How to write a good abstract for a scientific paper or conference presentation

Abstract

Abstracts of scientific papers are sometimes poorly written, often lack important information, and occasionally convey a biased picture. Here we provides detailed suggestions, with examples, for writing the background, methods, results, and conclusions sections of a good abstract.

INTRODUCTION

The abstract of a paper is the only part of the paper that is published in conference proceedings. The abstract is the only part of the paper that a potential referee sees when he is invited by an editor to review a manuscript. The abstract is the only part of the paper that readers see when they search through electronic databases such as PubMed. Finally, most readers will acknowledge, with a chuckle, that when they leaf through the hard copy of a journal, they look at only the titles of the contained papers. If a title interests them, they glance through the abstract of that paper. Only a dedicated reader will peruse the contents of the paper, and then, most often only the introduction and discussion sections. Only a reader with a very specific interest in the subject of the paper, and a need to understand it thoroughly, will read the entire paper.

Thus, for the vast majority of readers, the paper does not exist beyond its abstract. For the referees, and the few readers who wish to read beyond the abstract, the abstract sets the tone for the rest of the paper. It is therefore the duty of the author to ensure that the abstract is properly representative of the entire paper. For this, the abstract must have some general qualities.

SECTIONS OF AN ABSTRACT

We require abstracts to conform to a formal structure within a word count of, usually, 300–350 words. The usual sections defined in a structured abstract are the Background/Introduction, Methods, Results/ Findings, and Conclusions. Some journals include additional sections, such as Objectives (between Background and Methods) and Limitations (at the end of the abstract).

Background

This section should be the shortest part of the abstract and should very briefly outline the following information:

1. What is already known about the subject, related to the paper in question
2. What is not known about the subject and hence what the study intended to examine (or what the paper seeks to present)

In most cases, the background can be framed in just 2–3 sentences, with each sentence describing a different aspect of the information referred to above; sometimes, even a single sentence may suffice.

Methods

The methods section is usually the second-longest section in the abstract. It should contain enough information to enable the reader to understand what was done, and how.

Carelessly written methods sections lack information about important issues such as sample size, numbers of patients in different groups, doses of medications, and duration of the study.

Results

The results section is the most important part of the abstract and nothing should compromise its range and quality. This is because readers who peruse an abstract do so to learn about the findings of the study. The results section should therefore be the longest part of the abstract and should contain as much detail about the findings as the word count permits. For example, it is bad writing to state “Response rates differed significantly between diabetic and nondiabetic patients.” A better sentence is “The response rate was higher in nondiabetic than in diabetic patients (49% vs 30%, respectively; $P<0.01$).”

Conclusions

This section should contain the most important take-home message of the study, expressed in a few precisely worded sentences. Usually, the finding highlighted here relates to the primary outcome measure; however, other important or unexpected findings should also be mentioned. It is also customary, but not essential, for the authors to express an opinion about the theoretical or practical implications of the findings, or the importance of their findings for the field. Thus, the conclusions may contain three elements:

1. The primary take-home message
2. The additional findings of importance
3. The perspective

Citation of references anywhere within an abstract is almost invariably inappropriate.

Example

Response of fennel (*Foeniculum vulgare* Mill.) to drip irrigation scheduling

Sentence case size 14 bold

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Capitalize each word size 12 bold

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Among various medicinal and aromatic crops, blond psyllium is valued for its mucilaginous rosy white husk (epicarp of seed), mainly used in medicine and industry. The crop responds well to nutritional requirement but information available is meager. Therefore, to study the effect of phosphorus, inoculation and zinc, the field experiment was carried out at S.K.N. College of Agriculture, Jobner during *rabi* seasons of 2010 and 2011. Experiment comprising 24 treatment combinations replicated 4 times, was laid out in randomized block design with four levels of phosphorus (0, 10, 20 & 30 kg P_2O_5 /ha) and three levels of zinc (0, 2.5 & 5.0 kg Zn/ha). The crop variety 'GI-2' was sown in rows 20 cm apart with seed rate of 8 kg/ha in plots of 12 m^2 at 1 to 2 cm depth on 29th & 24th November of 2010 & 2011, respectively. Pooled results indicated that successive increase in phosphorus up to 30 kg/ha significantly improved seed yield (13.82 q/ha) and net returns (31990 Rs/ha). Significantly higher straw and biological yields were recorded up to 20 kg ha^{-1} phosphorus. Seed yield and net returns of blond psyllium increased with 30 kg/ha phosphorus by 54.24 & 76.64% over control, 20.80 & 27.04% over 10 kg and 4.46 & 5.26% over 20 kg, respectively. Zinc application up to 5.0 kg/ha significantly increased seed (13.07 q/ha), straw and biological yields and net returns (29696 Rs/ha). The increase in seed yield and net returns of blond psyllium with 5.0 kg/ha zinc were 26.04 & 32.99% over control and 7.57 & 9.03% over 2.5 kg zinc application, respectively. It is concluded that crop should be fertilized with 30 kg phosphorus and 5.0 kg zinc per hectare for higher productivity.

- **Whole abstract should be in Arial font**