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A brief guide to reviewing research articles

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A brief guide to reviewing research articles

by

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Abstract

This article considers what to look for in a research article and provides a way of approaching the reading of research articles and reports.

Introduction

There are many different types of health care research article, such as clinical studies, literature reviews, and clinical trials, but they all share one characteristic: that of presenting a piece of research for others to consider in their clinical practice.

Just as there are many different types of research article, there are different reasons for reading research articles, for example people read them to keep up-to-date in their area of clinical practice; others because they are searching for something specific, whether this be a treatment, procedure or update on a clinical condition; others read research articles as a requirement of professional development for their registration.

Whatever your reason for reading research articles, this article will provide a structured approach that allows you to analyse the article and its relevance to you and your practice.

First approach

When you first approach a research article there are a number of factors to consider. The first three are the author, the subject area and the journal it is published in. It is personal preference which of these you think about first but all three need to be considered.

With regard to the author, it is their credentials that are important. Do you believe that the author has the authority or expertise to be able to write this article? If you have any concerns about the author's credentials then don't rely upon this article for your clinical practice. You need to be able to justify your practice to others, if you don't use research from appropriate sources then why should others trust your practice?

The subject area of a research article is important because it is this that will be relevant to your practice, or not. Whilst it is encouraging to see individuals read research articles for the simple pleasure of doing so, not many health care professionals actually have the time to do this and need to limit their reading to research articles that are relevant to their practice.

The title of a research paper is likely to be the first thing that draws you to it. However, be aware that titles of articles are often written by the editorial team and not the article authors and so may not truly reflect the content of the article. Therefore, it is advisable to read the abstract. The abstract, which is normally written by the author, will usually explain the problem or subject area that the author is addressing.

The reason for considering the journal in which the research article has been published is that of credibility. In recent times there have been a lot of journals established where the sole criteria for publishing an article is the willingness of the author to pay a fee. If the author pays, the article is published, if they don't it isn't. As can be imagined the standard of these articles varies enormously as does their reliability.

The most credible journals are peer-reviewed. This means that the articles published in them have been assessed by individuals who are qualified in the subject area of the article. Some journals use a system of double blind peer reviewing which means that neither the article author nor the reviewer is aware of the identity of the other. This is said to remove any bias, either favourable or not from the review process.

The other thing to consider regarding the journal is that of its own subject area and scope. Authors want the widest possible audience for their articles and this means having them in relevant journals. An article on a casting technique in children is unlikely to be widely read in a journal that focusses solely on adult diabetes.

So the most credible research article will be published in a journal that undertakes peer-review and publishes articles in that subject area.

Research currency

Once you have found an article of interest to you, written by someone with authority in the area, in a credible journal, the next thing to consider is how recently the research was undertaken and how recently the article was published.

As can be imagined, research has a limited life expectancy, although this varies with different forms of research. To aid in determining whether the research is currently valid it is vital to know when the research was conducted and also when the article was published. If you cannot do either of these then treat the article with caution.

Most research articles will position their own research in terms of the general research on the subject. They will normally do this by including a literature review. This literature review will tell you what previous research has been undertaken on the subject; what the implications of the previous research have been; and, why there is a need for the current research.

Reading a literature review can be daunting on its own, but essentially the things to look out for are: how recent are the sources; does it take account of all the important studies on the subject, i.e. is it comprehensive; is the literature and research presented relevant to the research area being discussed; is there a logical progression through the literature to show how the research area has progressed; does the author present both negative and positive arguments or is there a bias in the way the author has approached the literature; and, is there a summary of the literature included where the author indicates how the previous studies have informed their own research. Finally, it is worth remembering that in some areas of research there have been little or no previous studies and this is the reason for the current study, so no literature review is possible. If this is the case the author should clearly state this.

The research aim

Once the author of the research article has outlined why there was a need for their research to be undertaken, they should clearly state the aims of their research project. That is why and what are they researching.

This is usually stated as the research question or aim, although may sometimes be referred to as the research hypothesis.

It needs to be clearly stated, so that the actual question or problem that the research is designed to answer or address can be determined. This allows you to see if the research has a relevance to your clinical practice. If you cannot determine what is it the researcher was trying to address in their research, how can you tell if they stuck to their aim, or even if they succeeded?

Every well written research article should have a precisely formulated question that is made clear at the outset of the article.

Research method

It is often the research methods and research findings sections of a research article that can be the most problematic to read. However, there are several questions that can be utilised to make this less daunting.

Remember to first read the research question that the researcher was addressing. Following on from that the important aspects to consider is whether the research method used to undertake the research was appropriate for the question being addressed.

In order to determine this the research paper needs to provide a statement of the overall design of the research, hopefully with a discussion of any theoretical framework that was employed. There should be a clear description of the actual method that was employed during the research, as well as the reason for choosing this method, should also be discussed. This can be compared to any previous methods used to study this research area that are detailed in the literature review, allowing you to establish if any alternative research method could have been used.

Any technical terms relating to the research method should be defined by the author, as well as any technical terms relating to the subject area.

Following this should be a section in the research article that deals with the data. This should clearly explain what sort of data was collected, how it was collected, as well as the reasoning behind the method of data collection. This allows you to establish if the method of data collection was appropriate for the study undertaken, or if an alternative method of data collection would have been more appropriate to address the research question. It also allows you to conclude if the correct sort of data was collected, that is, were the correct questions asked?

Many research papers will include copies of any research instruments, such as questionnaires, used.

After presenting the data, the research paper should move on to detail the ways in which the data was analysed. This should include the reasoning behind any particular statistical test employed, and allow you to determine if the methods were appropriate for the data that was collected.

Research results/findings

In this section of the research article the author should clearly present their findings. This needs to report both negative and positive findings, as well as directly addressing the research question and/or aim.

One point to consider is whether the author has actually answered the research questions. In order to determine this, and to allow for greater dissemination, the research paper needs to adequately discuss the results, and present them in a way that are clear and easy for the reader to understand.

Things to consider regarding the results are whether they can be generalised beyond the original research study or if they are only relevant to that study. Another important point to consider is whether you agree with the authors. It is possible that the authors have made a finding for which they have not provided any proof, or have made a generalisation that cannot be borne out by the evidence they provide. Therefore, it is useful to see if the results from this research fit with the findings from previous studies, which should be outlined in the literature review section of the research paper. The results may be surprising and a departure from those of previous

studies because the research has taken a novel approach or introduced some new factor that has altered the outcome in an acceptable way, but it is appropriate to check the findings.

The final part of the research paper will be its conclusion and recommendations. It is here that the author will outline the implications of the research and any limitations. Most will outline any gaps in the present knowledge in the subject area along with recommendations for further research in the area.

In assessing the conclusion and recommendations, the question to ask is are they justified? That is, can they be justified from the information that is provided elsewhere in the research paper and are the recommendations made solely on the basis of the data? Other questions to ask include, are there alternative interpretations that can be drawn; are the recommendations linked to the original research question or aim or are they outside of the scope of the original enquiry?

In short the conclusion and recommendations section of the research paper should be a succinct summary of the research and the results, along with any recommendations for changes in practice.

A final question to consider is that of, to what extent will your practice be influenced or change as a result of reading the article? This can be broken down into: do you agree with the recommendations based on your reading of the research paper; are the recommendations important for health care practice; are the recommendations practical in terms of application to your area of practice; does this research paper add to your own knowledge. If the answer to any of these is no, then why not: what is it about the research paper that will mean you do not want to apply it? If you reach the end of the research paper and have doubts over any aspect of it, then the author has not proven the value of their research to you. This is their failure, not yours.

Ethical considerations

Any research that is undertaken on humans has to receive ethical approval from a relevant authority; this could be a hospital or university ethics committee. The author of the article needs to clearly state what ethical approval was obtained and

from where. The author also needs to address any ethical issues that arose from the research and the guidance that was provided to any participants, such as the option to refuse to participate or to withdraw from the research once it had started.

It is highly unlikely that any research that has not received ethical approval would be published in a credible journal.

Conclusion

Reading research papers can be both time consuming and challenging. However it is hoped that the above approach will allow you to gain both knowledge and understanding as well as making the experience more rewarding.