Writing for publication: science and healthcare journals

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Abstract
This article is designed to help authors write scholarly articles for publication in science and healthcare journals. A comprehensive model based on 11 steps and detailing the structure expected for a journal is suggested for the writing of a range of papers. This is in keeping with the recognised style of a number of academic journals. The article encourages authors to submit their papers for publication with the intention of enhancing the quality and safety of care provided to patients, clients and service users.

Key words: Disseminating knowledge ■ Advancing practice ■ Communicating

A paper is an academic work that is usually published in an academic journal. Papers are sometimes called articles, even manuscripts. The paper contains original research results, or existing reviews results. Articles that appear in renowned healthcare journals are subjected to a process of double-blind peer review (see Glossary), usually, but not always, undertaken by the editorial board of the journal or experts in the field.

Scientific growth is a communicative process. In addition to facilitating emerging scholarly output from the academic healthcare community, a primary aim of publishing scholarly work is to promote the development of healthcare knowledge and practice across the UK and beyond. Publication in peer-reviewed journals enables scientists to communicate their results to the rest of the scientific community; it can also give you a lasting record of your contribution to the body of knowledge.

Papers can centre on a wide range of relevant topics in a variety of forms. There are two main categories:

■ Research and pedagogy (Glossary)
■ Clinical practice.

Research
■ Original emerging research reports
■ Research proposals
■ Service evaluations
■ Critical reviews of the literature.

Pedagogy and clinical practice
■ Evidence-based reports of clinical developments
■ Theoretical or philosophical debate
■ Pedagogical innovation.

Demystifying writing
Many early-career health professionals believe that writing for publication is something that ‘other people do’, such as academics who have all the research at their fingertips. This assumption is wrong. Writing for publication is a skill that anyone with the right amount of determination and application can learn. There is no mystery or magic. All health professionals and healthcare students whose work brings them into contact with patients, clients or service users in clinical practice can be helped to write for publication.

In particular, the reflective experiences of students in practice environments often reveal deficits that may help other practitioners to deliver better care or avoid unnecessary mistakes. Such publications are also a valuable way to share ideas. But it is important for novice authors to follow a systematic approach to writing a scholarly paper. Such an approach will help them communicate their key ideas and findings (Dixon, 2001).

Deciding what to write
Experienced and novice writers alike can select a topic in which they are personally interested and which they have investigated through their work—and where there is a lack of existing information.

Most topics are worth writing about. Healthcare journals are always seeking up-to-date, referenced, evidence-based articles that are pertinent to all aspects of patient/client care. There are several points to bear in mind:

■ If you have written an assignment or a dissertation for an undergraduate or postgraduate course, it could be adapted into an article suitable for publication. Significant scholarly work that has been awarded a high grade should not be wasted, but it will need to be adapted to be suitable for publication in a peer-reviewed journal. Do not send the journal an unmodified copy of an assignment—it will probably be rejected automatically.
■ If you have taken part in new ways of working and teaching (or training), why not share them with others through publication?
■ If you are choosing a topic that features regularly in the scholarly press or at conferences, make sure that you give it a new slant, perhaps by reporting changes in practice that are based on best evidence.
If you choose a topic that has not been widely written about, do not assume that this is because of lack of interest—your article could be the first step in solving an important healthcare problem or issue.

If you are unsure whether your article will be of value, send an abstract to the editor for an opinion. Do not be frightened of contacting a member of the journal’s editorial team for advice.

It is important not to be over-ambitious when choosing a topic for publication. Some journals are designed to publish shorter pieces of work, such as literature or methodology reviews, not necessarily complete studies. Do not try to cover too many points or cram in too much information—your paper could become unstructured and unfocused. Try to adopt a specific position and do not allow yourself to get side-tracked.

The most important driver in getting your work published is you—and your own motivation. Much academic work done within the health sciences has a limited shelf life, so seize the day!

**Decide whom you are writing for**

One of the most important rules in writing is to remember your reader. The level at which you write, and the content of your article, should be dictated by whom you want to read it. For example, if you are writing for specialist colleagues, you can probably assume they have a greater depth of knowledge than non-specialist colleagues, who will need to be given more information. Never take it for granted that your readers know what you are talking about. Always substantiate your comments and signpost the reader to further reading with relevant references.

**Guidelines for authors**

Full guidelines for academic journals are available online via their websites. Read these carefully and keep referring to them as you are writing. Never submit a paper in the style of another journal—this will not give a good impression to the editor.

The style for headings, tables, illustrations, charts, abbreviations and so on should all be on the journal’s website, as should details of how to get permission to use other material.

**Writing and structuring your article**

- The process of writing a paper must begin with a comprehensive review of the relevant literature. So an ability to search and analyse literature databases is crucial (your local healthcare librarian may be able to help). It is important that you do not rely solely on internet search engines such as Google Scholar to find all your material.
- A difficult part of writing is getting the structure right. Editors can smooth out language errors, but not a badly structured article. You need to ensure a logical flow of ideas and keep to the specified word limit (if there is one). Look at how other published authors have structured their work and talk to colleagues who have experience of writing.
- If you are clear in your mind what it is you have to say, and whom you are writing for, you will have less difficulty structuring the article and deciding which points to cover.
- Certain types of article (e.g. literature reviews and research studies) tend to follow specific formats. Others, such as case studies, will be harder to write and structure, as there is no real standard format. However, this article provides you with a model of writing that can be applied to any type of scholarly paper.
- Whatever type of article you are writing, you will not get the structure right first time. You will need to practise. Remember, even experienced authors need to write several drafts of a paper.
- Keep your language simple, accessible and clear. Do not alienate your readers by using jargon and convoluted sentences.
- When drawing on the work of others, you need to reference them. The journal’s guidelines (available via its website) will inform you of the journal’s referencing style. Direct quotations, facts and figures, as well as ideas and theories, must be referenced. Submission of references that are inaccurate, incomplete or in the wrong style can result in an automatic rejection of your paper. The use of bibliographic management tools such as EndNote may be required and these may need to be submitted via a separate EndNote file. You must ensure you have checked the journal’s preferences on this.
- Once you have finished your article, ask a colleague to be a ‘critical friend’ and read it to see if it is written clearly and makes sense.

**Word length**

Most articles, including literature reviews, should be no more than 3000 words (not including abstract and references). Full initial reports of original research studies may be up to 5000 words. Shorter reports of about 2500 words are appropriate for interim results of studies and for discussions of topical issues. Exceptionally shorter or longer submissions may be possible after discussion and at the editor’s discretion.

**A model for structuring your academic paper**

Most authors will find the following model of 11 steps important in the basic structuring of any scholarly paper. This model for an academic paper reflects the literature-critiquing tool developed by Parahoo and Heuter (2012).

1. **Title page**
   - This should be provided as a separate file in the submission process. It should include: the full title of the manuscript; full names of all authors; job titles; affiliations (usually your place of work); and full contact details of the corresponding author (address, telephone, fax and email).

2. **Title of the paper**
   - The title of the paper should indicate the subject clearly, accurately and succinctly. Authors should not be vague or ambiguous in their choice of title, as it should allow the reader to decide whether or not to read the paper, and whether it applies to their field of healthcare practice or personal interests. For example, Lattimer et al (1998) published a paper entitled ‘Safety and effectiveness of nurse telephone consultation in
out of hours primary care: randomised controlled trial.' The title makes it instantly clear what the paper is about and what kind of study it is.

3. Abstract
This should be about 300 words for full articles, and 200–250 words for shorter papers. The abstract should give a concise summary and overview of the main content, findings and/or argument. It should also give brief details of the background, aims, design, results and conclusion. The abstract is one of the most important parts of the paper, as it allows readers to decide whether or not they want to read the paper in full.

The abstract should be followed by three to six key words designed to help readers find the paper easily in electronic searches. Remember, you want others searching databases and citation indexes to find your work as easily as possible. A look at the key words used in major databases (such as CINAHL and Medline) is useful when deciding which key words to choose for search engine optimisation (SEO).

Structure of main article
The structure and format of the main part of the paper will depend on its nature. All references should be presented in the referencing convention that the journal requires. The following tips for structure apply to most types of paper.

4. Literature review/background
You should be able to spell out why your paper is important and explain its context. Writers are expected to have undertaken a full and comprehensive review of the literature and cite the bibliographic databases they have searched, so you need to give full details of your search strategy. The review should identify and describe the gaps in knowledge that your paper seeks to fill. It is important that critical reviews of the literature cite the critical appraisal tool used (e.g. Parahoo and Heater, 2012) and report the studies' strengths and weaknesses. Pertinent grey literature (Glossary) should be cited and acknowledged. Theoretical discussions and policy analysis must show robust, logical design with clear differentiation between opinion, evidence and interpretation.

5. Aims, objectives, research questions, hypotheses
These should be fully explicit within the body of the text, as they will allow the reader to put the reasons why the paper has been written, or the study undertaken, in context.

6. Methodology or design and method
Depending on the type of paper you are writing, the design of the study should be fully explained and shown to be appropriate to the stated aims. The research type (quantitative, qualitative and so on, see Glossary) should be stated and the particular method, such as randomised controlled trial (Glossary), fully clarified. The main concepts to be measured or investigated should be defined and the methods of data collection fully described. Where appropriate, the author should discuss if the data collection tools have been specially created for the purpose of the study, or if pre-existing tools have been used.

It is important for authors to indicate within the paper who actually collected the data and reassure readers that bias has been controlled for. In studies where there are more than one group of patients/subjects, a description of what intervention/treatment each group received should be clearly stated. The setting where the study was carried out (e.g. a hospital) should also be described, so that the reader can fully understand the origin of the work being described.

The population from which the sample has been taken should be defined and the precise methods of sample-selection described. The author of the paper should indicate how the sample size was determined and whether a sample-size calculation was done. A separate section of the paper should explain the planned analyses of the data before the results are presented.

Where appropriate, the author should describe how ethical questions have been addressed and how ethical approval for the study was obtained (e.g. from a hospital ethics committee).

7. Data analysis
Your paper should have a section devoted to the analysis of the data you have gathered—or, in the case of a meta-analysis (Glossary) or critical review of the literature, an evaluation of the data from other studies. This section should give details of the statistical analysis packages and individual tests that were used. It should be clear from your paper how these tests were applied to the data and groups being studied.

8. Results
The results of your study (or your critical review of the literature) should be fully and clearly presented. Journal word limits often prohibit exhaustive reporting of results, so authors needs to choose appropriate tables, illustrations and charts to present the results of the data analysis. Key points should be reiterated within the body of the text.

9. Discussion and interpretation (including study limitations)
The author should write a balanced discussion where all possible explanations for the results are given and, where appropriate, discussed in the context of previous studies detailed in the literature review.

All the results should be fully discussed and any limitations acknowledged. For early or developmental work, the author should fully explain the next steps to be taken and give details of the timeline for the remainder of the study being reported.

10. Conclusions and recommendations
Even for early reported work, the author should fully justify the conclusions reached and make recommendations for policy, healthcare practice or further research. The results or conclusions should, if possible, be applicable to practice for health professionals.

11. Your key points
Some authors complete their academic paper with a short list of about four to six key points (some journals even insist on them).
Submitting your paper

- Check carefully that the paper you are about to submit aligns with guidelines issued by the journal.
- Do not submit the paper to more than one journal at a time.
- Send the article to the editor.
- All articles are subjected to peer review. Do not be put off if the journal sends the article back, asking for revisions. This is very common—the aim is to help you improve the article.
- Try not to get disheartened if your article is rejected. Instead, reflect on any comments and think about amending it for resubmission or perhaps consider another journal (remembering to check, before you submit, if it has a different style).
- The publication process is designed to ensure that the journal contains material related to the health care of patients/clients/service users that is of use and relevance to its readers. The process also aims to produce a published article of which the author, and the journal, can feel proud.

Conclusions

The basic structure of any academic paper is designed to allow the author to tell the ‘story’ of their work to potential readers and its applicability to their profession. Academic rigour in the preparation of a paper is likely to improve its chances of being accepted for publication. Many papers undergo double-blind peer review. It is important for the author to declare any conflicts of interest (Glossary) when submitting a paper and to include any information on funding.

Conflict of interest: none


KEY POINTS

- Editors of journals welcome papers on a wide range of relevant topics and in a variety of forms.
- It is important to follow a systematic approach to the writing of a scholarly paper for submission to a journal.
- An assignment or dissertation written for an undergraduate or postgraduate course may be adapted into an article for publication.
- Publishing your work adds to the overall body of knowledge with the knock-on effect of improving care.

GLOSSARY

- **Conflict of interest**: a feature of a study that might introduce, or be perceived to introduce, an element of bias—such as funding from a pharmaceutical company that manufactures the product being assessed.
- **Double blind**: part of the peer review process (see below), whereby reviewers do not know the identities of the study’s authors nor the identities of the other reviewers.
- **Grey literature**: literature produced by non-commercial bodies—for example, healthcare policy, government reports, conference proceedings and factsheets from non-profit organisations.
- **Meta-analysis**: an analysis of the data and results of a number of studies in the search for patterns and insights that may not have emerged from any of the studies alone.
- **Pedagogy**: the principles and practice of teaching.
- **Peer review**: the process whereby editors ask experts in the field to review papers submitted to their journal to help them decide whether or not to publish.
- **Qualitative analysis**: a type of research that depends primarily on spoken/written information given by participants (often in the form of interviews and questionnaires), which the researchers then analyse for themes and patterns.
- **Quantitative analysis**: a type of research that depends primarily on the collection, study and interpretation of numerical data.
- **Randomised controlled trial**: a type of clinical trial that randomly assigns different treatments to different patients to compare the treatments with minimal bias. If neither patients nor researchers know which treatments the patients are getting, the trial is described as ‘double blind’.

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