

ART OF WRITING

Writing an Abstract for a Research Manuscript: Providing an Honest, Succinct and Complete Summary

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Abstract

Abstract is a vital part of a research paper. Besides the title, it is the most widely read section of an article. The first impressions created by the abstract on editors and reviewers can have a great influence on the fate of the article. After its publication, a reader might decide to give the article a miss, if he finds the information provided in the abstract uninteresting, irrelevant or uninspiring. An abstract should, therefore, be packed with all important relevant information about the study, so that reviewers and readers understand the rationale of the study, are assured of adequacy of the methodology employed, are informed about the important findings and appreciate the reasonable conclusions stated in the abstract. Brevity, self-sufficiency, providing complete and accurate information in an unbiased manner are some of the important characteristics of a good abstract.

Introduction

An abstract is a summary of a full article. Annesley¹ has rightly compared abstract to an 'elevator talk', wherein an author summarizes the important information the paper conveys with an aim of getting the reader interested in the idea, enticing him to read the whole manuscript. It is, therefore imperative that authors give great attention to writing a good abstract for their paper. The importance of an abstract cannot be over-emphasized. After the title, it is the most commonly read part of a manuscript.¹ Once a manuscript is submitted to a journal for consideration for publication, editors read the abstract to check if the article is likely to meet the preliminary criteria for processing it further. On the basis of the first impressions made by the title and

the abstract, they try to determine if the article would be of interest and relevance to the journal's readership. If they decide to send it for peer review, the prospective reviewers are generally provided access only to the abstract before they agree to review the whole paper. Abstract is the only part of the article that readers get to see when they search through electronic databases² and several journal websites allow the non-subscribers access to the abstract alone.¹ Once published, most readers decide to read the paper only if they find the abstract interesting or stimulating. Here, an abstract acts as a trailer.³ If readers are unimpressed by the information contained in the

abstract, they might perceive the study to be weak and simply move on to the next paper.¹ Although various types of articles (reviews, case reports, opinion article, etc.) have abstracts, this article will discuss abstracts in the context of research articles.

Types of Abstracts

Abstracts can be descriptive or informational.¹ The descriptive abstracts only portray what the paper contains without providing any details. The reader is required to read the entire article to know what the article really contains. Such abstracts are usually ultra-short (75-150 words) and are rarely used for original research articles. They are more commonly seen with Case Reports, reviews and opinion articles; articles that do not contain original research data.¹ In contrast, informational abstracts intend to provide a gist of what the research article contains and are, therefore, built in the form of a synopsis of the entire article. They include details of the research study and have enough material information to act as a proxy for the entire paper.¹ Informational abstracts can be unstructured or structured. Unstructured (also called as non-structured) abstracts are free-flowing and as the name suggests,

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have no pre-defined arrangement or organization in the form of sub-headings. By comparison, structured abstracts have a planned and ordered assembly with sub-headings such as background, objectives, methods, results and conclusions. These sub-headings could differ from journal to journal.⁴ Both structured and unstructured abstracts have a prescribed word count (or character count) limit. Structured abstracts contain more information, are easier to read, recall and search for, and are generally preferred by readers and authors.⁵ But, they usually consume more space and can suffer from the same limitations as the unstructured abstracts.⁵ In any case, the choice of preferring one type of abstract over the other does not rest with the author. He is obliged to provide an abstract in the format prescribed by the Journal.

Characteristics of a Good Abstract

A good abstract is a complete and honest summary of the whole manuscript with a coherent stream of thoughts. It should stand on its own. The reader should not be required to refer to the whole paper for understanding what is said in the abstract. The abstract should state research question (or the hypothesis), objectives, key points in methodology that would convince the readers about the soundness of the methods employed, important and key observations and the “take-home” message, so as to tell a complete story.¹

Writing an Abstract: The Mechanics

Since most biomedical journals prefer to have informational abstracts, this section will provide tips for writing such an abstract. Whether a journal prefers a structured abstract or a simple unstructured one, it is always a

good idea to write an abstract with a structure based on the IMRAD format and then strike out the sub-headings if the journal demands an unstructured abstract.

Ground work: Before one starts writing an abstract, an author must perform a proper ground work and the most important task in this is to carefully read and understand the instructions provided by the Journal regarding writing an abstract. These directives apply to the format (structured or unstructured), word limit, sub-headings and other details such as font type and size and spacing, etc. It is advisable to read abstracts of papers published in the recent issues of the journal to get an idea about what is generally preferred by the journal editors.

When to start writing an Abstract: Some experts advise authors to begin writing a manuscript by drafting the abstract first.⁶ They claim that this strategy helps authors clarify their messages and make writing the rest of the manuscript easy. This strategy renders writing the abstract quite difficult and is fraught with the danger of abstract depicting information that has not been included in the final draft of the manuscript. On the other hand, most authors prefer to start writing the abstract only after the manuscript draft has been finalized.⁷ This is logical, too. An abstract is a summary of the manuscript and hence it is reasonable to first finalize the manuscript and then to write its extract. It also allows the author to link the abstract to the title and the introduction by re-emphasizing the message conveyed in the title through abstract and by aligning the background information conveyed in the abstract with that in the introduction section of the main text.¹

Understanding what goes under each sub-heading: The sub-headings prescribed vary from journal to journal. However, the common

sub-headings include Background, Objectives, Methodology, Results and Conclusions. Some journals have separate sub-headings such as settings, design, participants and methods that would otherwise have been included under the common sub-heading of methodology.

Background

Also labeled as “Context”, this section should briefly outline the current knowledge and gaps in knowledge regarding the research question that was pursued. This section should attempt to inform readers about the study rationale⁸ in one or two sentences. Having a lengthy background section is counter-productive as it limits the space available for showcasing findings in the study.

Objectives

Sometimes this is merged with the background in the abstract. It has been variously labeled as ‘Aims’ or ‘Aims and Objectives’. Usually, it is expected that the authors would list one (or two) major objective in one sentence.

Methods

This is one of the largest sections of the abstract. It should contain enough information about what was done and how. The content of this section should be used to assure readers that appropriate and adequate techniques and strategies were employed in the conduct of the study.⁸ It should contain information about the setting, the study design, blinding (if done), the population studied, recruitment and data collection methodology, sample size, intervention, follow-up, primary outcome measures, parameters evaluated and main analysis methodology.^{2,8-11}

Results

This section may be variably labeled as ‘Observations’ or ‘Findings’. It is the most important

Table 1: Pitfalls to be avoided while writing an abstract of a research paper

Pitfall	Remark
Not complying with 'instructions to authors' in terms of the prescribed word limit, font type or size, sub-headings, etc.	The editors are likely to send it back to the author to ensure that it conforms to the guidelines provided and for technical correction; thereby increasing the processing time
Inaccurate account of the article	Discrepancies in the information provided in the abstract and that in the main text of the manuscript may result in high risk of rejection
Failure to provide a 'stand-alone' abstract	Every abstract should be 'self-sufficient'. For example, Conclusions stated in the abstract should be the ones that can be drawn based on results depicted in the abstract
Writing abstract that lacks focus	Get rid of extraneous details and linguistic jargon
Providing biased information	If authors choose to present only selected results in the Abstract, reviewers and readers are likely to feel cheated once they read the whole evidence presented in the article.
Poor language and grammatical and typographical errors	These create a bad impression on the reviewers and readers. Even, repeating phrases and sentences in the main text and abstract can cause boredom and hence should be avoided. Readers might think that the authors, instead of undertaking the intellectual and creative job of abstract writing, have merely used a software program or just done the 'cut-paste' job mechanically. Avoid using abbreviations unless they are universally known and accepted (e.g. DNA). No justification to cite references in the abstract.

and probably the largest section of the abstract. This is understandable because it describes what was found in the study; the aspect that authors wish to display and the feature that readers are most interested in. It should be packed with as much detailed data, as the word count would permit. The data should be provided in an objective manner citing actual numbers^{2,9} rather than using terms such as 'most felt better', 'a few developed headache', 'majority of participants responded', or 'some reported giddiness'!!! The data presented in an abstract should include the number of participants enrolled and analyzed; numerical information related to the analyses performed (in terms of mean and standard deviations, median, effect sizes, relative risks, numbers needed to treat, etc.), results of analysis of primary objectives along with results of tests of significance (p values), harms¹¹ and important negative findings, if any, even if they are not supportive of the hypothesis proposed.⁸ Wherever applicable, relative risk, attributable risk, response rates, odd's ratio, etc.

should be provided.

Conclusions

This section should state the most important message of the study and should include answer to the research question.⁸ It should always contain interpretation regarding the primary outcome measure. It can also be used to list other findings of significance and authors' views regarding implications of the study.^{8,9} The conclusions stated in the abstract should be based on results depicted in the abstract.

Some journals have separate sub-headings to describe limitations of the study. CONSORT Guidelines for abstracts¹¹ and International Committee of Medical Journal Editors (ICMJE)¹² recommend that the trial registration number and name of the registry and details of funding should be included as a part of the abstract.

Tips for Actual Writing of an Abstract: Manuscript writing is a creative activity and though pleasurable, it does take a toll of one's energy. Hence, it is advisable to wait for a few days, before one

attempts to write the abstract for a completed manuscript. The most important task in front of the authors is to decide what is extremely significant and should be included in the abstract (the 'must include' part) and what can be left out (the 'can omit' part). Of course, there would be some additional material that the authors would include, if space is available (the 'desirable to include' part). Hence, once the ground work is done, the authors should read the entire manuscript and decide what salient points have to be included in the abstract. These portions can be underlined and kept ready for consideration for inclusion in the abstract.

While writing the abstract, authors should use short, clear and direct sentences. As the abstract and the manuscript cater to the same population of readers, same level of technical language can be used. Although experts generally advocate the use of active voice in scientific writing; significant use of passive voice is permitted while writing abstract to help reduce the word count. It should represent 'true' summary of the whole manuscript with all possible important details presented in an unbiased fashion. It should be packed with information and formulated in such a way that readers are able to understand the rationale behind the study and are able to comprehend the basis on which the conclusions are drawn.¹ Pitfalls listed in Table 1 need to be carefully avoided.

Research manuscripts generally contain 2000-3000 words. Using the tips mentioned above, it is not difficult to have a 500-600 word initial summary as the first draft of the abstract. Since, one has to adhere to the guidelines regarding the abstract word-count limits; this initial draft should be edited further. One should first get rid of redundancies and replace verbose passages with concise statements. Then one can select

the main contents and rearrange the sentences, so as to achieve maximum comprehension of the main theme with the fewest number of words.⁸ It is also important to read it again and again to ensure that vital information is not omitted out and the flow of thoughts is not interrupted and most importantly, the message is going across. It is a good idea to get the abstract whetted by colleagues and friends for constructive suggestions.

Abstract is generally the part of the manuscript that is written last. It should be written with great attention and care, as poorly written abstracts with insufficient information or unsupported conclusions are unlikely to kindle readers' interest in the research work. An abstract should be brief, concise, objective and balanced. It is a "just the facts" presentation of

the research with major emphasis on conveying methods and main results so that readers are able to understand the basis of the "take home" messages that are expressed in "conclusions".

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