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# How to write a paper for journal publication

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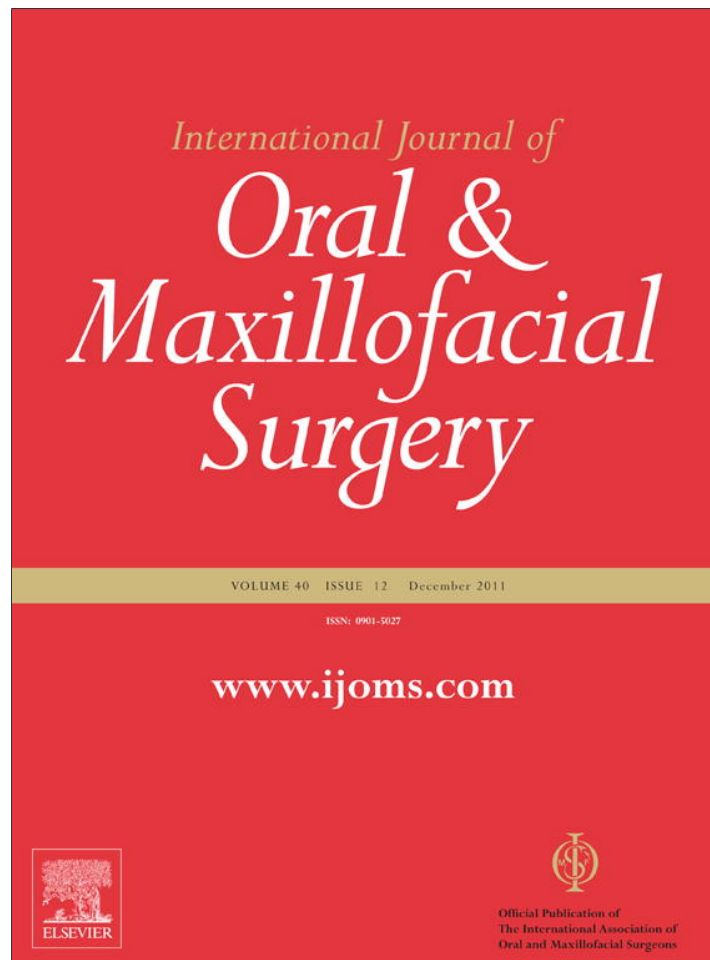


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## Editorial

# Getting published in peer-reviewed journals<sup>☆</sup>

**Abstract.** Writing a paper for publication in a peer-reviewed journal is a rewarding experience but a very difficult undertaking that requires years of experience, determination and patience. The exponential rise of knowledge has resulted in the exponential rise of manuscripts submitted for publication in the various peer-reviewed journals all over the world. Potential authors are not only having to write high-quality papers to get published, but also have to compete with other authors for the limited journal space available to publish their papers. The purpose of this article is to highlight some of the ways of making the task of getting published in peer-reviewed journals easier to achieve.

Writing a paper for publication in a peer-reviewed journal is a rewarding experience. Even though there are no direct financial incentives for publishing in peer-reviewed journals, thousands of manuscripts are produced each year which compete for the limited journal space available worldwide. In other words, there is a sense of pride and achievement behind every published journal article that has its own rewards for which money plays no role. Getting published in a peer-reviewed journal is a difficult undertaking so the aim of this article is to highlight some of the ways of making the task easier to achieve.

### So why publish?

Journals first appeared in the late 17th century in an effort to convey fragments of

<sup>☆</sup> A version of this paper is also available on the website of the International Association of Oral & Maxillofacial Surgeons, [www.iaoms.org](http://www.iaoms.org).

ideas that could be added to what was already known. According to Warsh<sup>7</sup>, journal articles may be used to announce new discoveries, to comment on or criticise the discoveries of others, and to synthesise and seek to build consensus about what is known. Having mentioned the reasons for publishing, we also need to understand the motivation behind the desire to publish. Writing papers for publication in peer-reviewed journals may form part of the essential training requirements for postgraduate students, in particular those who are undertaking a higher degree. In the academic world, publishing is an essential means of furthering one's career aspirations, particularly for those seeking promotions. Publishing may also be used as a means of attracting departmental funding, or at least help attract outside interest to a department's research or clinical activities. Finally, and not uncommonly, we all have the urge to see our name in print.

### What to publish?

According to LAU & SAMMAN<sup>2</sup>, about 30% of articles published in the oral and maxillofacial (OMF) surgery literature were either case reports or technical notes. About half the articles published in OMF surgery journals were classified as non-evidence-based literature. As far as evidence-based medicine is concerned, the vast majority of published evidence-based practice in OMF surgery were retrospective case series (Level 5 evidence) while only 10% of articles published were either randomised controlled (Level 2 evidence) or non-randomised controlled (Level 3 evidence) studies<sup>2</sup>.

The problem with surgical trials is that it is generally difficult to persuade patients

to undergo a new surgical procedure based on a hypothesis or animal study. When it comes to randomised clinical trials, it is virtually impossible to undertake sham operations to prove whether the procedure in question is more effective than a placebo response. Furthermore, feasibility and compliance with random allocations of various study groups in surgery is extremely difficult. Nevertheless, unlike physicians, surgeons generally see little need for randomised controlled studies and are often willing to accept weaker evidence<sup>5</sup>.

Despite the weaker evidence found in many of the surgical publications, case reports and technical notes are still popular. However, there is a push by the more respected surgical journals to attract more research papers with surgical implications. The type of manuscript produced will depend on the activities of a department, and the head of department is largely responsible for directing the quality and quantity of publishable material. The level of evidence (Table 1) produced in the output of manuscripts will depend on whether the department has the resources to employ research staff in addition to

*Table 1.* Hierarchy of levels of evidence.

1. Randomised clinical trials
  - a. Multicentre
  - b. Single centre
2. Cohort clinical study
  - a. Large case series
  - b. Meta-analysis of multiple case series
3. Animal study
4. Laboratory study
5. Comprehensive review
6. Case report
7. Technical note
8. Personal opinion – letter to editor

clinical staff. It is very unlikely, for example, to extract any high-level research from a surgical department that depends on surgical trainees for publications.

### Where to publish?

There are three main vehicles for publishing clinical ideas: magazines, journals and books. As far as magazines are concerned, articles are accepted more for their entertainment value rather than as a true scientific publication and often there may be commercial interests backing the 'clinical opinion' of the author who may be paid by the magazine to write the article. Peer review journals are, by their very nature, publications that critically analyse all contributions and accept only those articles which fulfil the requirements of objective proof and sound results that are measurable and repeatable by others.

Academic book publishers, on the other hand, are more likely to favour authors with a track record of previous successful publications and are unlikely to attract unknown authors unless they are closely supported by well known 'celebrity' authors. Therefore, books are less inclined to report new ideas and focus mainly on packaging current knowledge in one or more easy-to-read volumes. Many years of hard work goes into preparing a book with much of the information contained in the book at risk of becoming out of date by the time the book is released. Therefore, the most practical and respectable way to convey new information to professional colleagues is through peer-reviewed journals.

### Which journal to select?

The most appropriate journal to submit a manuscript will depend on the subject matter and the intended audience. If the subject matter is of interest to a general audience, such as safeguarding against nerve damage in third molar surgery, then perhaps the *British Dental Journal* would be appropriate. If it is a highly complex and specialised idea such as an aberrant course of the auriculotemporal nerve, then an anatomical journal would be the place to submit it to. If the anatomical aberration has important clinical implications, say in TMJ surgery, then an oral and maxillofacial surgery journal may be worth a try. If the idea to be published is too important to be buried in the pages of a local or specialised journal (e.g. cure found for oral cancer) and needs an international readership that includes people outside the profession, then a more prestigious journal such as *Nature* or *The Lancet* may be

worth a try, although the chances of successfully publishing in these journals are very slim indeed.

An important measure of a journal's quality is its impact factor. The journal impact factor is a measure of the frequency with which the average article in a journal has been cited in a particular year. Unfortunately, the impact factor can be misleading because the citation rate does not discriminate between articles with good quality research and articles of little scientific value. Therefore, while it is important, we cannot totally rely on the impact factor as the only measure of quality of a journal<sup>6</sup>.

Perhaps another good measure of journal quality is the calibre of experts who sit on the editorial board. The editorial board comprises expert reviewers who are at the peak of their profession. The inside cover of each journal often publishes the names of the expert reviewers and their area of special interest which will readily reflect the power and prestige of the journal in attracting only the best articles for publication. The tradition of refereeing ensures that each new contribution to the literature is honest and original and therefore maintains the high standard expected of such academic pursuits.

### What makes a good manuscript?

Quite often, the instruction to authors, published as an appendix in each journal, does not provide authors with anything other than technical guidance which is specific to each journal. Therefore, one cannot get a clear idea of what makes a good manuscript based on the instructions to authors.

There are a number of factors that make a good manuscript (Table 2) which will be looked upon favourably by the editorial board<sup>1,3</sup>. The most important factor is originality. While original ideas are looked upon very favorably by journal reviewers, the ideas should be practical, pragmatic and simple to understand. Wild or fanciful ideas that appear out of this world, or overly complex ideas or techni-

ques that are likely to harm the patient will be swiftly rejected. As far as old ideas are concerned, unless something new has been discovered, or a new use for an old technique has been conceived, then it is unlikely to be published. Repeating old experiments may be useful if it will add something new to the existing body of knowledge. As an example, using a different drug to inject into the TMJ during arthrocentesis and recording its outcome may be publishable, provided the drug has never been used before for this procedure. It is essential that old ideas are cited with their original source, otherwise it may be easily misinterpreted as a new idea which may destroy the reputation of the author(s) who deliberately fail to disclose or at least acknowledge the original source of the idea(s).

English is the international language of science. If the aim is to disseminate work throughout the world, English is the language in which the manuscript must be written. Poor English skills are no excuse for plagiarising slabs of text from previously published articles. All academic institutions should have English departments so it is best for manuscripts from non-English speaking countries to be thoroughly checked by persons with good English skills before being submitted to a journal. When writing for a clinical or scientific journal the language must be kept simple, and to the point. There are no prizes or literary awards for long rambling sentences in science as there are in fiction writing. Science is simply the search for the truth, and it does not require highly descriptive superlatives or emotive language to convey a message. There are many instances where whole paragraphs can be abridged to a single sentence and yet convey the same information. A direct and succinct style of writing (Table 3) will always keep the attention focused on the central idea the author is attempting to convey to his or her readers. A journal reviewer will look less favourably on a submitted manuscript that is heavily burdened with long rambling sentences and a convoluted discussion that fails to get to the point.

Table 2. What makes a good manuscript.

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Originality – adds new information to existing body of knowledge
High level of evidence – proper scientific methodology
Clear aim(s)
Simple English – correct grammar and succinct style
Clear pictures and diagrams which are relevant to the paper
Robust discussion supported by a balanced review of recent literature
A conclusion which is supported by the results

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**Table 3.** Example of succinct style of writing.  
Original version (39 words)

*The literature contains arguments for and against the use of routine antibiotic prophylaxis in third molar surgery, and the main source of controversy is the lack of reliable and sensitive clinical criteria for identifying postoperative infection in these patients.*

Succinct version (12 words)

*The routine use of antibiotic prophylaxis in third molar surgery is controversial.*

### The 'IMRD' approach

All full-length articles must follow the fundamental IMRD formula, i.e. Introduction, Materials and Methods, Results and Discussion<sup>4</sup>.

The Introduction should establish a reason for why the article was written in the first place. A brief review of the pertinent literature should build up a scenario which backs the purpose of the paper. The final sentence in the introduction should be a statement outlining the aim(s) of the paper and should ideally begin with the words 'The purpose of this study is to ...'. The aim(s) give the reader a good indication as to why the paper was written and sets the theme for the entire manuscript which should be strictly adhered to.

The Materials and Methods section must be clear enough to enable independent third parties to repeat the experiment. A properly designed scientific methodology is essential in boosting the credibility and level of evidence of a study. In clinical studies, inclusion and exclusion criteria are necessary to clearly define the group being studied and to allow comparisons to be made with other closely matched studies. Flaws in the materials and methods section will invalidate all the results and render the paper unacceptable for publication. For example, the lack of matched control groups with which to compare outcomes make it difficult to pronounce, with any certainty, that a particular procedure is more effective than no treatment at all. Presentation of follow-up data on a single technique will be considerably weaker than a study which compares two or more methods or techniques. Furthermore, follow up of small numbers of patients who have undergone a large number of different surgical procedures will invariably not be accepted. This is especially problematic in studies on orthognathic surgery where some of the patients have undergone single jaw osteotomies, and some have had two jaw osteotomies, while others have had genioplasties, which makes it impossible

to compare the outcomes on such a heterogeneous group.

It is essential that all technical details of the experimental methodology, including ethics clearance where appropriate, are accurately recorded since any omission of vital details, such as the statistical method used to validate the claims, will make it impossible for the reviewers to assess and may result in rejection of the paper. It is also important to remember that age, sex and diagnosis belong to the Materials and Methods section and not the Results section.

In the Results section, it is essential to lay out all the raw experimental data in a table format with accompanying graphs that provide a pictorial view of the analysed data. The text should be brief and not a convoluted description of data that is already laid out in a table or graph. The reader simply needs some basic guidance as to how to read the tabulated data or interpret the graphs, diagrams or photographs which cannot be adequately described with a brief caption set out under each table, graph, picture or diagram. It is essential to provide a summary of the facts and figures without commentary, which should be placed in the discussion section. Pictures help supplement the text and provide additional proof to an idea. Diagrams are useful where pictures are not entirely clear, especially when it comes to technique papers. Poor-quality photographs or images that do not contribute any further information to the paper will provoke a negative reaction, especially from the Editor who has to comply with limited journal space. For example, a fuzzy or blurred orthopantomogram that fails to show the lesion in question is unacceptable, as are multiple clinical pictures basically showing the same pathology or technique in different individuals.

The Discussion should be a commentary of the Results with appropriate references made to similar studies published in the same field that may either support or refute the Results. It is important to include a balanced array of previously published papers that not only agree with the findings, but papers that may also disagree. A robust Discussion is really the 'icing on the cake', so to speak, and gives the reviewer an opportunity to properly assess the author's scientific reasoning and strength of argument in critically analyzing their results. An article without a conclusion is like a story without an ending. Failure to provide a conclusion leaves the readers wondering whether the aim(s) of the paper have been

satisfactorily met. The conclusion must accurately summarise the findings of the study. If the conclusion does not reflect the stated aim(s) of the paper then it is unlikely to be accepted for publication. For example, if the stated aim of the paper is to 'determine the benefits of TMJ arthrocentesis over TMJ arthroscopy' and the conclusion is 'TMJ arthrocentesis is a safe procedure for the treatment of closed lock' then there will be lots of readers scratching their heads as to what the real purpose of the paper was.

### How many references?

The question often asked by authors is how many references should be used in their paper. The answer is simple: as many as it takes to support a discussion. While many journals place strict limits on the number of references, particularly for small technique-type articles, it is essential that the latest articles are cited. If there are two articles in the literature on a similar topic, one published in 1985 and the other in 2001, it is best to use the 2001 article as it will most likely have more up-to-date information that will be most useful to the reader. Besides, if the articles are similar enough then the 2001 article will also cite the earlier 1985 article. Therefore it makes little sense to cite every article ever published on a particular topic just to prove a point or to support a statement. The exception is when reviewing the literature for previously published reports on rare cases or pathology, for example, chondrosarcomas of the mandibular condyle. Authors must be aware that each journal has a different style and method of citing and listing references so the instructions to authors must be carefully followed.

### What about case reports?

While case reports are usually of little scientific value, they are useful as an incremental part of a series of cases published over the years which, when combined, help build up a collective picture of the rare disease or unusual disorder that cannot be obtained from one centre alone. When a case report is being considered for publication, it must contain some new information that has not been previously reported. This new information, which should be highlighted in the conclusion, can then be added to the existing body of knowledge. For example, while TMJ synovial chondromatosis is still a rare disorder, further case reports are unlikely to be published unless the author(s) can

show a new or novel way of diagnosing and/or treating these disorders that have never been previously reported. Alternatively, a new aspect of the disease may be presented, such as a 20-year follow-up of a previously treated patient, or analysis of the recurrence potential of the disorder that has important implications in the management of this condition.

A case report is simply a case report so it must be kept simple and succinct. A brief introduction of no more than one paragraph is essential and the case report should be limited to a succinct description of the patient, pertinent history and clinical presentation, any results of investigations, treatment and outcome. Adding an easy to read table summarizing the literature of previously reported similar cases with a brief discussion of the new findings will improve the likelihood of publication.

### Discussion

Producing papers for publication in peer-review journals is a difficult exercise that not only requires a great deal of skill and experience, but also patience. Authors need to be aware that a clear message and original ideas will be the two most important factors that will determine the difference between acceptance and rejection of their papers in peer-reviewed journals.

The editorial boards of most journals are well aware of the competition to attract the best papers, so every effort is made to convey constructive criticism to all papers

that are both accepted and rejected. An essential aim of the reviewing process is to highlight the weaknesses of each paper so that the authors can improve the quality of their submissions<sup>3</sup>. Authors should carefully absorb and analyse the reviewer's reports, especially when papers are rejected, as this is often the only opportunity authors will get to learn from their mistakes and how to improve their chances of getting future papers successfully published.

Every year there is an increasing number of articles produced by authors worldwide. A typical OMF surgery journal with 12 issues a year may be able to accommodate about 150–180 articles a year. Unfortunately, when annual submissions run to about 700 manuscripts, there is still a shortfall of about 75%. That means that even if all articles were of an acceptable standard for publication, about 75% of submissions would have to be rejected just to satisfy the timing and space constraints of the journal. So not only do potential authors have to submit high quality papers, but they must also compete against other authors for the limited journal space available. Since case reports and technical notes form the vast majority of articles submitted to surgical journals, they are also the most likely to be rejected. Therefore, to increase the likelihood of publication, it is better to submit more substantial papers with high levels of evidence (Table 1) backed by a sound scientific methodology. Original contributions that

add new information to the existing body of knowledge are highly regarded and are more likely to be considered for publication<sup>3</sup>.

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