

How to write up your research

Authors

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7.6.1 Learning objectives

To understand the practical steps involved in preparing a report of your research, including:

1. Identifying and targeting the relevant audience for better impact, use and uptake of your research findings.
2. Prioritizing what needs to be in the manuscript and identifying an appropriate journal.
3. Preparing an outline of the manuscript.
4. Developing the manuscript in accordance with the guidelines of the targeted journal and relevant reporting guidelines.
5. Getting the manuscript accepted and published.

7.6.2 Introduction

The foremost priority in health emergency and disaster risk management (Health EDRM) is serving and saving the lives of affected people. However, priorities change at different phases of the emergency cycle: prevention, preparedness, response and recovery. Public interests of safety, survival and well-being take precedence over research interests in the acute phase of emergency response (1). Nevertheless, it is important to conduct research, while making best use of available time and resources, in order to improve Health EDRM practices (2). It is also then vital that this research is made available to others, which usually means publication in an appropriate scientific journal.

Conducting research in an emergency setting is not an easy task, amidst competing and fast changing priorities. The findings of such research are therefore precious and worth reporting – provided they add and further inform the existing body of literature. Earlier chapters have shown you how to design and conduct a research study; this chapter takes you through the processes involved in synthesizing research findings in such a way that they are accepted as scientific evidence. It describes some generic steps that you can follow to prepare your manuscript and get it published in an appropriate journal.

7.6.3 Choosing a journal

The first step in preparing a report of your research is to think about and decide on the intended audience or readers of your report. If you have focused your research work on emergency preparedness and response, or any other specific subject pertaining to Health EDRM, then you would like professionals who work in this area to know about your research results.

There are tens of thousands of scientific journals online. However, around 80 journals focus on disasters, hazards, risks, emergency management, response and humanitarian issues. Some are peer-reviewed journals that are indexed in bibliographic databases, such as those mentioned in Chapter 7.2, while others are non-indexed journals. Indexed journals are generally considered to be of higher scientific quality than non-indexed journals (3), and their content will be more easily retrieved by people searching the bibliographic databases. Furthermore, if you want to ensure a wider audience for your research, you should choose an open access journal, which will allow unrestricted distribution of your research article. If your research received external funding, then those funders might also prefer that it should be published open access, to influence a wider audience. However, open access journals usually ask for publication charges and if you do not have the funding, it may be difficult to get a place in such journals despite the quality of your report.

In choosing a journal, you should look at the editorial team to give you an idea about its composition, including whether its members are drawn from a specific region or from across the world. Look for the specific themes that the journal focuses on and consider how your research will fit with these. Looking at the types of articles published by the journal in recent issues will give you an idea of whether your research falls within the scope of the journal.

It takes dedication, time and hard work to do research and come up with research evidence, so the report of that research should be able to find a place in an indexed journal with a good impact factor. This will give it a higher probability of being noticed, cited by others and translated into practice by policy makers, administrators, practitioners and other stakeholders. The impact factor is an indicator of the prestige and popularity of the journal (4): the higher the impact factor, the more competitive the process of acceptance of a manuscript in that journal will be. Be mindful of your ambitions in targeting a journal according to their impact factor. You should try to have an objective assessment of the quality of your research. Usually, high-quality research can be submitted to a high impact factor journal, but a lower quality study will usually have a higher chance of being accepted by a journal with a low impact factor. If the research findings are meaningful only for a local setting or single country, it might be better to target a national journal, even if it has a comparatively low impact factor.

Check the authors' guidelines from your chosen journal carefully – you will need to follow these instructions for structuring your manuscript. It is vital that you format your manuscript (headings, subheadings, citations, references and so on) consistently, correctly and in compliance with the style of the journal. This is a sign of professionalism that editors and reviewers note and appreciate. Do not forget to check the submission and

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review process for the journal. It is helpful to know how much time the journal is likely to take from receiving your manuscript to its review and, if accepted, final publication. Some journals complete their review process within weeks, while some may take many months. The speed of the process depends on the willingness of potential referees to review a manuscript. A correct title and a good abstract will increase the likelihood that referees will want to review the paper. A poorly written abstract and an ungrammatical title may dramatically reduce this likelihood. Review by scientific peers can be an open or closed process and you should decide based on your preferences.

Despite all your hard work on your research study and description of its findings, sometimes a journal may decide not to publish your manuscript. As a backup plan, identify an alternative journal that you may consider submitting your manuscript to, in case you need to switch from your first choice.

7.6.4 Plan writing up your research

A clear understanding of what and how you want to publish, whom you want the findings to reach and how it will be translated into practice will provide you with a good orientation and context for writing about your research. Writing style, the amount of contextual information you provide and how you present your findings may vary according to your target audience.

To keep yourself focused, write down in one or two paragraphs the main points as to how your research adds value to existing work and the recommendations it lead to for the future. This will help you to summarize your work as a 'conclusion'. It can also help if the journal wants you to provide details on why your research work is important.

As discussed in other chapters, when doing and reporting your research, you should do so in a spirit of transparency, objectivity, honesty and equal opportunities for all. Local people who helped should be given the opportunity to get involved fully in doing and synthesizing findings of the research. There should be a clear understanding among all those involved about who will be an author and the sequencing of authorship, which might be based on the actual contribution to the study. In deciding the order of authors on the manuscript, the researcher who has conceptualized the research and prepared the first draft of the manuscript is likely to be listed as the first author. Traditionally, the last author will be the person who closely supervised the research, mentored the team or provided key advice in finalizing the manuscript, but this is not always the case.

Depending on the scope of your research (for example, whether it focused on one issue or more than one), you, your colleagues and other stakeholders involved in the research can decide whether to present all the findings and analysis in a single, major publication or to split the work across more than one article, with each focusing on a different topic.

7.6.5 Choose a title

The title of the manuscript should be short, grammatically correct and reflect the essence of the research. It should be phrased in such a way that it catches the attention of readers and gives them a clear indication of what the research article contains. Follow the journal's guidelines on the style of the title, which may also include stating the study design.

7.6.6 Outline and develop your manuscript

Various guidelines exist for the preparation of reports for a wide range of types of research study. Many of these reporting guidelines have been collated by the Equator Network and are listed on their website (www.equator-network.org). You should follow the relevant reporting guidelines when preparing your manuscript. For example, there are the STROBE guidelines for observational studies (5), the CONSORT guidelines for randomized trials (6) (Chapter 4.1), the PRISMA guidelines for systematic reviews (7) (Chapter 2.6), and RECORD guidelines for studies using routinely collected health data (8) (Chapter 2.4), among many others. Table 7.6.1 shows the usual structure of a research manuscript, regardless of the study design.

Table 7.6.1 Structured outline of a scientific manuscript

Title
Authors' names with their affiliations
Corresponding author with contact details
Abstract
Key Words
Introduction and/or background
Materials and methods
Results
Discussion
Conclusion
Acknowledgements
Conflicts of interest
References
Annexes and supplementary material

Introduction and/or background: This section should demonstrate your awareness of the problems or issues, existing research, possible solutions and best practices on the topic. Highlight the identified problems or gaps that necessitated your research. Provide an overview of the context of your research for readers of your article. If you quote data or phrases from other papers, always cite these sources and do so in the style recommended by the intended journal. Statements of fact that you make in the report should be supported by the relevant evidence and references. You should state the objectives of the study in the last paragraph of this section.

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Materials and methods: Write a succinct description of the methods you used to conduct your research. Be meticulous and accurate (9). Readers will be interested in knowing what the research design was and who the participants or subjects of the research were. If you are writing a review article, mention the research databases that you searched, including the terms used and any restrictions by language or publication year. If ethics approval was required, this should have been obtained before the study started (Chapter 7.4) and, if so, this should be explicitly mentioned in the manuscript.

Results: In this section, you should objectively present data, facts and observations from your research, along with brief interpretation. Quantitative data might be summarized in tables and graphs, with data to show the imprecision of the analysis (such as statistical significance and confidence intervals) (Chapter 4.2). Always keep in mind the intended audience of your report when deciding on how to present your findings. Always remember that null or negative results can be just as important as positive results to let others know that interventions are ineffective or harmful, or that associations do not exist between variables. Presenting important results graphically may garner more attention, but the number of tables and figures allowed in a report is usually limited by the journal and you must comply with its guidelines. Details about your methods or your interpretation of the results should not go in this section, but should go into the Discussion section.

Discussion: The findings and main observations relating to your research question and study objectives should be discussed in this section, along with what is already known on the topic. The section should not merely repeat your results or the information you provided in the introduction section. Rather, it should be written to provide readers with clarity on how the findings of your research support the arguments you develop for discussion. Avoid statements that are not supported by the findings of your research or other evidence. If there are limitations in interpreting and applying your research findings, be self-critical and describe these limitations so that readers can be cautious when interpreting your results and inferences. In addition to describing the limitations, you can also highlight the advantages of the research you conducted. If you think it would be helpful to highlight key learnings from your research (and this is acceptable to the journal), write these in bullet points in a box with an appropriate title.

Conclusions: This section should summarize your findings and key inferences and provide direction for future practice and further research in the topic area. It should provide a clear, simple and crisp message to show how the research will be useful and influence practice and policies. It is usually best to keep this section to a few paragraphs or less and, in some journals, it can be the last paragraph of the discussion section.

Acknowledgements: Remember to acknowledge those who participated in your research work, funded the study or who helped you prepare the report.

Conflicts of interest: All authors should declare any conflicts of interest relating to the conduct and publication of their research findings. If there are none, write something such as 'No known conflicts of interest'. This

transparency helps readers to ascertain the objectivity of the statements you make in your research article.

References: You should list all references mentioned in the text of the manuscript in the style required by the journal, so check their guidelines again. There are multiple referencing styles but two of the most common are:

- *Harvard style:* this is also known as 'author-date style'. The in-text call out or citation is usually shown in brackets in the body of the text or in footnotes. Full details are listed in alphabetical order in the reference list.
- *Vancouver style:* this is also known as 'numeric referencing style'. Each in-text call out or citation is shown as a number, which corresponds to the order it appears in the text. If the same source is cited more than once, the same number is used. References are then listed in numeric order in the reference list.

Only relevant evidence and information should be quoted in the text and listed in the references, so that interested readers can check the quoted argument, statement or data.

Annexes and supplementary material: Tables or graphics that you want to include in the text are usually placed at the end of the manuscript you send to a journal. The journal then places these in the correct place if they accept it, and before publishing the report. Some journals also allow you to provide supplementary material for the manuscript, which might be published alongside it on the journal website (10). Some journals also provide data repositories and hyperlinks or might require you to provide links to the data on which study is based.

Abstract: Having written the full manuscript, including your conclusions, you should be very clear about the key things to put into a summary of that main text, which would become its abstract. A common error in writing an abstract is to make it an introduction, when it should be a summary. The usual structure of an abstract is similar to that for the article itself: background, methods and materials, results and conclusion. An abstract is usually around 250 words long (11). Together with the title, it will act as an advertisement for the article's content and, if the article is included in a bibliographic database, the abstract should help readers to find your research and decide whether to read the full paper. So, make the abstract simple, interesting and informative, without using technical jargon and abbreviations.

Key words: The journal might also ask you to provide some key words to make it easier for people to find your research article. Choose key words that capture the essence of your research (for example, if you are writing about health emergency and disaster risk management, use words such as risk management, and disaster risk reduction or DRR).

As you start writing these sections of your manuscript, we hope that you will find that your words start falling into place. It is always better to write with your original thoughts. In preparing a first draft, do not worry too much about the exact phrasing or the word limit of the journal. Instead, keep writing, making sure that you consider relevance, coherence and the applicability of your research findings.

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Share the first draft with your co-authors for their input. This may lead to a series of revisions and further draft versions before it becomes your finally agreed manuscript, which will need to be within the word limit for the target journal. This step is important because all authors involved need to be willing to take responsibility for the submitted manuscript. You might also want to share the almost final version of the manuscript with other colleagues or friends for proofreading, in order to help ensure that it is clear to them and to pick up anything that needs correcting before it goes to the journal. However, if you share the manuscript outside the author team, you need to be clear that they must not disclose the findings or pass the manuscript to anyone else without your permission. When you receive comments and suggestions from your colleagues or friends, do not ignore them. Consider them carefully because if they had difficulty in understanding some text, the journal editors, peer reviewers and eventual readers of the article will probably also have difficulties with it.

One valuable tip is to keep a print copy of the final version on your desk for at least one week before submitting it. Engage yourself in other activities and try to forget about the manuscript. Then when you return to it, you might identify ways to improve it further with a fresh eye.

7.6.7 Seeking clearances for your manuscript

Depending on your employment status or the practices of the organization or institution that you work in, you may need to obtain administrative clearances and approval from your department. You may also need to obtain formal approval from those that were involved in your research study, if you do not already have this. In some cases, this may require approval from a government department in the country where the research was done. It is important to get this if you need it, and it may be helpful to involve someone from the relevant department in the author team. This has the added advantage of building local research capacity as well as receiving faster approval. Likewise, you should mention the name of any ethics committee that approved your research (see Chapter 7.4) and share a copy of the manuscript with it, if required.

It is a common misconception that editors are responsible for copyright clearance. This should be sought from authors and publishers. The latter may have systems on their websites to make the process easy. Reuse of diagrams, data and long quotations requires copyright clearance to be obtained from publishers, even if the material was the author's own. However, material published under Creative Commons licenses requires only citation of the author and origin of the work.

7.6.8 Submitting your manuscript

Your manuscript is now ready for submission to your intended journal. However, merely submitting it to a journal is not enough to get it published. It will be reviewed by the journal editorial team and your peers. As you submit it, most journals will require all the authors to sign a statement taking public responsibility for the content in their manuscript. One of the authors will also need to be identified as the corresponding author. Although this is usually the first author, it might be another co-author who has been engaged in the research and will be able to answer questions about it.

If the journal is sufficiently interested in your manuscript, they will probably send it to one or more peer reviewers. Some journals will do this after removing the names of the authors and their institutional affiliations. You should be ready to respond to any comments provided by the peer reviewers. You will be expected to address the issues raised by revising the manuscript and responding to any suggestions for changes. Be polite and respectful when you respond, even if you disagree with a reviewer's comments and have not acted on them. Provide clarification if they misunderstood a point or provide additional information if necessary. If you feel that a reviewer's criticism is unfair, or some of the suggested amendments in the manuscript are unwarranted, you have right to make a representation to the editor and set out a rationale for not following the reviewer's instruction. The revised manuscript should be re-submitted to the journal, usually with a detailed response to each of the comments from the editors and the peer reviewers.

In some cases, the journal may tell you that it will not be considering your manuscript for publication. There is no need to feel discouraged. This does not necessarily mean that your research and manuscript are not worth publishing; sometimes, journals have their own focus or plans for upcoming issues that your manuscript does not fit with. Whatever the reason, consider any comments from the editors and peer reviewers carefully, revise the manuscript if you wish to and submit it to an alternative journal.

7.6.9 Finalizing your manuscript and publication

When a journal confirms that your manuscript has been accepted for publication, the editorial team will send you a formatted version, showing how it will look in the journal, and may ask for some further clarifications or changes. This version of the manuscript is often called the "proofs" and it is your last chance to check the manuscript for any errors before it is published. You will usually be given only a few days to respond, so check it carefully and quickly, and reply to the journal with necessary adjustment of any formatting or typing deficiencies and correction of the proofs. The more accurate the final submitted manuscript is, the fewer the corrections that will be required at the copy-editing and proof stages.

7.6.10 Conclusions

Generating, doing and reporting research – especially research relating to Health EDRM – makes an important contribution to the improvement of the health of people at risk. It should be well planned and conducted in a systematic way. Research is considered complete once it can be used by the stakeholders and policy formulators, and when its recommendations start being translated into actions. This will only happen if the research is fully and clearly reported, and if a research article reporting the research is accessible to those who need it.

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7.6.11 Key messages

- o **Preparing and publishing findings of research relating to Health EDRM is a valuable contribution to strengthening the humanitarian development nexus.**
- o **Be clear about the new evidence you have generated and how it can make a positive difference.**
- o **Prepare your manuscript in accordance with the guidelines for authors of the chosen journal, the relevant reporting guidelines for the type of study you did and the expectations of your target audience.**
- o **Ensure that the final version of your manuscript gives a clear account of the research that will be understandable to readers.**
- o **Ideally, submit the manuscript to an open-access journal, which will ensure its wide distribution, use by others and uptake of your findings.**

7.6.12 Further reading

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