

Chapter-15

Choosing the Right Title and Keywords for a Scientific Article

Mukhtiar Baig

What a title is

“Getting published is good, but ideally one’s article should also be read.”¹

In selecting a title for a manuscript, several questions come to a scholar’s mind. What should be the method for selecting an appropriate title; should it be fancy? What do editors look for? What do reviewers look for? What do readers look for? How do researchers search for articles? How does a title impact the citation of a research paper? These and several similar questions are related to the choice of the title of a study.

Haggan (2004) writes, “The title plays an important role as the first point of contact between writer and potential reader and may decide whether or not the paper is read.”²

Title writing is considered the easiest part of manuscript writing and is mostly done without deep thinking. Some writers select the title from the manuscript while others decide about the title before the manuscript. Titles play an imperative role in the citations and download of an article. Usually, the title of a study is read by thousands of people, but only a few of them read the research article. The title of the article attracts the readers’ attentions, and its importance cannot be ignored.

The titles of scientific studies should also not include catchy phrases or non-specific language as such words and phrases are broad-spectrum, unfocused and do not deliver more information regarding the research subject. It is the title of a research

article that creates the first impression in the prospective reader's mind. On different search engines, the researchers routinely do title skimming; and by flicking at the title ascertain its appropriateness and significance.

Literature advises that a title could include commas, parentheses, and quotation marks, but slashes (/) and semicolons (;) should never be used.³

Robert A. Day in his popular book "How to Write and Publish a Scientific Paper" defines the title as "fewest possible words that adequately describe the content of the paper." A title should be concise, specific, informative and contain key points.⁴

"Titles that are too short because they include general rather than specific terms."⁴ A title should not be too short because it would not be able to communicate the real idea of a study to the reader. Short titles are non-specific and unfocused. A good title should provide clear information about the focus of the study.

Examples of short titles are:

"Effects of levothyroxine on bone " (too general)

"Pancreas Divisum" (unfocused and too general)

A good title should be brief but descriptive enough to encompass all the keywords that describe the research idea or the content of the manuscript. It attracts both the readers and search engines. For example, the title, "Insensitivity of leptin receptors in obese mice," is a better version of "Leptin receptors in obesity." The former encompasses the scope of the study better than the latter.

Generally, the use of acronyms in titles should be avoided, however, the use of well-known acronyms such as WHO, DNA, TSH in a title aids in the cataloguing of the title by search engine indexes. Nevertheless, it is better not to use abbreviations in titles.^{4,5}

Few examples of titles

Avoid: Heroin use and suicide (it's too general)

Use: Heroin use and suicide among young men in Lahore, Pakistan.

Avoid: Dietary habits and obesity (it's too general)

Use: Dietary habits among university students in Karachi, Pakistan.

Avoid: Diabetes mellitus causes sexual dysfunction

Use: Sexual dysfunction among type 2 diabetes mellitus male patients.

Purpose of a Title

In this era of digital libraries and online search engines, the importance of good titles and appropriate keywords is more emphasised. However, poor quality titles are still common in published literature.⁶

The title of an article serves various purposes. Firstly, it is the introduction of a research study. Secondly, it creates interest in readers' minds; the reader decides whether to read abstract/full text or not from the title. Thirdly, a title supplies keywords to the indexing services and helps in the retrieval of the article.⁷

In literature, there is no "structured method" for title writing. However, there are several manuals (AMA manual is the most important), editorials, articles and blog pages regarding the selection of an appropriate title available. A reader expects a good title to reveal the objective and approach of the research work.

Types of Title

Of the different types of titles, there are three broad ones.^{8,9}

1. Declarative title
2. Descriptive or neutral title
3. Interrogative (question) titles

1. ***Declarative title:*** These titles describe the main conclusion of the research article, e.g., "Leptin rapidly improves glucose homeostasis in obese mice by increasing hypothalamic insulin sensitivity."

A declarative title is the most recommended type for scholarly communication and academic writing, but it is impossible for every research article to have a declarative title.

2. **Descriptive or neutral titles:** This type of title explicates the theme/content of the research article and does not disclose the conclusion of the study, e.g., “Association of glycosylated haemoglobin and lipid profile in patients with type 2 diabetes mellitus.”

The descriptive title is a very common type of title.

3. **Interrogative (question) title:** This type of title shows the topic of the article in a question form that appeals to the curiosity of readers, e.g., “Do triple test results predict risk for neonatal hyperbilirubinemia?” (this type of title gives the impression that it is a review article).

Interrogative titles are not generally recommended; they are more suitable for review articles, commentaries, and opinions.¹⁰

E.g., “Statins and vitamin D: an end to the controversy?”

Structurally, research paper titles are categorized as:⁹

1. Nominal 2. Compound 3. Full-sentence titles.

1. **Nominal Title:** It depicts the general basis of the research.
2. **Compound Title** (“hanging title”): It has a subtitle that gives additional information related to the research (e.g., background, research design).
3. **Full-sentence Title:** It is the longest type, and it includes more information about the results (e.g., emphasis on a significant result).

An unsuitable title conceals a research article under the enormous literature published globally, and it becomes difficult for a potential reader to find the article. The article may also be overlooked when found, and this considerably lessens the effect of the article on the intended audience.¹¹

Subtitles:

Several authors use subtitles, but there are few rules for the use of subtitles. The most important rule is that a subtitle should not contain the key elements of the study. Too many details should be avoided in subtitles, and they should complement the title. A subtitle should magnify the title; however, the main title

should also be able to stand-alone. Subtitles also enhance the visibility of an article.¹²

E.g. “Honey-impregnated dressing for treating diabetic foot ulcer: a randomized, controlled clinical trial”.

Avoid: “Neutrophil Lymphocyte Ratio: A prognostic marker in acute ST elevation in Myocardial Infarction”

Use: Neutrophil Lymphocyte Ratio is a prognostic marker in acute ST elevation in Myocardial Infarction.

Avoid: “Invasive ductal carcinoma: Correlation of immunophenotypic features with age”

Better: Correlation of immunophenotypic features with age in invasive ductal carcinoma.

Waste words in a Title

There are words and phrases commonly used in titles of articles that do not help in the indexing of the article; they are known as waste words. An opening “A”, “An”, “The” is known as “waste” words. Phrases that also act as waste words include “effects of”, “use of”, “role of”, “observation on”, “study on”, “A review of the....” “A study to investigate the...” etc. The use of these words and phrases is unnecessary and not useful for indexing purposes.^{4,12}

Avoid: “A study on the prevalence of iodine deficiency and assessment of thyroid function test in representative Gilgiti population”

Better: “Prevalence of iodine deficiency, and assessment of thyroid function test in Gilgiti population”

Avoid: “A rapid decline in serum oestradiol concentrations around the mid-luteal phase had no adverse effect on outcome in 763 assisted reproduction cycles.”

Better: Declining effects of serum oestradiol concentrations during mid-luteal phase in assisted reproductive cycles.

The use of “effects of” is, however, appropriate in randomized controlled trials where there is a need to show causality or relationship.

E.g., “Effect of vitamin D replacement on indexes of insulin resistance in overweight elderly individuals: a randomized controlled trial”

Importance of Syntax (word order)

The syntax (word order) of a title is very important in communicating the idea of an article to readers. Sometimes the use of wrong orders confuses the reader’s mind.⁴

Two types of imprecision are commonly found in the titles of articles; they are scientific and linguistic imprecision. An interesting study found 55 scientific and 30 linguistic imprecisions on analyzing the titles of 50 published articles; only 10% of articles were free from both imprecisions.¹³

Robert A. Day gave a few examples of incorrect syntax that are stated below.⁴

“Mechanism of Suppression of Non-transmissible Pneumonia in Mice Induced by Newcastle Disease Virus.” (This suggests that pneumonia rather than the mice were induced.)

The above title should read:

“Mechanism of Suppression of Nontransmissible Pneumonia Induced in Mice by Newcastle Disease Virus.”

“Isolation of Antigens from Monkeys Using Complement-Fixation Techniques.” (This suggests that monkeys are smart enough to use Complement-Fixation Techniques.)

The above title should read:

“Isolation of Antigens by Using Complement-Fixation Techniques from Monkeys.”

A native speaker or a person proficient in the English language should check a title of an article to avoid incorrect syntax.

Titles should also not include confirmatory statements such as “Smoking causes cancer,” “Leptin decreases body weight,” “Obesity causes myocardial infarction,” etc. Sometimes these statements are annoying to the veteran readers. Moreover, there is nothing absolute in science.

Title writing Do's and Don'ts

Title writing Do's

1. Be succinct
2. Be focused
3. Be Relevant
4. Reflect your objective/study design
5. Write at the end after completing the manuscript's all sections

Title writing Don'ts

1. Use of broad titles
2. Use of very short titles
3. Omitting important components
4. Use of unnecessary details
5. Putting question marks
6. Use of waste words
7. Use of confirmatory statements

Impact of title characteristics

Title characteristics (such as length, colon, country name, research design, etc.) invariably influence research articles' impact.¹⁴ Literature advocates that the use of a colon in the title of an article upsurges its chances of being found by researchers.¹⁵ The length of the title of an article has also been positively related with the number of citations.³ Furthermore, a study regarding publication metrics reported that articles with concise titles, specifically those representing results, had higher numbers of views and citations.¹⁶

Interesting results reported by a study showed higher viewing and more citation for short-titled articles than long-titled ones. The report also showed lower citations for titles with question marks, reference to a particular place, and a hyphen or a colon. Articles with titles that contained result description got more citation than those that contained method description according to Paiva et al.'s report.¹⁷

Another study described contrasting results. Jacques and Sebire (2010), regarding the impact of articles titles on citations, stated a relationship between the number of citations and the length of the title and whether the title contains a colon or an acronym. Reference to a specific country in the title also resulted in poor citation.¹⁸

The studies mentioned above and several other studies results have a discrepancy about the influence of title characteristics on downloads and citations. However, efforts should be made to ensure that the title of a research paper reflects the content of the study. It is, therefore, obligatory for researchers and scholars to understand the basic requirement of a title to avoid rejection of research papers by editors and adverse comments by reviewers.

Keywords : “A keyword is a key to information.”¹⁹

Almost all the medical journals require authors to submit three or more keywords at the end of the abstract. Usually, keywords represent the key ideas presented in the article. Several journals classify articles with keywords. Keywords also aid in selecting peer reviewers and the finding of pertinent papers by the journal indexer and database search engines. However, several journals use Medical Subject Headings (MeSH) for indexing the journal articles

Example: Manuscript title: Dietary habits, lifestyle pattern and obesity among young Saudi university students

Poor keywords: diets, lifestyle, Saudi students,

Better keywords: Dietary habits, Lifestyle pattern, Obesity, TV watching, Lipid profile, University students, Saudi Arabia

How should we pick keywords?

Keywords come from the variables of a study, particular regions, specific phenomena or issues, experimental material and techniques, and potential applications.¹⁹ If an article comes high in the search result list on search engines like PubMed or Google Scholar, then there are more chances that it would be read and cited. The chances of an article being found by readers are increased by the use of an appropriate title, well-constructed abstract and proper keywords.

Tip for selecting keywords

The simplest formula for selecting appropriate keywords is to think from the reader's point of view. What keywords would a potential reader use to retrieve a specific article? This point will help scholars in selecting appropriate keywords. To make this point clearer, a scholar should assume the position of a reader searching for the article and predict keywords. The predicted keywords should find the article on search engines. The right keywords will make finding the article easier for the potential reader.⁶

REFERENCES

1. Haslam N, Ban L, Kaufmann L. What makes an article influential? Predicting impact in social and personality psychology. *Scientometrics*. 2008;76:169-85.
2. Haggan, M. Research paper titles in literature, linguistics and science: Dimensions of attraction. *J Pragmatics* 2004;36:293-317.
3. Kumar MJ. Editorial Commentry, *IETE Technical Review*, 2013;30:5:361-363.
<http://dx.doi.org/10.4103/0256-4602.123113>.
4. Day RA. *How to write and publish a scientific paper*. Fifth edition. Oryx Press, 1998.
5. Kulkarni S. 3 Basic tips on writing a good research paper title. 2013 available at: <https://www.editage.com/insights/3-basic-tips-on-writing-a-good-research-paper-title>.
6. Mack CA. How to write a good scientific paper: title, abstract, and keywords. *Journal of Micro/Nanolithography, MEMS, and MOEMS* 2012;11:020101.
7. Morgan PP, Baker G. Writing the right title. *Can Med Assoc J* 1984;131:1180.
8. Jamali HR, Nikzad M. Article title type and its relation with the number of downloads and citations, *Scientometrics* 2011;88:653-661.
9. Bavdekar SB. Formulating the right title for a research article. *J Assoc Phys India*. 2016;64:53-56.

10. Gustavii, B. *How to Write and Illustrate Scientific Papers* (2nd ed.). Cambridge: Cambridge University Press. 2008.
11. Fox CW, Burns CS. The relationship between manuscript title structure and success: Editorial decisions and citation performance for an ecological journal. *Ecol Evolution*. 2015;5:1970-80.
12. American Medical Association. *AMA Manual of Style*, 10th edn. Oxford: Oxford University Press, 2007.
13. Singh S, Suvirya S, Chaudhary R. Scientific and linguistic precision in titles of papers published as original articles in *Indian Journal of Dermatology, Venereology and Leprology*. *Indian J Dermatol Venereol Leprol*. 2008;74:668-69.
14. Wang Y, Bai Y. A corpus-based syntactic study of medical research article titles. *System*, 2007;35,388-399. doi:10.1016/j.system.2007.01.005.
15. Falagas ME, Zarkali A, Karageorgopoulos DE. The impact of article length on the number of future citations: A bibliometric analysis of general medicine journals. *PLoS One*. 2013;8: e49476.
16. Gavino A, Ho BL, Wee PA. Information-seeking trends of medical professionals and students from middle- income countries: A focus on the Philippines. *Health Information and Libraries Journal* 2013;30:303-17.
17. Paiva CE, da Silveira Nogueira Lima JP, Paiva BS. Articles with short titles describing the results are cited more often. *Clinics*. 2012;67:509-513.
18. Jacques TS, Sebire NJ. The impact of article titles on citation hits: an analysis of general and specialist medical journals. *JRSM Short Reports*. 2010;1:1-5.
19. Joshi Y. Why do journals ask for keywords? 2014. Available at: <https://www.editage.com/insights/why-do-journals-ask-for-keywords>

1. Mukhtiar Baig, MBBS, MPhil, Ph.D., MHPE
Professor of Clinical Biochemistry/Medical Educationist,
Faculty of Medicine, Rabigh,
King Abdulaziz University,
Jeddah, Saudi Arabia.
E-mail: drmukhtiarbaig@yahoo.com