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REVIEW ARTICLE

Writing a narrative biomedical review: considerations for authors, peer reviewers, and editors

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Abstract Review articles comprehensively covering a specific topic are crucial for successful research and academic projects. Most editors consider review articles for special and regular issues of journals. Writing a review requires deep knowledge and understanding of a field. The aim of this review is to analyze the main steps in writing a narrative biomedical review and to consider points that may increase the chances of success. We performed a comprehensive search through MEDLINE, EMBASE, Scopus, and Web of Science using the following keywords: review of the literature, narrative review, title, abstract, authorship, ethics, peer review, research methods, medical writing, scientific writing, and writing standards. Opinions expressed in the review are also based on personal experience as authors, peer reviewers, and editors.

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Introduction

Recent advances in biomedical sciences are marked by an ever-increasing number of publications maintaining communication between clinicians and scientists worldwide [1]. Individuals involved in biomedical research are now required to acquire specific skills in processing scientific information, selecting reliable and relevant data, and presenting original points of view. Perhaps, the most difficult task, in this regard, is writing review articles.

Review articles comprehensively covering a specific biomedical topic and justifying future research directions are crucial for successful master, doctoral, and postdoctoral courses. Not less important, for senior academic staff, pursuing new career goals and guiding younger colleagues, communicating messages through reviews is a matter of intellectual enrichment and enhancing standards of research. Writing a review requires knowledge and continuous improvement of qualifications in line with the accumulation of better scientific evidence and updated publication ethics standards [2]. In the era of impact factors where research and academic institutions are prioritizing their resource allocation, reviews published in high-rank peer-reviewed journals are becoming a driving force for visibility and sustainable growth of the institutions. In fact, reviews attract more journal, textbook, and thesis citations than any other type of articles and substantially contribute to the impact of the journals [3]. Remarkably, reviews are an inseparable part of the writing culture in countries topping the list of research quality and productivity (e.g., US

and UK). It is impossible to imagine an issue of The New England Journal of Medicine or The Lancet and other top general medical journals without a comprehensive review impacting upon clinical practice and further research studies. Reviews may boost the profile of both established and emerging scientific powers, where understanding of the importance of reviews is improving, given the recent scientometric evidence [4, 5]. Undoubtedly, reviews proposing genuine hypotheses and carrying messages of global importance may lead to the sustainable development of research institutions with limited resources and expand international collaborations.

Most editors currently encourage authors to prepare review articles, and publishing houses provide more resources for soliciting these articles for either regular or special issues of journals. An invitation to write a review is an appreciation of an author's or research group's previous scientific work on a specific topic and an opportunity to add new information to the global medical literature.

Writing for a target journal requires a thorough search for similar publications in that journal to avoid redundancies, to correctly cite relevant publications, and to stick to the format of publications. Editors of solicited reviews, in turn, have to inform the invited authors about topics of other submitted manuscripts in the process of peer review or editing. Also, editors can be contacted prior to the submission of an unsolicited review to discuss the relevance of the review to the journal's scope, thereby increasing the chances for successful publication. The editor's response (either positive or negative) in that case and in case of submissions without prior arrangements should not take long. In most cases, depending on the editor's workload, a decision before proceeding to the peer review can be conveyed to the author within 48 h. Editors working on special issues can also informally guide the authors in the process of writing.

The aim of this review was to analyze the main steps in writing a narrative biomedical review and to consider points that may increase the chances of successful publication and future impact.

Search strategy

We searched MEDLINE, EMBASE, Scopus, and Web of Science for English-language sources using the following keywords: review of the literature, narrative review, title, abstract, authorship, ethics, peer review, research methods, medical writing, scientific writing, and writing standards. Preference was given to the sources published within the past 7 years. We searched the bibliographies of the retrieved articles written by experts in biomedical writing/editing. We discuss some points and guidelines of relevant professional associations. Opinions expressed in this review are also based on personal experience of writing, editing, and commenting on review articles.

Writing a review

There are some basic tips for writing a review. Generally speaking, these tips are, to some extent, also applicable to editorials and commentaries. Not surprisingly, those who write reviews frequently also publish editorials and commentaries.

Authorship

The circle of contributors with sufficient qualifications in a specific biomedical field, experience in writing reviews, and advanced English writing skills has to be defined early in the process of writing and structuring of the manuscript. Though there have been suggestions to move from authorship to contributorship in biomedical articles [6], acknowledging the co-authors' efforts by listing their names in footnotes of a review is still an important issue. Co-authors should meet the authorship criteria suggested by the International Committee of Medical Journal Editors (ICMJE): (1) substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data, (2) drafting the article or revising it critically for important intellectual content, and (3) approval of the final version [7].

The whole process of writing may stretch for several months, with several rounds of drafting, reassessing the expressed medical ideas, updating the reference list, and improving clarity of writing and quality of graphics. Several contributors may take part in the writing process by adding new quality to the manuscript, but only those meeting all three criteria of authorship can be listed as co-authors. Contributors suggesting structural changes, improving the style and grammar, paraphrasing and rewording some or even all parts of the text have to be credited by mentioning their efforts in the acknowledgment section [8].

It is more likely to effectively write and edit a review within a limited timeframe and with limited contributors/co-authors involved. Each co-author should be responsible for a certain part of work. Even though there are no strict rules, it seems reasonable to have 1–2 authors for an authoritative review (summarizing an expert's own data in the light of new evidence) and 1–5 authors for a narrative literature review. The number of authors/contributors may also depend on the topic and volume of the manuscript. From conception to proof reading stage, one individual, preferably the corresponding author, should take responsibility for the whole manuscript and coordinate communication among contributors. Sharing responsibilities also imply the order of individuals listed as authors in the final version of the manuscript.

Title

Ideally, title has to specifically reflect the essence of the manuscript, its novelty, and relevance to a certain biomedical field [9]. Titles, along with abstracts and keywords, are important for selecting peer reviewers [10]. An appropriately constructed title greatly contributes to the visibility of the published review [11].

A preliminary, or a working, title should be chosen from the very beginning. Its structure is predominantly based on keywords chosen from the Medical Subject Headings (MeSH) of MEDLINE. The authors bear full responsibility for the correctness and accuracy of the titles. Editors, particularly those working on special issues and supplements, and peer reviewers may suggest alternative titles suitable for the style of the journal and content of its issues. A few scholarly journals offer services of title and abstract editors who correct wording or spelling/punctuation mistakes in incorrect titles [12].

Titles that are short, explicit, and understandable to non-experts are usually well accepted by editors and referees. Good examples, in this regard, are titles of reviews comprehensively covering updates on epidemiology, pathophysiology, diagnosis, treatment, and prevention of certain nosological entities or syndromes [13–17]. Additional words in these titles, such as "a review", "an overview", "a clinical review", "an updated review", "clinical evidence", do not add valuable information and should be avoided. The term "a systematic review" is usually embedded in the titles of systematic reviews [18, 19] and case reports with a comprehensive analysis of the literature [20–22].

Short titles are particularly suitable for comprehensive overviews of pathophysiological roles of certain factors [23–25] and advances in drug therapies [26–28]. Titles with questions reflecting uncertainties and emerging evidence in a certain biomedical field are also well accepted, as they may attract readership interested in getting answers to these questions [29, 30].

Lengthy titles (i.e., more than 10–12 words), not topical, containing abbreviations and trade names of drugs and medical technologies may discourage the readership. In terms of citability, available evidence suggests that the presence of a colon (:) in titles of articles of the Lancet, British Medical Journal, and Journal of Clinical Pathology positively correlates with the number of citations [31]. In other words, titles with specific and accurate description of the content of the manuscript [32, 33] have more chances to be cited.

Abstract and keywords

Informative, but not too long abstracts, complimentary to the titles, are important for citations. In this regard, quality of abstracts is of critical importance for newly launched, small, non-English, and struggling to improve their rank journals. In contrast, some high-impact journals (e.g., Arthritis and Rheumatism) have abandoned this section of narrative reviews [34, 35].

A review abstract should contain few words (100–250) and outline potentially citable messages. For this reason, a structured abstract, with concise information on the main sections of the manuscript, is preferable [36]. The background, aim, and literature search strategy can be outlined in 2–3 short sentences, followed by the statement of messages stemming from literature analysis and conclusion. The conclusion has to specifically convey messages for future research and clinical practice. It is useful to summarize in two to three lines in what way the review provides information beyond state-of-the art knowledge on the topic of discussion. Reference to figures, tables, and literature sources in abstracts is not allowed as this section of a manuscript is published separately [9]. There are numerous good examples of recent reviews with structured abstracts [37, 38].

In the case of unstructured abstract, it is desirable to clearly present main messages of the review. Too short, unstructured abstracts, containing vague statements, are disadvantageous in terms of readability and citability.

A limited number of keywords (3–6), carefully chosen from the MeSH terms, is another critical part of a review, contributing to the chances to be retrieved and cited by other authors [39]. Occasionally, it may also be required to add keywords not listed in the MeSH but explicitly reflecting the essence of the manuscript.

Introductory notes

The introduction needs to be written in a way to reflect novelty and previous similar attempts to comprehensively cover the topic. In the context of clinical reviews, it is appropriate to present in the introduction some epidemiological data and definitions of the discussed nosological entities and syndromes [40, 41]. Historical perspectives of the topic covered in the main text can make further reading more interesting. The introduction is the right place to disclose unusual terms or laboratory tests further discussed in the main text. As with all sections of a review, the introduction will benefit from being sufficiently informative and short. The last sentence of the introduction usually contains the purpose/aim of the review.

Search methodology

Though the literature search methodology is an obligatory section in systematic reviews and meta-analyses, it is also becoming an inseparable part of narrative literature reviews

[42, 43]. Providing information on the databases accessed, terms, inclusion and exclusion criteria, and time limits adds objectivity to the main messages and conclusions. The literature search is directed toward retrieving sources with the highest level of evidence and relevance to the topic. Optimal search methodology is a comprehensive and unbiased coverage of highly reliable and updated information.

To comprehensively cover scientific information and to overcome limitations of separate online libraries, catalogs, and databases, it is advisable to undertake searches through at least 2–3 credible databases, selective toward high-quality publications and containing most up-to-date information (i.e., MEDLINE/PubMed, Excerpta Medica/EMBASE, Scopus, Thomson Reuters' Web of Science). Widely used global databases are equipped with advanced Web browsers and have links or even access to full-text content of most academic journals.

PubMed, a service of the US National Library of Medicine, is the oldest and still the most popular hub of updated bibliographic information on scholarly biomedical journals and online books. It indexes journal articles listed in MEDLINE and has links to free full-text content of PubMed Central free digital library. EMBASE is a biomedical online service of Elsevier, indexing mainly European and non-English literature sources. Scopus, launched in 2004, is another online database of Elsevier and a hub for biomedical and non-biomedical journals. It combines features of PubMed and Web of Science, keeping track of citations and offering access to full texts of journals published by Elsevier and to abstracts and reference lists of other indexed journal articles. Importantly, it covers about 20% more journals than Web of Science [44]. Scopus and Web of Science distinguish highly cited sources, essential for comprehensive coverage of the literature in a narrative review.

Reviews concerned with evidence from randomized controlled trials and effects of drugs include searches through the Cochrane Library, particularly Cochrane Database of Systematic Reviews and Database of Abstracts and Reviews of Effectiveness (DARE). Another online database, the Cumulative Index to Nursing and Allied Health Literature (CINAHL), operated by EBSCO publishing, is essential for nursing reviews. Access to this and some other online databases requires paid subscription. Currently, in most academic and research institutions, including the world's top universities [45], access to online libraries and catalogues is free for faculty and students. For institutions and researchers from developing countries, the World Health Organization set the Programme for Access to Health Research (HINARI) in 2002, ensure free or low-cost access to scientific sources of major publishers [46]. In addition, Google Scholar, a Web-based engine launched in 2004, is getting popular for its expanded coverage of scientific information, tracking citations, and free access to electronic journals, books, theses, and abstracts.

In some cases, authors are required to obtain information from regional or local online databases. For example, reviews on medicinal plants, traditional medicine, and diseases common in some Asian countries may benefit from the literature searches through Asian Science Citation Index (ASCI), IranMedex, Scientific Information Database (SID), Index Medicus for the World Health Organization Eastern Mediterranean Region (IMEMR) and other regions, PakMediNet, IndMed, etc. Regrettably, not all of these databases are up to high international standards [47, 48]. The latter makes it difficult to retrieve trusted sources and disseminate biomedical information obtained from some Asian countries.

Search methodologies of reviews may also include a notion about unpublished data, usually presented in the form of abstracts of biomedical congresses. Unfortunately, not all abstracts printed in congress books or supplements of journals are accessible, indexed in Web of Science, and selected based on scientific merits. Most abstracts, particularly those on inconclusive or preliminary data, are never published as articles in peer-reviewed and indexed journals [49–51]. That is why abstracts are rightly not favored by most journal editors. For the same reason, other unpublished sources particularly theses not supported by peer-reviewed and highly visible journal publications have to be rejected.

Sometimes questions arise from incompletely described laboratory methods or uncertainties in published sources, necessitating direct consultations with authors of these publications. They are also frequently contacted to provide reprints of their articles, which may be of great help to researchers with limited open access to the literature and have to be mentioned as a part of the search methods.

Main body

The best, but not the only way to organize the analysis of the sources in the main body is to transform information from the retrieved publications into bibliographic cards with a short description of the main results, level of evidence, strengths and limitations of each study, and relevance to each section of the manuscript. Reference management software packages are now available to store references, to apply different in-text citation styles, and to adjust bibliographies in line with the format of numerous journals. EndNote and Reference Manager are among the most widely used packages offered by Thomson Reuters. These commercial packages help authors to organize the reference collection and formatting. The latter is of particular importance when the writing is part of a long-term research project and numerous publications are expected to

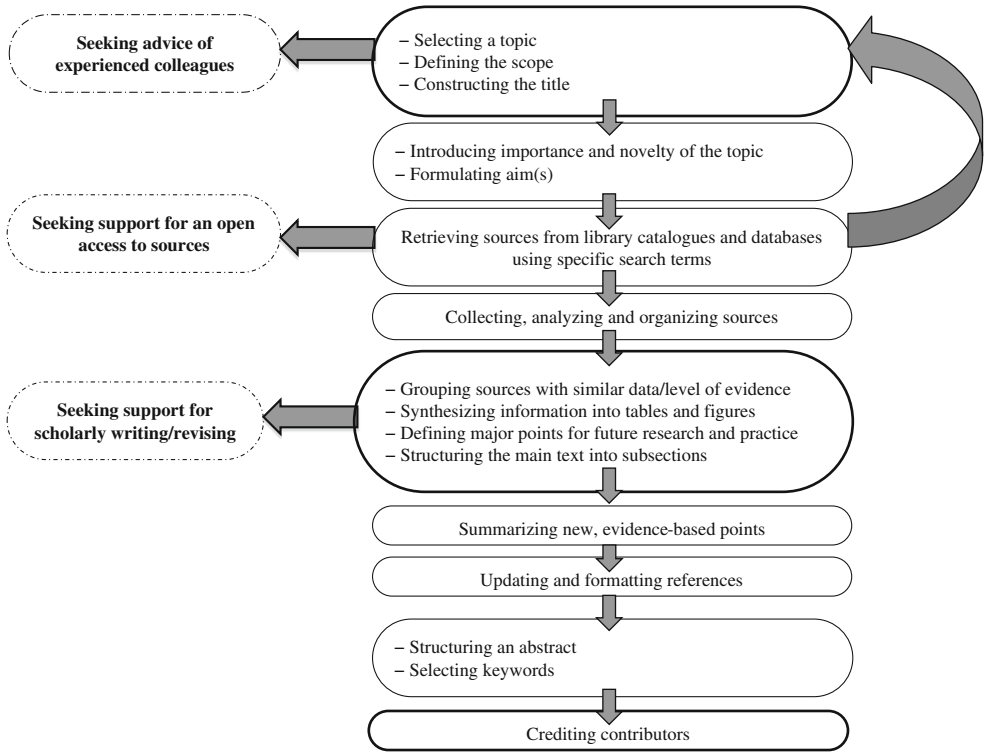

Fig. 1 The main steps in writing a narrative review

be analyzed. Not less importantly, a software-based reference management saves time during multiple revisions that may require restructuring, moving citations from one part to another while formatting the reference list.

Quality of writing in the main body depends on whether the topic is correctly chosen, specific databases are searched, and correct search terms, inclusion and exclusion criteria are used. The main ideas of a review, aggregated in the aim/purpose, have to find a reflection in this part of the manuscript. In the process of building up the main text, previous sections have to be reassessed and necessary alterations have to be made (Fig. 1). It is especially important when similar articles come to light and new published data accumulate during the writing process. In this case, proper structuring of the main text and addition of new subheadings, with emphasis on previously not discussed and unclear issues, may contribute to the novelty of the manuscript in progress. Critical assessment of the topic, aim, and search methodology is also required when the retrieved literature sources are either scarce, based on low level of evidence, or too many.

To demonstrate a systematic approach, authors have to collect and critically analyze all relevant sources. It is also critical to ensure diversity in the sources and to avoid a selection bias. The prime example of this type of bias is the inclusion of most references from the same, even high-rank journal. Multiple citations of the authors' publications can also be viewed as a bias, with the exception of authoritative, expert opinion reviews, where the authors are encouraged to share their extensive experience in a certain biomedical field, and this has to be clearly mentioned in the aim and methodology section of the review.

A systematic approach implies grouping and analyzing sources with similar findings and/or same level of evidence. This can be done by placing some data from the selected sources in tables and analyzing in the main body, without duplicating information. Selection of publications is usually based on predefined timeline and inclusion and exclusion criteria. Animal and human studies have to be grouped separately. Studies with positive and negative data have to be contrasted. With an exception of reviews concerned with rare disorders, in most cases, preference is given to sources with high level of evidence, ethically sound studies with a large sample size, advanced laboratory methods, and justified conclusions. Letters, preliminary/short communications, and meeting abstracts are disadvantageous during selection process and are mostly not considered for publication.

Lengthy, author-centered (rather than events or phenomena-centered) descriptive writing, lacking the separation of important features from minor points, and without distinguishing strengths and limitations, diminishes the value of a review. On the other hand, the inclusion of the authors' personal opinion, a priori assertions, and unnecessary

sections (e.g., Discussion) further weakens the main text of a narrative review. Also, tables with unprocessed information directly extrapolated from multiple sources complicate reading the manuscript.

Readability of a review can be improved by including a few self-explanatory tables (1–3), boxes (1–2), and figures (1–4), synthesizing essential information, and conveying original messages. The number of these important elements is dependent on the content of the review and requirements of a target journal. Tables and figures drawn by the authors are preferable. Materials taken from previous publications can be included when it is absolutely necessary and an official permission is obtained from copyright owner. Importantly, the number of adopted illustrative materials should be strictly limited to preserve originality of a manuscript.

Conclusions

Major conclusions derived from the analysis of the literature are placed in this section. It brings together new findings and clearly outlines major points for future research and/or clinical practice. Extensive analysis of literature data and drawing conclusions not supported by previous sections is incorrect. A few unanswered questions can be discussed with a limited referencing. Inherent limitations of the review and their impact on the validity of the main messages should also be mentioned. Finally, authors may briefly express their opinion on how these limitations could be overcome.

Acknowledgments

This section is the place for acknowledging any support of contributors. It is obligatory to disclose any funding from sponsors and their involvement in the writing process. Authors have to disclose any affiliation to organization or association sponsoring their research activities. Editors and reviewers have to pay attention to this section, as it can reflect the level of bias in selecting the sources of literature and formulating trustworthiness of the conclusions [52, 53].

References

Accurate referencing, citing sources with known Digital Object Identifiers (DOI) accessible through CrossRef and ScienceDirect electronic services, and correct formatting references are indicative of quality of writing. In case of non-English sources, titles should appear in square brackets. When referring to guidelines or articles published on the Internet, correct links and date of access have to be provided. Avoid referring to unpublished and inaccessible sources [9].

While revising a review, each sentence must be carefully checked to distinguish the authors' own words and ideas from those extracted from literature. At this stage, support of experienced colleagues and medical writers by critical reading, paraphrasing, additional referencing in "suspicious" parts of the manuscript, and minimizing number of similar references or those from the same journal or book can be helpful. Sections of the text left without citations imply the descriptions of widely known facts, personal experience, or rare phenomena not covered by literature [54].

One should also bear in mind that the number of references ranges within certain limits. Both too short and too long lists of references raise concerns over the appropriateness of a chosen topic and purpose of a review. The reasonable number of references for an authoritative review may range between 50 and 100, while for more comprehensive narrative reviews, the list of references can be more expanded.

Where to submit a review manuscript

Currently, there are plenty of opportunities for publishing a good review in journals taking predominantly or solely this type of research articles. Numerous examples of successful journals with high impact factors gained over a short publishing period, such as Nature Reviews…, Seminars in…, Expert Reviews in…, Expert Opinion on…, Current Opinion in…, or Current… journal series, suggest that the readership interest and demand toward updated and objectively processed scientific information is as high now as never before. Publishers of review journals (e.g., Bentham Science Publishers) regularly publish special issues on specific topics to provide the readership with quintessential information and prospects of research. Major publishers of biomedical literature (e.g., Elsevier and Springer) are also now strongly encouraging frequent publication of authoritative and comprehensive reviews as part of regular and special issues. A relevant example is seminar review series of the Lancet, covering diverse topics of clinical and/or public health relevance. Each review in this series serves as a guide for the global medical community and, therefore, attracts numerous citations and leaves an enduring effect in its field of biomedicine [55, 56].

To help potential authors in taking decision on possible submission of their review manuscripts, the publishers display timeframes of peer review and online and print publications on the Web sites. Rapid publication of review articles is increasingly becoming indicative of the journal's impact [3]. Hence, editors and reviewers are now taking more responsibility for rapid and fair processing of these articles to provide good service to both authors and publish-

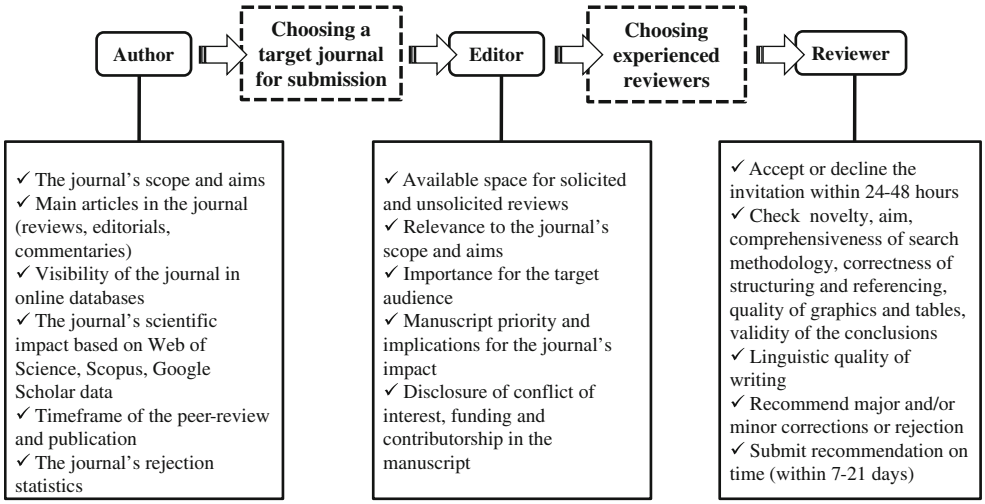

Fig. 2 Main considerations in the submission and processing of review manuscripts

ers concerned with the dissemination of information and rise of individual and journal impact (Fig. 2). Thoughtful selection of responsible editors and peer reviewers experienced in both writing and commenting review manuscripts is a major task, which contributes to further increasing a journal's rank and widening its audience (i.e., readers and authors) [57]. To ensure objective, rigorous, and a timely peer review, it seems crucial to support the selected reviewers by providing access to the sources used by the authors (e.g., through access to Scopus, Web of Science, or relevant digital libraries during the peer review), by sharing other reviewers' comments, and by acknowledging their efforts [58].

Reasons for rejection and major revision

Obviously, current trends in biomedical publishing are requiring a standardized approach toward publishing better-structured, more systematic, and unbiased reviews. Reviews, as other research articles, should be comprehensive (to cover all pertinent issues), concise, and easily understandable [9]. Lack of novelty, redundant information substantially overlapping with the authors' previous publications, or a topic comprehensively analyzed in recent publications of a target journal should be prime reasons for the rejection of a review manuscript by reviewers and editors, acting as journal gatekeepers. An inappropriate structure, uncertain aims, an unbalanced and descriptive presentation of information, an analysis of predominantly authors' own publications or articles from the same journal (i.e., lack of diversity in sources), numerous citations of inaccessible, non-peer-reviewed sources, those on low level of evidence (i.e., expert opinion, case reports, preliminary reports, small studies), and vague conclusions lacking a reflection on research prospects have to be considered as additional reasons for the rejection or major revision. Finally, difficulties with following the text, lack of tables with processed information, and inappropriate graphical material or its absence can lead to major technical revisions, delaying the publication of a review.

Concluding remarks

Writing and properly structuring a biomedical narrative review is a process requiring the authors' expertise in a certain field of science and scientific environment favoring comprehensive, balanced, and accurate processing of relevant literature. The aim of review articles is to critically evaluate available evidence and provide new research prospects. This type of research article is a critical part of most research and academic projects and a means for science communication worldwide. With the latter in mind, it seems useful to incorporate relevant writing courses in the curricula for undergraduate and postgraduate biomedical students and to consider skills in writing and reviewing these articles as an essential part of medical editors' professional qualification.

Each section of a review article has to be constructed based on widely accepted rules and relevant evidence. Although most experienced authors possess the required writing skills, there are still no relevant standards and available evidence only partly relates to successful constructing of some sections of review [10]. More evidence is warranted to elucidate common pitfalls in review writing and to analyze successful highly impacting scientific writing experience.

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Conflict of interest AYG is a sponsored member of the European Association of Science Editors and member of the World Association of Medical Editors. He also serves as an editorial advisory board member and reviewer of more than 20 rheumatological, cardiological and general medical journals.

LA declares no conflict of interest.

HB is a member of the University of Cambridge British Heart Foundation 4-year PhD programme in Cardiovascular Research.

GDK is editorial board member of 5 international journals and reviewer for more than 30 international journals and research funding bodies.

References

1. Gasparyan AY, Banach M (2009) A medium of science communication in our times. Arch Med Sci 5:1–2
2. http://publicationethics.org/guidelines. Accessed 15 Oct 2010
3. Gasparyan AY (2010) Thoughts on impact factors and editing of medical journals. Inflamm Allergy Drug Targets 9:2–5
4. Werbin N (2005) [Review articles–to write, to read or to throw away?]. Harefauh 144:558–560, 598 (Hebrew)
5. Habibi E, Mirhosseini Z, Majidi M (2010) Medical publications (2002–2009) of islamic countries; a Medline-based study compared to non-islamic countries. Iran J Med Sci 35:226–235
6. Smith R (2006) The trouble with medical journals. J R Soc Med 99:115–119
7. http://www.icmje.org/ethical_1author.html. Accessed 15 Oct 2010
8. Jacobs A, Wager E (2005) European Medical Writers Association (EMWA) guidelines on the role of medical writers in developing peer-reviewed publications. Curr Med Res Opin 21:317–322
9. EASE guidelines for authors and translators of scientific articles to be published in English. http://www.ease.org.uk/pdfguidelines/AuthorGuidelinesHighRes.pdf. Accessed 24 Nov 2010
10. Moore A (2010) What's in a title? A two-step approach to optimisation for man and machine: writing good titles is a crucial part of optimising articles' chances of being peer reviewed, and later found in the literature via Google: here are some tips. Bioessays 32:183–184
11. Luo YH (2010) How to write an effective English title for an andrological paper? Zhonghua Nan Ke Xue 16:99–105
12. Christensen NB, Kume H, Autorino R (2009) How to write titles and abstracts for readers. Int J Urol 16:2–3
13. Onen F (2006) Familial Mediterranean fever. Rheumatol Int 26:489–496
14. Panoulas VF, Metsios GS, Pace AV, John H, Treharne GJ, Banks MJ, Kitas GD (2008) Hypertension in rheumatoid arthritis. Rheumatology (Oxford) 47:1286–1298
15. Yurdakul S, Yazici H (2008) Behçet's syndrome. Best Pract Res Clin Rheumatol 22:793–809
16. Scott DL, Wolfe F, Huizinga TW (2010) Rheumatoid arthritis. Lancet 376:1094–1108
17. Keiserman B, da Silva LF, Keiserman MW, von Mühlen CA, Staub HL (2010) Lupoid sclerosis. Rheumatol Int 30:431–434
18. Hasani-Ranjbar S, Nayebi N, Moradi L, Mehri A, Larijani B, Abdollahi M (2010) The efficacy and safety of herbal medicines used in the treatment of hyperlipidemia; a systematic review. Curr Pharm Des 16:2935–2947
19. Ligthart SA, van Charante EP, Van Gool WA, Richard E (2010) Treatment of cardiovascular risk factors to prevent cognitive decline and dementia: a systematic review. Vasc Health Risk Manag 6:775–785
20. Yao Q, Altman RD, Brahn E (2009) Periostitis and hypertrophic pulmonary osteoarthropathy: report of 2 cases and review of the literature. Semin Arthritis Rheum 38:458–466
21. Rashid-Farokhi F, Cheraghvandi A, Masjedi MR (2009) Pheochromocytoma crisis due to glucocorticoid administration: a case report and review of the literature. Arch Iran Med 12:190–194
22. Trapani S, Mariotti P, Resti M, Nappini L, de Martino M, Falcini F (2010) Severe hemorrhagic bullous lesions in Henoch Schonlein purpura: three pediatric cases and review of the literature. Rheumatol Int 30:1355–1359
23. Kornerup KN, Page CP (2007) The role of platelets in the pathophysiology of asthma. Platelets 18:319–328
24. Eleftheriadis T, Lawson BR (2009) Toll-like receptors and kidney diseases. Inflamm Allergy Drug Targets 8:191–201
25. Salari Sharif P, Abdollahi M (2010) The role of platelets in bone remodeling. Inflamm Allergy Drug Targets 9:393–399
26. Woollard KJ, Chin-Dusting J (2007) Therapeutic targeting of p-selectin in atherosclerosis. Inflamm Allergy Drug Targets 6:69–74
27. Cocco G, Chu DC, Pandolfi S (2010) Colchicine in clinical medicine. A guide for internists. Eur J Intern Med 21:503–508
28. Leaf A, Kang JX, Xiao YF (2008) Fish oil fatty acids as cardiovascular drugs. Curr Vasc Pharmacol 6:1–12
29. Hosseini-Tabatabaei A, Abdollahi M (2008) Potassium channel openers and improvement of toxic stress: do they have role in the management of inflammatory bowel disease? Inflamm Allergy Drug Targets 7:129–135
30. Endresen GK (2007) Fibromyalgia: a rheumatologic diagnosis? Rheumatol Int 27:999–1004
31. Jacques SJ, Sebire NJ (2010) The impact of article titles on citation hits: an analysis of general and specialist medical journals. J R Soc Med Sh Rep 1:2. doi:10.1258/shorts.2009.100020
32. Kitas GD, Erb N (2003) Tackling ischaemic heart disease in rheumatoid arthritis. Rheumatology (Oxford) 42:607–613
33. Gasparyan AY, Watson T, Lip GY (2008) The role of aspirin in cardiovascular prevention: implications of aspirin resistance. J Am Coll Cardiol 51:1829–1843
34. Distler JH, Beyer C, Schett G, Lüscher TF, Gay S, Distler O (2009) Endothelial progenitor cells: novel players in the pathogenesis of rheumatic diseases. Arthritis Rheum 60:3168–3179
35. Ben-Chetrit E, Touitou I (2009) Familial Mediterranean fever in the world. Arthritis Rheum 61:1447–1453
36. Hartley J (2004) Current findings from research on structured abstracts. J Med Libr Assoc 92:368–371
37. Salari Sharif P, Abdollahi M, Larijani B (2010) Current, new and future treatments of osteoporosis. Rheumatol Int 31:289–300
38. Vila PM, Zafar MU, Badimon JJ (2009) Platelet reactivity and nonresponse to dual antiplatelet therapy: a review. Platelets 20:531–538
39. Cleary M, Hunt GE, Horsfall J (2009) Conducting efficient literature searches. J Psychosoc Nurs Ment Health Serv 47:34–41
40. La Regina M, Gasparyan AY, Orlandini F, Prisco D (2010) Behçet's disease as a model of venous thrombosis. Open Cardiovasc Med J 4:71–77
41. Dotsenko O (2010) Stem/Progenitor cells, atherosclerosis and cardiovascular regeneration. Open Cardiovasc Med J 4:97–104
42. Mulrow CD (1987) The medical review article: state of the science. Ann Intern Med 106:485–488

43. McAlister FA, Clark HD, van Walraven C, Straus SE, Lawson FM, Moher D, Mulrow CD (1999) The medical review article revisited: has the science improved? Ann Intern Med 131:947–951
44. Falagas ME, Pitsouni EI, Malietzis GA, Pappas G (2008) Comparison of PubMed, Scopus, Web of Science, and Google Scholar: strengths and weaknesses. FASEB J 22:338–42
45. http://www.topuniversities.com/university-rankings/world-university-rankings/home. Accessed 26 Oct 2010
46. http://extranet.who.int/hinari/en/journals.php. Accessed 26 Oct 2010
47. Merat S, Khatibzadeh S, Mesgarpour B, Malekzadeh R (2009) A survey of the current status of web-based databases indexing Iranian journals. Arch Iran Med 12:271–278
48. Satyanarayana K, Sharma A (2010) Biomedical journals in India: some critical concerns. Indian J Med Res 132:119–122
49. Chand V, Rosenfeldt FL, Pepe S (2008) The publication rate and impact of abstracts presented at the Cardiac Society of Australia and New Zealand (1999–2005). Heart Lung Circ 17:375–379
50. Van Royen P, Sandholzer H, Griffiths F, Lionis C, Rethans JJ, Galí F, Eilat-Tsanani S, Hummers-Pradier E (2010) Are presentations of abstracts at EGPRN meetings followed by publication? Eur J Gen Pract 16:100–105l
51. Song J, Li M, Hwang DH, Ricciotti RW, Chang A (2010) The outcome of abstracts presented at the United States and Canadian Academy of Pathology annual meetings. Mod Pathol 23:682–685
52. Davidoff F, DeAngelis CD, Drazen JM, Hoey J, Højgaard L, Horton R, Kotzin S, Nicholls MG, Nylenna M, Overbeke AJ, Sox HC, Van Der Weyden MB, Wilkes MS (2001) Sponsorship, authorship, and accountability. Lancet 358:854–856
53. Drazen JM, de Leeuw PW, Laine C, Mulrow C, DeAngelis CD, Frizelle FA, Godlee F, Haug C, Hébert PC, James A, Kotzin S, Marusic A, Reyes H, Rosenberg J, Sahni P, Van der Weyden MB, Zhaori G (2010) Toward more uniform conflict disclosures—the updated ICMJE conflict of interest reporting form. N Engl J Med 363:188–189
54. Hutchison BG (1993) Critical appraisal of review articles. Can Fam Physician 39:1097–1102
55. Ben-Chetrit E, Levy M (1998) Familial Mediterranean fever. Lancet 351:659–664
56. Sambrook P, Cooper C (2006) Osteoporosis. Lancet 367:2010–2018
57. Hochberg ME, Chase JM, Gotelli NJ, Hastings A, Naeem S (2009) The tragedy of the reviewer commons. Ecol Lett 12:2–4
58. de Mesnard L (2010) On Hochberg et al. "The tragedy of the reviewer commons". Scientometrics 84:903–17. doi:10.1007/s11192-009-0141-8