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Review Article

Critical approach for drafting scientific paper procedures & practice

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ABSTRACT

In today's informative age, producing a well-structured scientific paper is critical for ensuring that research is read, well understood, and valued. This work focuses on the key components of a modern scientific article, providing practical advice on structure, writing, and formatting in the classical IMRAD style (Introduction, Methods, Results, and Discussion). By following this methodology and resolving frequent issues, researchers can create clear and impactful papers that stand out in a academic orbit.
Target writing for a scientific paper: When you begin writing about your research, begin with a specific target journal in mind. The ability to accurately describe ideas, protocols/procedures, and outcomes are the pillars of scientific writing.

1. Introduction

Publication is the aim of a scientific study. No matter how amazing the outcomes, a scientific experiment is not considered finished until the valid findings are published, either as a part full. As a matter of fact, the foundation of science philosophy relies on the basic principle that novel scientific findings must be published in order for them to be verified and contributed to the existing database known as scientific knowledge.[1] Publishing is linked to career advancement and professional development on an individual basis. Publication in a standard journal should be basic objective which is well indexed.[2,3]

Composing a scientific article is an essential part of sharing research, but because of its particular structure and technical requirements, it can be difficult. A well-written scientific paper makes it possible for researchers to successfully share their discoveries with a intellectual audience and guarantees that their contribution to the field is recognized. Medical journals frequently reject well-designed and executed studies that are submitted for publication because the authors are unable to determine which information needs to be presented.[4] Because of this, it is crucial that the writers understand what relevant data needs to be included in each area of the article.[5,6]

In order to assist researchers in producing comprehensible and influential articles, this article offers a structured method for writing scientific for clinical presentation is that papers which follow the IMRAD format (Introduction, Methods, Results, and Discussion).[7] It also highlights important therapeutic areas, such as medicine, basic sciences etc.

2. Methods

Writing a scientific paper involves extensive planning and attention to a defined format. Every section of the document is guaranteed to have a distinct purpose as per IMRAD

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format:

2.1. Knowing the structure

Scientific papers usually adhere to a predetermined framework that facilitates the reader's comprehension of the research methodology and conclusions. Among the typical sections are:

1. **Abstract:** An abstract is a concise summary of the work which may not exceed 250 words for a structured abstract or 150 words for an unstructured one. The study's or investigation's objectives, basic methodologies (such as the choice of research subjects or lab animals, observational and analytical techniques), key findings (including particular data and, if feasible, their statistical significance) and main conclusions should all be included in the abstract. It ought to highlight novel and significant findings from the investigation or observations. 3 to 10 or brief phrases that will help indexers cross-index the article should be provided by writers below the abstract and identified as such. These may be published with the abstract. Use terms from the Index Medicus medical subject headings (MeSH) list.[8]
2. **Background/Introduction:** This part defines the problem being treated, presents the study topic, and outlines the goals. It is essential to prioritize the research issue and its implications over presenting a comprehensive historical background. An effective beginning must grab the reader's interest right away and give the study's background. The lacunae in the background should be addressed.
3. **Materials and Methods:** Provides an account of the subjects, experimental setup, and statistical techniques used in the research. Enough information should be provided so that the study can be repeated by others. It is crucial to be precise because imprecise descriptions can damage the research's credibility.
4. **Results:** Uses tables and figures frequently to provide the data and conclusions, This part should not be interpreted; instead, the emphasis should be on presenting the raw data that strengthens the study's findings. Graphs and other visual aids can help readers understand complex data and find findings more easily. Good statistical help is necessary.
5. **Discussion:** Explains the findings, evaluates how they relate to earlier studies, and draws conclusions from them. This section should outline the significance of the study in detail and offer potential directions for further investigation.

Following this format guarantees that each section serves a specific purpose and that the paper is logical and simple to read. Also, divide the method section into subsections with headers for each procedure you discuss (e.g., field collection vs. laboratory analysis) to make your work as clear as possible. To aid with reader orientation, we advise utilizing these headers again.[9]

2.2. Adhering to journal guidelines

Certain publications could have particular guidelines for submitting manuscripts. To prevent delays in the review process, authors should carefully study and adhere to the journal's formatting, citing, and submission guidelines. Typical rules consist of:

1. Submitting manuscripts in three or two copies, with ample margins and double spacing, to facilitate editing changes.
2. Putting the title, authors, affiliations, and related author's contact details on a separate title page.
3. Number references according to the textual order in which they appear and in accordance with the journal's specified reference style. At least 10-15 references which are not more than 10 years old, should be put. Never use old references, since the concept gets outdated.
4. Ensuring that each and every figure, table, and illustration is correctly labeled and cited inside the text.
5. Respecting these guidelines guarantees a more seamless review process and raises the likelihood of acceptance.

3. Results

The basic conclusions drawn from the data (numbers and facts) in the main text are called results.[10,11] Alternatively said, results are written summaries of the key findings from the data.[12] and give meaning to the data.[13] The paper's "results section" serves as its centerpiece, with the other sections arranged around it.

The fundamental question, "What did the authors find in research?" needs to be addressed in this part. The writers attempt to clarify the research data by presenting the outcomes, making it concise and significant.[10] The findings are presented in the Results section, which typically includes statistical data, tables, or figures. Here, impartiality is essential; give the data without interpretation. Use visual aids such as graphs and tables to help readers understand complex data. Determine which graphs, tables, and data are absolutely essential to narrating your story before moving on to this part. Then, using the relevant table and figure data as a reference, create one or two descriptive sentences that characterize each outcome. Instead of providing every detail at once, put out an overview for every data set. Here's a discussion of each IMRAD format component using a hypothetical research scenario to show how these ideas might be used in real research. Example of one illustration is provided below.

Introduction: The growing incidence of antibiotic resistance has drawn attention from all throughout the world. The effectiveness of a novel antibiotic molecule against bacteria that are resistant to multiple drugs is examined in this study.

Materials and Methods: Standard in vitro procedures were used to isolate bacterial strains from clinical samples and test them with the novel chemical. For every strain, the lowest inhibitory concentration (MIC) was found. A one-way ANOVA was used for statistical analysis in order to compare the outcomes with those of currently available antibiotics.

Results: With MIC values comparable to those of existing antibiotics, the molecule showed considerable antibacterial activity against 80% of the multidrug-resistant pathogens tested. Table 1 displayed the average minimum inhibitory concentration (MIC) values for every strain of bacteria.

Discussion: The results point to the possibility that the novel antibiotic molecule will be useful in treating resistant bacterial illnesses. Based on prior research, the findings support the theory that this substance may offer a novel therapeutic approach. Nevertheless, more investigation is required to evaluate its safety in clinical trials.

The discussion portion is the easiest for readers to understand and the hardest for writers to write.[13,14] Clear "statements of the main findings," "possible explanations and implications," "strengths and weaknesses of the study and other studies," "unanswered questions," and "suggestions for future research" are all important components of a well-written discussion.[13]

Writing a scientific paper requires more than just adhering to a set format, even with a clear framework, many authors fall into typical pitfalls that might undermine the intelligibility of their paper. Some of these avoidable blunders are:

1. Poor grammar and spelling might detract from the paper's professional appearance. Always proofread thoroughly before submitting. Language check is used through Grammarly.
2. Using complex language or excessive jargon can make the article difficult to read. Aim for simplicity and directness.
3. Avoid phrases like "it is interesting to note". Instead, make clear assertions regarding the significance of your findings.
4. Information should be provided in a clear and straightforward manner. Use figures and tables responsibly, making sure they are easy to understand. Put titles clearly as a header.
5. Failure to follow submission rules may result in prompt rejection. Always ensure your manuscript conforms to the journal's specific requirements.

Unpublished works may be the consequence of a lack of time, ongoing research, issues with co-authors, or unfavorable outcomes. Another potential contributing issue is a lack of expertise and abilities in the writing and publishing processes. The ICMJE states that "this so-called IMRAD structure is a direct reflection of the process of scientific discovery rather than an arbitrary publication format."[15]

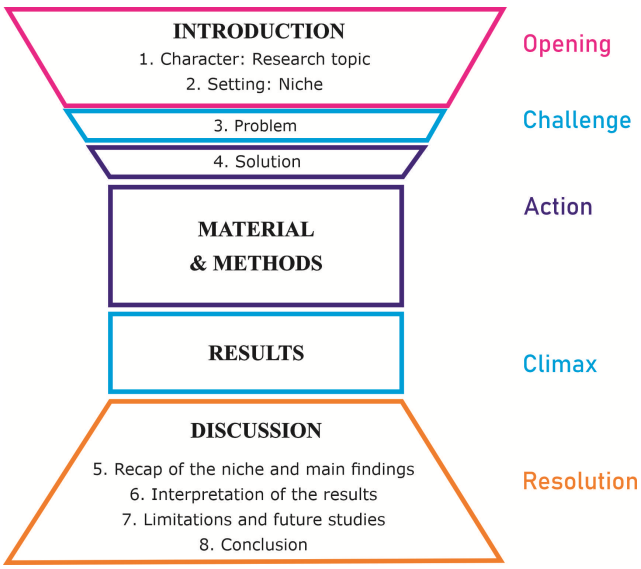

Diagram 1:

3.1. Importance of clarity and precision

Clarity and precision are essential components of scientific writing. The goal is to communicate research findings in a way that is understandable to other researchers and adds value to the field. When writing a scientific report, remember that the reader may not be familiar with every facet of the research. This requires a full discussion of methodologies, findings, and implications, without assuming prior knowledge. Tables, figures, and visual aids should be used whenever possible to clearly demonstrate complicated topics. It is beneficial to stick to the "three-steps" guideline when writing in order to prevent these errors. First, in the introduction, give a brief summary of your research. Next, in the results section, clearly present the data. Finally, in the discussion and conclusion, emphasize the importance of your findings.

4. Conclusion

Writing a scientific article needs meticulous preparation, attention to detail, and adherence to publication requirements. The conclusion should be specific and should address all issues. The IMRAD framework guarantees that the document is ordered and presents the research

in a logical order, making it easier for readers to follow and understand. With time and dedication, authors can perfect the art of scientific writing, ensuring that their contributions are acknowledged and respected by the scientific community. By adhering to the basic principles indicated in this handbook, researchers can write high-quality publications that expand knowledge in their field and have a significant impact on scientific discourse. For better paper writing, its essential to focus om Introduction and Conclusion, since they convey the message of the study.

Achieving the Scientific phrases:

Eight tips can help for most scientific publications.

1. Develop a precise vocabulary: read the literature to become fluent.
2. Consistency is more important than creativity by defining terms and your assumptions.
3. Be honest about the limitations of your knowledge or your research.
   (a) Include all the information the reader needs to interpret your data.
   (b) Remember, the key to all scientific discourse is that it be reproducible.
4. When describing an activity, break it down into elements that can be described and labeled, and then present them in the order they occurred.
5. When you use numbers, use them effectively.
6. Include details before conclusions, but only include those details you have been able to observe by the methods you have described.
7. Research your format and citations: do these match what has been used in current relevant journals. Do not use references which are more than 10 years old.
8. Run a spellcheck and proofread carefully.

5. Source of Funding

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6. Conflict of Interest

None.

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