

Literature search in Medical Publications

Babatunde A. Solagberu

*Consultant Orthopaedic and Trauma Surgeon, Department of Surgery
University of Ilorin Teaching Hospital, Ilorin, Nigeria
P. O. Box 4377, Ilorin, Nigeria
E-mail: basolagberu@yahoo.com*

Summary

The quality of a medical publication rests as much on the research paper as on the literature search prior to writing for publication. The art of literature search and its importance to the various steps in scientific writing have been emphasised in this paper. Many medical authors in West African sub-region learned the art of publishing research work through their senior professional colleagues or by trial and error through the peer review experience of their work. This article is expected to fill this gap in training. It should guide trainee specialists or new entrants, who must do literature search towards publishing research works for earning promotion, advancing knowledge, obtaining grants and fellowship awards, into the "publish or perish" syndrome existing in academic institutions. The current trend of electronic writing has called for a new style of referencing in medical publications, which has been suggested in this paper.

Keywords: *Literature, Medicine*

Résumé

La qualité d'une publication médicale repose sur le travail de recherche de même que sur la documentation de la recherche prior à la rédaction pour la publication. L'art de la documentation de la recherche et son importance par rapport aux étapes diverses dans le domaine d'une rédaction scientifique ont été mis en relief dans cet exposé.

Un grand nombre d'auteurs dans la sous région de l'Afrique de l'ouest ont appris l'art de la publication du travail de recherche à l'aide de leur collègue professionnelle supérieure ou par approximations successives à travers l'étude et l'expérience de leur travaux avec les pairs. Cet article est prévu de remplir cette lacune dans le programme de formation.

Cet exposé est prévu de guider les spécialistes qui suivent le programme de formation ou bien les débutants qui devront faire des recherches afin de publier un travail de recherche pour être promu, pour acquérir la connaissance, obtenir une bourse d'études ou le prix de titre de membre dans le syndrome « publish or perish » qui existe dans les institutions universitaires. Les tendances actuelles au sein de la communication électronique exigent une nouvelle méthode de consultation dans la publication médicale, qui est suggérée dans cette étude.

Introduction

Trainee specialists and young consultants/lecturers in our teaching hospitals and universities are confronted with the reality of having to "publish or perish."^{1,2} Many have not been adequately exposed to the art of conducting scientific research as this is sparsely learned during training for the fellowships of the West African Colleges of Surgeons or of Physicians except the few trainees who enjoyed some association with research-oriented senior professional colleagues or trainers. Literature search is an all-encompassing subject relevant for these beginner-researchers in the sub-region to enter into academic publishing and the "publish or perish" phenomenon. Indeed, academic achievements, after earning a fellowship, are best measured by published work.³ It is the only means of ascertaining currency of knowledge, or continuous learning since specialists hardly write any further examination after their fellow-

ship. Publications are used to gain promotion, contribute to knowledge, obtain grants,^{1,2} fellowships and scholarships, and expose one's work, both in quality and quantity, to the academic world. The exuberant enthusiasm in young researchers believing they are the first to make certain discoveries is necessarily dampened by literature search when it is obvious to them that others have equally made a similar observation.⁴ Literature search seems to say: "be humble, a lot was done before you" and "you cannot reinvent the wheel."

Some important rules about publications are well known from literature search. The Ingelfinger rule⁵ prohibits discussing with public media contents of a researchers' work before scientific publication. Recently, a surgeon caused a raging controversy about a purported scientific discovery of the treatment of human immunodeficiency virus (HIV) infection vaccine involving some unscientific politicians in a tropical African country, many of whom have no idea of what research is all about. Inadvertently, the surgeon had flouted this Ingelfinger rule. To date the work has not been published, and is not likely to be published because it does not meet the standard of a proper research. Good research should be well justified, well planned, appropriately designed, and ethnically approved. To conduct a research to a lower standard constitutes misconduct⁶ just as falsification of data² or not reporting research results.⁷ Since literature search is this pervasive, it is an important place for the inexperienced trainee specialists or consultants/lecturers in the training centres and hospitals in West Africa to begin learning or consolidating on what they already know in scientific publications.

When is literature search done?

Scientific writing often begins with generation of a hypothesis.³ This is usually an idea, an observation or a question needing answers. The idea can come up during preparation for a seminar discussion or while studying some unrelated topics. Before data collection, analysis or publication, it is necessary to know what studies were previously done or have not been reported in that regard.⁴ Subsequently, the researcher might modify or enlarge the focus of a hypothesis, depending on the findings from literature search to make his own contribution to the scientific community.

The uses of literature search

Choosing a title: A gap in knowledge or a lack of currency of a previously held view can inform the choice of title of a paper. Indeed, the study of a different geographical area may be replicated in another area to determine geographical variation or in the same place over many years interval to detect if any changes have occurred. For example, the author learnt during his training that amputations were performed due to trauma and infections in developing countries⁸ whereas practical experience as a consultant revealed an increasing number of amputations were done due to diabetes and less due to infection. A literature search on amputations in our environment was done leading to two publications on amputations.^{9,10} Additionally, a symposium on spinal tuberculosis to which the author was invited as one of the speakers in July 1999 revealed that published works on spinal tuberculosis in our environment were scanty; the popular ones were those by Konstan¹¹ in 1963 and Dickson¹² in 1967. This revelation from literature search led to a

paper to review 10 years of "tuberculosis of the spine in Ilorin, Nigeria" in 2001 to update knowledge on spinal tuberculosis in Nigeria and document pertinent changes.¹³

Writing a summary or abstract: Studying how abstracts have been written in published works is the best way to guide a researcher's method of writing own summary. There are two types of abstracts: structured and unstructured. One variety of the structured abstract includes background, methods, results and conclusion. Others have in addition; hypothesis, setting, and main outcome measures.

The introduction: This aspect deals with the objectives of writing and the background to the study, which must be quite succinct. Reference must be made to existing literature and how the present work expects to add to knowledge or improve on what has been known. All questions the new study hopes to raise and answer are mentioned in this section. Studying the literature will guide the coverage of the requirements of the section. Most journals determine the relevance of a research work to their readers at this stage and if otherwise, it is usually from poorly written introduction or literature search suggesting lack of clear objectives.²

Materials (Patients) and Methods: There are different kinds of studies that can be done such as case studies, retrospective, prospective, animal or clinical experimental studies, technical innovations and review articles.^{2,4} Literature search helps a great deal in choosing an appropriate methodology as each of the searched material has one excellent format or another that can be adapted to the new study. The constraints of earlier writers, what was not done which the new study hopes to highlight or some suggestions from other writers for a future methodology are the areas a planned research may embrace.

Results: The presentation of results is enhanced especially the statistical methods employed to justify certain assertions by studying how the literature has done this for other publications.

Discussions: In literature review, the style of discussion, the presentation of arguments to support research findings and the eloquence of the statements are borrowed from others.

Acknowledgement: Past researchers have acknowledged other people who gave some help ranging from collection of data to statistical analysis, useful suggestions or helping to edit work. A researcher learns that any form of assistance, solicited or unsolicited, should be acknowledged. Some journals do not carry acknowledgement. They believe that if a contributor deserves acknowledgement, he deserves to be a co-author.

References: All papers consulted during literature search carry a references list. The Harvard system¹⁴ lists the references in alphabetical order, while the Vancouver^{15,16} method deals with mentioning references in the order they appear in the paper. Both of them apply the Arabic numerals. Minor variations concern whether the number is written as a superscript or in bracket in front of citation. We may also be able to do cross-referencing as one paper leads us to another paper and on and on. For example, amputation statistics due to diabetic foot is changing and growing. A review article on diabetic foot in Nigeria by this author (in print) provided some references from previous relevant works of the author, each research work also carries some other references - all of which can be a rich source of information on the subject of diabetic foot and amputation in developing countries.^{9,10,17-19}

Tables and Figures: Bar chart, line diagrams, histogram, pie chart are excellent ways of presenting results pictorially as appropriate. The appropriateness can be appreciated from literature search in studying how similar studies used these figures. The same reality is true of tables.

Choice of Journals: The review of literature guides an author into the interests of several journals; happily and unlike several decades

ago, there are a number of new journals to which an author can send a well-researched work. Authors use several factors to choose a journal.²¹ The request for pagination fees in foreign currencies by several foreign journals including well-established ones like the *Journal of Trauma and American Journal of Tropical Medicine and Hygiene* will necessarily shut out good publications from poor economies. Indeed, medical information will need special financing policies to allow free flow of medical research results.

Who should do the literature search?

Usually, the junior author under the guide of the more senior ones in a multiple authored paper takes the role for literature search; otherwise, the sole author may do this by himself. A senior researcher may request his protégé to collect materials relevant to a work of study but necessarily, such a protégé should be acknowledged, or made a co-author.

How is literature search done?

The easiest place to begin is to request for references from peers, mentors and protégés. The prospective author's peers (colleagues) will have a few references, just as the mentors will. The person being trained (protégé) might be more current with latest information. Manual search using the Index Medicus is being increasingly replaced by electronic search using MEDLINE, HEALTHSTAR, AIDSLINE, CANCERLIT and OLDMEDLINE. All databases can be searched simultaneously at the National Library of Medicine and the National Cancer Institute (for CANCERLIT) in the United States of America (USA) by contacting them using the internet PaperChase search address: pch@caregroup.harvard.edu. Only the OLDMEDLINE is updated yearly with indexing from 1960, while MEDLINE is updated weekly with indexing from 1966. HealthSTAR indexing begin in 1975, while AIDSLINE and CANCERLIT began in 1980; all three of them are updated on a monthly basis. All these provide abstracts. Most of the new abstracts carry e-mail addresses of correspondence authors who can be contacted for reprints.

Finally, many journals now have electronic versions, with a website address to facilitate the browsing of the journal. For example, <http://www.bjs.co.uk> is the website address for British Journal of Surgery, while <http://www.jbjs.org> is for the Journal of Bone and Joint Surgery. Even if the website is unknown, a computer search can be done to locate relevant information. It is desirable that in writing journal references, scientists should add the website address of the journal so that this may be used to access the article. However, editors need to make amendments in their instruction to authors to make this acceptable practice.

Conclusions

Medical literature is the storehouse of medical publications about medical practice. Literature search allows researchers to review the past, the present and look into the future. Literature search should begin after conceiving an idea. Therefore, any researcher-writer should expose herself/himself to idea-provoking events. The key to making research writing a pleasurable event for West African specialists who have wrongly placed service above research^{1,2} is to make literature review a rewarding and an easy event that will fire up their interests in writing. There is need to add the website address of a journal after the usual citation, an indirect call for modifying instructions to authors.

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