuscript.



**Fig. 3** A sample abstract structured according to the Introduction, Methods, Results, and Discussion (IMRAD) format is presented.

reader and must invoke the reader's interest to review the entire manuscript.

The title must highlight the essence of the research and, at the same time, catch the reader's interest in a journal. The abstract must concisely summarize the key aspects of the study and provide a brief statement of the study's objectives, methodology, results, and conclusions. A concise and informative abstract can significantly influence whether the entire manuscript is read and eventually cited. The inclusion of specific keywords aids in its overall reach and influence, as well as its inclusion in various meta-analyses and systematic reviews. An example of an abstract drafted as per the IMRAD format is depicted in **Fig. 3**.

Finally, it is essential to remember that every reviewer may not appreciate even the best research paper, and another journal may be more appreciative. Reviewers may be looking for a particular theme. If an abstract is rejected, it is worthwhile trying with another journal.<sup>14</sup>

**Conflict of Interest**

None declared.

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