

Proliferations of Scientific Medical Journals: A Burden or A Blessing

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"There are only a handful of ways to do a study properly, but one thousand ways to do it wrong." McMaster University

Scientific Medical Journal publication is rapidly increasing in volume. It has become the most explosive field of journal publications worldwide. Medical practitioners require proven strategies to benefit from these immense publications to keep up with current literatures. The task of teaching physicians to review medical literature critically has assumed increasing importance. The objective of this write up is to offer suggestions to help physicians improve their use of Scientific Medical Journals in their practice so as to be able to sieve out worthless journal articles.

Majority of the articles agreed that a quick review of the *title*, the *introduction* and the *abstract* of an article will guide a physician as to whether to continue to read or discard an article. A strategy is required in reading an article so as to benefit maximally from it.

In general, a quick scanning of the *title*, *abstract*, *introduction*, and *conclusion* sequentially usually will enable the reader to identify whether articles with interesting titles are truly of interest. If so, more time can be spent on *methodology*, *results* and *discussion* sections. As you read, always bear in mind the possibility of applying the study in your practice.

The use of Medical Journals as a form of medical education and sharing of information consistently ranks above the use of other sources of literature such as Newsletters, Textbooks, and Monographs. It serves as a means of continuing medical education better than other methods such as personal contact with colleagues, making clinical rounds, and continuing education courses.¹⁻⁶ However, most programs do not prepare doctors for critical review of literature.

A medical doctor should be familiar with analysis skills of medical literature so as to profit maximally in the use of this method of instruction. Reading medical journal is a standard method of increasing knowledge among the physicians worldwide. It enables medical practitioners to put to practice evidence base medicine. Any doctor who is not skilled in journal analysis is not likely to be skilful in medical practice.^{4,7}

Publications of Scientific Medical Journals started in the early

1600s. It has since then rapidly increased in volume representing the most explosive field of journal publications worldwide.^{4,5} New medical articles are appearing at a rate of at least one every 26 seconds,^{4,7,8} and if a physician were to read every medical journal published they would need to read 5000 articles per day.^{9,10} It is therefore impossible for anyone to have a complete coverage of available medical articles.^{4,7,11} Physicians must therefore be able to separate the wheat from the chaff in this era of "information jungle." The objective of this article is to consider the strategies involved in journal reading skills which will enable all practicing physicians to derive maximum benefit from medical journal education.

This write up was prepared using different sources. Data sources included Literatures searched from the National Library of Medicine's online database and Google scholars. All articles were traced to their primary sources through available websites. The retrieved data was saved in a Citation Manager (Reference Manager 12) for processing of the retrieved information.

Physicians should read journals to attain, maintain and improve medical competence and to stay current with medical trends. Journals should also be consulted to seek solutions to specific patient care problems and to nourish a personal sense of inquisitiveness and interest about certain medical conditions.^{1,4,6,7,9,12-17} A survey of self-reported reading time among 760 Norwegian doctors revealed that internists spend more time reading journals than surgeons and general practitioners. An average internist spent about 4 hours per week reading medical articles.^{11,14,16} It is expected that doctors who want to update their knowledge should spend at least 4 hours per week reading high quality, peer reviewed Medical Journals. Medical Journals should be read, understood and be applied where appropriate. It is a highly recommended medium of acquiring high medical training and sharing of information among doctors.^{4,7,16-18}

Physicians should formulate a personalized journal reading list and ensure they have access to the key articles in their chosen fields. The syndrome of "publish-or-perish" rules have brought many junk journals into the circulation hence the need to be trained in the use of medical journal reading habit to ensure maximal benefit. Some journals are floated for purpose of promotion and

they disappear from circulation after the aims have been achieved. If a doctor is looking for a high yield journal for information, there are guidelines that must be followed. Articles are chosen for their clinical and methodological relevance. It is pertinent to say that an article should not be judged by the journal in which it is published. A useless article may appear in a well respected journal and a good article in a relatively unknown journal. However, physicians are advised to select high-yield journals for regular reading and continue to add relevant ones to their list of Journal armamentarium. Do not jettison everything published and consider only the weaknesses of a study. Doctors should know that there is no such thing as a perfect article.^{9,10,19,20} Always scan an article for technical complexity; if the technical complexity of the article far exceeds your ability to comprehend it, quickly discard it and move ahead.

Journal Articles are broadly grouped into four categories: Editorials, Clinical reviews, Education and debate and papers. Physicians' reading areas should embrace all the four categories.²¹ Your reading material should reflect the purpose of reading. A doctor will either be reading to find a specific solution to a clinical problem or to keep abreast of medical advance. In every good journal, every study has a purpose. The purpose of the article must satisfy your reason for reading the journal. The purpose of a published article or study can be found by reading the Introduction, Methods and the first paragraph of the Discussion.^{3,7,19,22-24} This triad will give the direction of the journal article and whether it is worth spending time on. Sometimes doctors come across bizarre cases in unfamiliar grounds. What steps should they take? When a Physician comes across an unusual disease about which he or she needs specific information, *scanning a textbook* followed by reading a quality *review article* is an excellent approach. This process may be followed by scanning articles from "how to" journals such as *Patient Care* journals to identify practical insights. Finally, scanning *original research* articles will identify recent advances in the subject being considered. Original reports are first-hand accounts of planned investigations and their results. One should read only original articles that have direct bearing on his own clinical practice. In contrast, when a Physician is reading to keep abreast generally, he should include a few good review articles as they recently appear and scan reports of original research articles. These guidelines will help all doctors to formulate what articles to read in order to maximise time spent on journal reading.

Having selected a high yield article to read, there are further steps to take in reading the articles. A doctor cannot read all the available and relevant articles in his career. One of the major objectives for reading the medical literature is to develop clinical competence; this task is accomplished through efficiently extracting from the literature properly validated advances in medical knowledge of direct relevance to the physicians' own

practice. Physicians can derive immense satisfaction from keeping abreast of new developments in patient care by regularly scanning medical journal literature. Physicians must be learners throughout their careers and the learning must be self-directed, active and independent. The best way to reach this goal is to devote regular time to medical literature at least 30 minutes to one hour per day. However as the great volume of journal literature precludes physicians from reading all of it, *special tactics* of scanning, selecting and reading medical articles are necessary.

How then can one critically scan an article that has been selected for further reading? Even many experienced Physicians lack the skills, or, if they have the skills, they may have low self-confidence in their ability to read the article critically. These skills are seldom taught formally during medical school or residency training. Even the most dedicated readers will receive few benefits for their efforts if they lack the ability to separate the valuable contributions from trivial or misleading articles.^{1,4,6,7,18} Reading strategies are required. (Fig. 1)

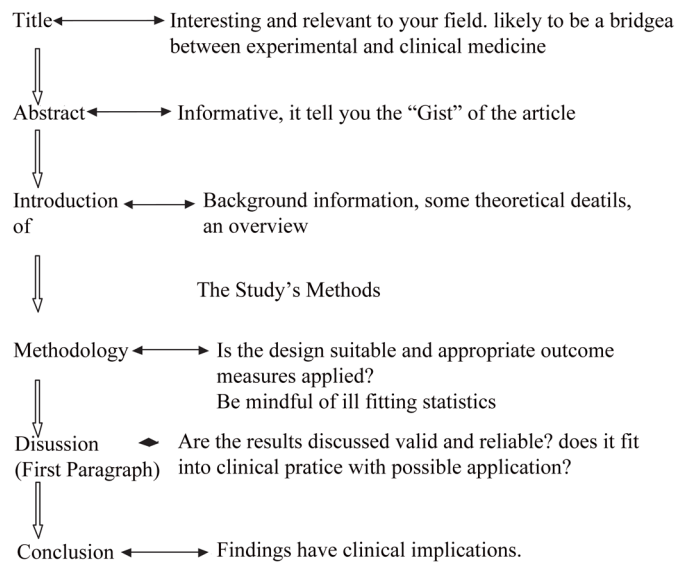


Figure 1: A Quick Guide for Selecting an Article for Further Reading.

Physicians should begin reading an article by looking at the Title of the article to determine general interest. If the title of the article is not interesting or appears not to be relevant to your practice, please abandon the article. Next, verify the article's relevance by reading the Summary or the Abstract. A high-quality structured abstract is a good outline of a study. An abstract will enable you to have a bird's eye view of the study. It is informative and should be able to stand apart from the article, but should not be used as the sole basis for a critical opinion of the study's validity.^{7,23,25,26} You must ask yourself a very valuable question when you go through a journal article. Examine to see that even if the article's

findings are true, and whether it is useful in clinical practice? Can it lead to a change of clinical practice? Is it of practical use for the reader, given his or her peculiar practice setting and peculiar patients especially in an African setting? Physicians should endeavor to know more than elementary descriptive statistics as greater than 42% of journals use statistical methods beyond elementary descriptive statistics. Critical reading of medical literature requires an understanding of many statistical methods.²⁷ The main objective of reading an article is to increase knowledge which may change or improve clinical practice. Applicability of any study is summarized in two words; *validity* and *reliability*. Reliability is the degree of consistency between repeated measures of the same thing. If the study was repeated, would the same data be obtained? Validity is the degree to which a study achieves the aim for which it was designed; does it represent the truth? Of the two concepts, validity is the most important but the most difficult to assess and above all the more subjective of the two. The two measures, validity and reliability are not mutually exclusive.^{7,23,25,26} A study's findings may be very reliable yet invalid.

There are two types of validity; internal and external. Internal validity usually refers to the ability of the study design to measure what it was intended to measure within the confines of the study. External validity has to do with whether conclusions can be applied to settings different from that used for the study, including the reader's practice.⁷ Therefore, providing answers to the above questions will assist you to know if the study is valid. Validity and applicability of a study start with the introduction section. What was the previous outcome of earlier studies? Make sure that the design is appropriate under methodology. Be sure that the study covered adequate period of study. Are the criteria for inclusion and exclusion of subjects clear? Were subjects randomly assigned? Was the randomization method described? Assess the outcome measures used in the study and be sure it is appropriate. Are statistical methods outlined appropriately? Satisfactory answers to the questions will attest to the validity and reliability of the study.^{7,23} Remember that the result of a regular journal reading is the development of competence and confidence in distinguishing new findings that are reliable and valid from those that are not and deciding when new information should lead to a change in clinical practice. Remember also that "the only conclusion that a reader should make from a poorly designed study is that no conclusion can be made."^{13,28}

With the rapidity of increase in medical knowledge, physicians will have to rely heavily on medical journals to increase knowledge and improve medical competence. Reputable journals are to be selected for regular readings. Most doctors cannot read critically and some lack the knowledge in biostatistics needed

to interpret many of the results in published clinical research. Teaching programs should include more effective biostatistics training in medical curricular to successfully prepare doctors for this important all-time learning skill. Most biostatistical education occurs in the pre-clinical years of medical school and the intensity of training varies dramatically among institutions. It is the responsibility of individual physician to become competent not only in clinical practice, but also competent consumers of the medical literature. Effective strategies for journal reading should be developed by each medical practitioner so that current literature can be critically reviewed.

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