

Macedonian Biomedical Science: Current Standing and Suggestions for Improvement

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Abstract

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The first 7 issues of the newly established Macedonian Journal of Medical Sciences (Maced J Med Sci) is a welcome addition to the rather sparse medical publication list in our country (Republic of Macedonia). Within its first 2 years of existence, the Journal has already fulfilled one of the main aims of any research journal, that of not only being widely accessible to its readership but also providing them with good quality research papers. The carefully selected panel of the editorial and advisory board, consisting of a range of well known national and international medical experts, appears to be supported by an increasing number of international reviewers, stretching up to the Nigerian, USA and Brazilian shores.

The Journal has so far provided a series of reviews on the state of the current Macedonian biomedical science, via extensive analysis of the research publications arising from the Medical Faculty, University of St Cyril and Methodius in Skopje. The information contained in these studies should not be considered as a criticism of the current state of the Macedonian biomedical science, but as an audit describing the current state, as well as providing some solutions how to overcome the latter.

As for the Journal's continuous improvement in scientific standing, we would suggest the editors to consider inviting outstanding international biomedical scientists to submit brief reviews (1,500-2,000 words in length) of their choice in their speciality, and or invite them to contribute a brief editorial about some of the publications.

It is good to see the growth of the Macedonian Journal of Medical Sciences not being hampered by the initial enthusiasm at its launch. It is also good to see a number of Macedonian medical professionals involved and contributing to the success of the Journal.

However, the Journal has still to make a stamp within the world scientific community, and the editorial board has taken appropriate steps in this direction: as a part of the VERSITA Central European Science Publishers group, the Journal articles are available free of charge in

full, electronically, thus enabling the wider readership to judge the quality of the published papers.

The Journal has so far provided a series of reviews on the state of the current Macedonian biomedical science [1-5], via extensive analysis of the research publications arising from the Medical Faculty, University of St Cyril and Methodius in Skopje. The information contained in these studies should not be considered as a criticism of the current state of the Macedonian biomedical science, but as an audit describing the current state, as well as

providing some solutions how to overcome the latter. We hope that the recent studies [1-5] will be followed by similar reviews in several years' time to see whether any of the described findings and publishing practices has changed. Any discussions regarding improvement of the current situation should be welcome. As a member of Committee on Publication Ethics (COPE), the Journal editorials have successfully conveyed what is the current norm for publishing, informing the readers about a range of ethical issues and software available to Journals to deal with falsification, fabrication of data, plagiarism, unethical experimentation, authorship issues etc. As researchers, we all have to be aware of the latter, and reflect on them in our own research practice and publishing. The importance of the latter has recently been highlighted by the Ss. Cyril and Methodius University Evaluation Commission [6, 7], which findings are in the line with those of the European University Association Committee recommendations regarding education and research [8]. The members of the University Evaluation Committee have all stressed the importance and necessity for integration of the educational programme and research experiences in the undergraduate teaching programmes.

The under-presentation of Macedonian authors in BiomedExperts database [1] cannot be solely attributed to our country's population (currently estimated to be slightly over 2 million inhabitants, which is about 5 fold lower than the Greek or Serbian population or 3.5 fold lower than Bulgaria). This is further supported by the most recent health statistics surveys (2001-2003 year) [9] regarding their number of physicians per 1,000 inhabitants, where the term of a physician is defined as a person legally qualified to practise medicine and surgery showing that Macedonia (2.19) although lagging after Greece (4.40) and Bulgaria (3.56) has a similar number of medically educated professionals per 1000 inhabitants as does Serbia (2.06). We note that the latter country has nearly 50 fold higher representations of its biomedical scientists quoted in the above research database. This would suggest that the reasons for the lower presentation of the Macedonian biomedical science on the world scene should be looked elsewhere.

Although we have no doubts that the research activity in the Macedonian research medical institutions is buzzing, as demonstrated via the number of international medical publications published by medical bioscientists [10], it transpires that most of them are published in relatively local and not widely quoted and disseminated research journals, with either none or very low impact factors. This in itself can represent a problem when putting

the Macedonian biomedical science on the world map. Is it the quality and the originality of our research that prevents us publishing in high impact journals? Is it our own insecurity a major contributor to opting out for 'friendlier' and more 'secure' obvious options? Or is it the disappointment when receiving the dreaded 'Dear John' letter, not knowing how to effectively deal with the peer reviews and easily misunderstanding the comments as an attack on our research integrity? Similarly, the obligation of biomedical Journals to support publication ethics and research integrity [3] may also have an impact.

We have no doubts that these and many other issues may contribute to the under-representation of the Macedonian biomedical science in high impact journals. However, having said that, we note that our Macedonian colleagues have been successful in publishing in high impact journals, e.g. Nephrology Dialysis Transplantation (IF 3.568), Diabetic Medicine (IF 2.970), Human Immunology (IF 3.061), International Journal of Pharmaceutics (3.431), Endocrinology (IF 5.151), International Journal of Biochemistry and Cell Biology (IF 4.543), Cancer Research (IF 7.514) etc. However, very few publications in these journals are submitted by all Macedonian authors, and especially those in higher impact journals (e.g. IF 5.000 and above) are predominantly a result of collaborative work done with overseas colleagues, during postgraduate studies done abroad, and rarely featuring the name of the Macedonian biomedical institutions. Furthermore, there are a number of Macedonian physicians/scientists working abroad who have made a considerable contribution to the biomedical science, and have published in high impact journals e.g. the late academicians Vojislav Vuzevski and Koce Apostolov, successfully followed by a number of well established Macedonian clinicians and scientists currently employed in foreign Universities, among which are a number of the Journal members of the editorial and advisory Boards.

The under-representation of the Macedonian biomedical science in the world literature does not come as a surprising finding, but having now been highlighted should also be taken seriously by our undergraduate and postgraduate course organisers to engage our students as early as possible for academic career. As for those of us already in the academic loop, it should be our duty to facilitate this, and enable good research to take place in our institutions, and aim for the academic work to be published in high impact peer reviewer papers, and not forgetting to acknowledge our roots.

This, although rather unorthodox analysis of the current state of publications from Macedonian authors,

suggests that we have missed an opportunity to both place the Macedonian biomedical science on the world scene and advertise our own potentials when these opportunities arise. Collaborations with distinguished international clinical and scientific colleagues obviously are not missing, and this should be used to popularise world wide the Macedonian biomedical science and its potential. Similarly, we note that the advisory International Board of Macedonian Journal of Medical Sciences consists largely of Macedonians living and working abroad, who can also help with the promotion of our science. Ten years ago, in the summer of 2000, the Ministry for Immigration of Macedonia organised the First (and sadly, the last) meeting of Macedonian Physicians working abroad (USA, Canada, Turkey, UK, Israel, France etc.) in Ohrid and it was addressed by the then President, Mr. Boris Trajkovski. Many of us, including Prof. Ferid Murat, the 1998 Nobel Prize Laureate for Medicine and Physiology (he remembers his visits to Macedonia including his meeting with President Boris Trajkovski in his autobiographical sketch that can be found at http://nobelprize.org/nobel_prizes/medicine/laureates/1998/murat-autobio.html), in attendance, presented our own clinical and research work, and demonstrated genuine interest in promoting the Macedonian biomedical science internationally. However, this initiative was not taken further and followed by similar meetings and discussions.

The Medical Faculty has recently started appointing some of us as visiting professors/lecturers, and this in itself can help in further promotion not only of the Macedonian medical science, but also in education of medical students, trainees, and further clinical and scientific research. Some of us also sit on editorial boards of high impact Journals (e.g. Age and Ageing, Journal of Experimental Neuropathology and Neurology), and we would like to believe that we have accumulated enough experience to transfer to our colleagues, especially when dealing with international submissions, how to respond to editorial and reviewers' comments, and facilitate the understanding of how to get papers published.

One way would be to include this topic (preparing papers for publication and dealing with editors) in the postgraduate research programme at the Medical Faculty, or even earlier, introducing undergraduate students to research. Thus, at the Medical School at Newcastle University, the undergraduate students, as early as their 2nd year, have to prepare research essays on a chosen subject, and during their 4th years, have to submit oral and poster presentations regarding their own chosen research topic. Some of them liaise with their research supervisors

following their exams, in order to follow this research by peer reviewed papers, thus enabling them to deal with the submission process, and reviewers very early in their academic progress [11-13]. Not surprisingly, these students are the ones who consider further academic career, and enrol in postgraduate studies after completing their undergraduate medical degree, and are recruited for academic clinical and non-clinical positions after completing their postgraduate education and clinical training. Furthermore, most of UK medical and dental schools are offering intercalated courses. These consist of an additional year (called an Intercalated Year), available to medical students of an adequate academic standard who want to study a subject other than medicine in more depth. The structure of these courses varies in different medical schools, but most involve carrying out a research project for a term or for the whole year, under the supervision of a member of the academic staff. Some intercalated courses have more or less taught modules during the year, depending on the medical school. This additional year leads to the award of a BSc or BMedSci degree (an Intercalated Bachelors Degree), in addition to the MB degree. Similarly, combined MD-PhD courses are also available in some of the UK Medical Schools, and they consist of completing the MD and PhD curriculum within 8 years. This or a similar approach may need to be adopted by our medical schools as well, in order to improve the research activities and recruit gifted and highly motivated undergraduate students.

Despite the criticisms and problems surrounding the measures of scientific impact, the Impact Factor (IF) and Indexation in Medline still remain an indication of the quality of the published manuscripts and standard of the Journal. New Journals, such as Maced J Med Sci, will receive an impact factor after 2 years indexing. The forthcoming ranking of the Journal would facilitate decision making of international clinical and basic scientists to submit publications. As for the Journal's continuous improvement in scientific standing, we would suggest the editors to consider inviting outstanding international biomedical scientists to submit brief reviews (1,500-2,000 words in length) of their choice in their speciality, and or invite them to contribute a brief editorial about some of the publications. We hope that this will help not only enrol some of the world scientific community, but also contribute to that magic IF of the Journal.

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