



BIOMEDICAL JOURNALS IN REPUBLIC OF MACEDONIA: THE CURRENT STATE

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Abstract

Several biomedical journals in the Republic of Macedonia have succeeded in maintaining regular publication over the years, but only a few have a long-standing tradition.

In this paper we present the basic characteristics of 18 biomedical journals that have been published without a break in the Republic of Macedonia. Of these, more details are given for 14 journals, a particular emphasis being on the journal *Prilozi/Contributions* of the Macedonian Academy of Sciences and Arts, Section of Medical Sciences as one of the journals with a long-term publishing tradition and one of the journals included in the Medline/PubMed database. A brief or broad description is given for the following journals: *Macedonian Medical Review*, *Acta Morphologica*, *Physioacta*, *MJMS – Macedonian Journal of Medical Sciences*, *International Medical Journal Medicus*, *Archives of Public Health*, *Epilepsy*, *Macedonian Orthopaedics and Traumatology Journal*, *BANTAO Journal*, *Macedonian Dental Review*, *Macedonian Pharmaceutical Bulletin*, *Macedonian Veterinary Review*, *Journal of Special Education and Rehabilitation*, *Balkan Journal of Medical Genetics*, *Contributions of the Macedonian Scientific Society of Bitola*, *Vox Medici*, *Social Medicine: Professional Journal for Public Health*, and *Prilozi/Contributions* of the Macedonian Academy of Sciences and Arts.

Journals from Macedonia should aim to be published regularly, should comply with the Uniform requirements for manuscripts submitted to biomedical journals, and with the recommendations of reliable organizations working in the field of publishing and research. These are the key prerequisites which Macedonian journals have to accomplish in order to be included in renowned international bibliographic databases. Thus the results of biomedical science from the Republic of Macedonia will be presented to the international scientific arena.

Key words: biomedical journals, publishing, Republic of Macedonia

Introduction

A journal is a continuing resource which is issued at definite time periods (weekly, monthly, quarterly, annually, etc.) bearing predetermined numeration and other specific features [1].

According to the Anglo-American Cataloguing Rules (AACR) definition a serial (journal) is issued in a succession of numbered parts that are intended to continue indefinitely [2].

The accent in this paper is on scholarly journals that are defined as publications for disseminating original research on current develop-

ments in a specific academic discipline or field of study. They publish research articles that are subjected to a rigorous evaluation through the peer-review process. Journals are the medium most frequently used by scholars to present results obtained in their research. Scholarly journals are intended for an audience that already has a good knowledge of the subject and wants in-depth knowledge, such as the latest studies [3, 4]. These journals are intended to be read by specialists and researchers, who will understand what they are reading.

Articles are generally written by experts in a particular subject, by one or a group of authors who conducted the research, and are mainly intended for professors, students or researchers. Articles are reviewed by a board of experts or "peer reviewed" and at least two independent reviewers are needed per article. The articles usually follow an IMRAD format (introduction, material and methods, results, discussion), and may include tables, graphs or illustrations to support research. They are classified into different categories depending on the topic (original scientific article, review, short communication, case report, professional article, etc.) [5, 6].

Academic science researchers publish papers in order to have independent certification of their results; to gain other forms of recognition (such as promotion and tenure); to communicate with those who may be interested in their works, etc.

Several biomedical journals in R. Macedonia have succeeded in maintaining their regular publication over the years, but only a few have a long-standing tradition.

In the past ten years, due to the fact that there has been a small number of biomedical journals in our country, several enthusiasts from the University Ss Cyril and Methodius have urged the Medical Faculty in Skopje to initiate publication of journals dedicated to specific fields of medicine.

Aims

- To present brief characteristics of the biomedical journals that are currently being published in R. Macedonia;

- To present those journals that have been published without a break for more than five years.

Material and methods

Almost 40 biomedical journals have been published in R. Macedonia since the Second World War, but only a few have succeeded in maintaining regular publication over the years [7, 8].

In this paper we present the basic characteristics of 18 biomedical journals that have been published without a break in the Republic of Macedonia. Of these, more details are given

about 14 journals and for the remaining 4 there are separate papers within this special issue of *Prilozi*, written by the editors-in-chief of the particular journals. Most of the journals were analyzed by using their printed version provided by the Central Medical Library at the Skopje Medical Faculty and several by accessing their electronic version on the Internet.

Our emphasis is put on the journal *Prilozi/Contributions* of the Macedonian Academy of Sciences and Arts, Section of Medical Sciences, being one of the journals with a long-term publishing tradition and included in the Medline/PubMed database.

The journals are presented depending on their publisher.

JOURNALS PUBLISHED by the Macedonian Medical Association

Macedonian Medical Review (MMR), ISSN 0025-1097, journal of the Macedonian Medical Association, is the longest-standing journal in the field of medicine in the Republic of Macedonia. Its first issue was published in 1946 and ever since then the journal has appeared without a break for sixty-eight years now. The first editor-in-chief was H. Manchev, and the current one is G. Spasovski.

JOURNALS PUBLISHED by the Ss Cyril and Methodius University Medical Faculty and Associations

Acta Morphologica: a publication of the Association of Macedonian Anatomists and Morphologists (**Acta Morphol**); ISSN 1409-9837. The editor-in-chief is D. Tosovska-Lazarova, and the journal has had an International Editorial Board since 2011. The first number was published in 2004 and since then the journal has appeared without a break for ten years in two numbers per year. Since 2006 the papers have been written in English and they can be accessed in pdf on the following web site www.webdoctor.com.mk

Physioacta is the journal of the Macedonian Association of Physiologists and Anthropologists; ISSN 1857-5587. Its publisher is the Institute of Physiology and Applied Anthropology at the Skopje Medical Faculty and the editor-in-chief is V. Maleska-Ivanovska. The first

issue was published in 2007. Until 2012 two numbers a year were published and since 2013 three numbers. An International Editorial Board was established in 2010, no. 2. Since 2013, no. 2, the papers have been written in English with an abstract in Macedonian.

MJMS – Macedonian Journal of Medical Sciences (online version eISSN 1857-5773). The journal is published only in an electronic version four times a year by ID Design in Skopje, and consequently the process of submitting and reviewing of manuscripts is done electronically. The first issue was published in 2008 and the editor-in-chief is M. Spiroski. The papers are written in English. This journal is indexed in a large number of databases, including Directory of Open Access Journals (DOAJ), EBSCO (Central & European Academic Source), EMBASE, HINARI, Scopus, Index Copernicus, etc. Starting from the December issue of 2013, vol. 6, no. 4, all papers can be accessed at www.mjms.mk and the previous issues (Journal archive) at www.mjms.ukim.edu.mk

JOURNALS PUBLISHED by other institutions/organizations

International Medical Journal Medicus (IMJM); ISBN 1409-6366, a journal published by the Association of the Albanian Medical Doctors from Macedonia. The first editor-in-chief was R. Izairi, and since 2013 A. Pollozhani. The first issue of this journal was published in 2004. Earlier issues can be accessed at www.medalb.com and since no. 2, 2013 at: www.imjm.mk

Archives of Public Health (Arch Public Health) is a medical journal published by the Institute of Public Health of the Republic of Macedonia; ISSN 1857-7148. The first issue was published in 2009. The first editor-in-chief was V. Kendrovski followed by G. Ristovska in 2013. It has had an International Editorial Board since 2011. The papers are written either in Macedonian or in English, and the intention of the Editorial Board is to publish two numbers per year.

Epilepsy: The Journal of the League against Epilepsy of R. Macedonia; ISSN 1409-617X. The journal is published by the

University Neurology Clinic. The first issue was published in 1997 and the first editor-in-chief was R. Naumovski. In 2007, D. Nikodijevik and E. Cvetkovska took over the office of editors-in-chief. Since 2010 the journal has had an International Editorial Board. It is published twice a year. Since 2011 the papers have been written in English.

Macedonian Orthopaedics and Traumatology Journal is an official publication of the Macedonian Association of Orthopaedics and Traumatology (MAOT), which is its publisher; ISSN 1409-8814. The editor-in-chief is G. Zafirovski, and the first issue was published in 1999. However, the journal lacks continuity; the last printed number is from 2009.

JOURNALS PUBLISHED

by other associations/organizations

BANTAO Journal: Journal of the Balkan Cities Association of Nephrology, Dialysis, Transplantation and Artificial Organs; ISSN 1312-2517. Since 2009 the editor-in-chief has been G. Spasovski and members of the Editorial Board are experts in the field of nephrology from Balkan cities and broader. The journal is published in both an electronic version and a printed version. The papers are available at the website of the Association: www.bantao.org/

JOURNALS PUBLISHED

by biomedicine-related faculties

Macedonian Dental Review is an official publication of the Skopje Faculty of Dentistry; ISSN 0350-8129/ISSN 1857-9159 (CD). The first editor-in-chief was I. Tavchioski. Since 2013 Lj. Guguvchevski has held this position. The journal now has an international editorial board and it is issued twice a year (two double issues per year). Papers are written bilingually, in Macedonian and in English. Since 2013 the journal has been published only in an electronic version (CD).

Macedonian Pharmaceutical Bulletin (Maced Pharm Bull); ISSN 1409-8695, was published for the first time in 1964. It lacked continuity until the year 2000. Since then (vol. 46) it has been published by the Macedonian

Pharmaceutical Society and S. Kulevanova is the editor-in-chief. The papers are written in English with an abstract in Macedonian (starting 2009).

Macedonian Veterinary Review (Mac Vet Rev) appeared for the first time in 1972. The editor-in-chief was T. Nechev. Ever since then this journal has been regularly published and has improved the quality of its contents. Starting from the year 2010 the Macedonian Veterinary Review (ISSN 1409-7621, exists in a printed version and ISBN 1857-7415, electronic version), International Scientific Journal of the Faculty of Veterinary Medicine at the Ss Cyril and Methodius University, is published only in English twice per year. Since 2012 the editor-in-chief has been L. Pendovski. It is an open access journal, indexed in DOAJ, as well as in Scopus, EBSCO, Index Copernicus, OpenAgris, etc. The papers are available in an electronic version at the following website: <http://www.macvetrev.mk/>

JOURNALS PUBLISHED by other institutions whose scope of interest is closely related to the biomedical sciences
Journal of Special Education and Rehabilitation (JSER), (print version ISSN 1409-6099, online version eISSN 1857-663X). Its publisher is the Institute of Special Education and Rehabilitation of the Faculty of Philosophy in Skopje and the Association of Special Educators and Rehabilitators of the Republic of Macedonia. The first issue appeared in 1997 and the first editor-in-chief was Lj. Ajdinski. Since 2008 the editor-in-chief has been V. Trajkovski. It is an open access journal, included in a large number of relevant databases (DOAJ, HINARI, Proquest, EBSCO, Index Copernicus, Scopus, etc). JSER is published twice a year (double issue), and the papers are written bilingually, in Macedonian and in English. All issues of the journal, beginning from the very first one, are available in their electronic version at: <http://jser.fzf.ukim.edu.mk/>

JOURNALS PUBLISHED by other institutions
Balkan Journal of Medical Genetics (BJMG); ISSN 1311-0160, is an international journal published for the first time in 1998.

Since 2000 the publisher has been the Macedonian Academy of Sciences and Arts and the office of editor-in-chief is currently held by D. Plaseska-Karanfilska. All articles are written in English and are available online at the following website: www.bjmg.edu.mk

JOURNALS PUBLISHED

by other institutions in R. Macedonia

Contributions, a scientific mouthpiece of the Macedonian Scientific Society of Bitola; ISSN 0420-0950. The first number was published in 1961, the publisher being the Society of Science and Arts, and the editor-in-chief was M. Konstantinov. In 2002 the Macedonian Science Society was established as a continuation of SSA and the journal *Prilozi* also continued to be published. The journal appears twice a year or as a double issue; the papers are written either in Macedonian or in English. In 2013 the editors-in-chief of the issues were D. Todorovski and M. Mikunovik. The articles can be accessed at the following website:

http://www.mnd-bitola.mk/index.php?option=com_content&view=article&id=24%3A-17-18&catid=26%3A2012-01-29-21-23-27&Itemid=16&lang=mk

OTHER JOURNALS

Vox Medici, a professional journal of the Doctors' Chamber of R. Macedonia, which is its publisher; ISSN 1409-8865. The first number was published in 1992. Since 2012 the editor-in-chief has been M. Kochubovski. In addition to being a source of medical information, since 2009 the journal has also started to publish scientific papers. It can be accessed at: <http://www.lkm.org.mk/publikacii.htm>

Social Medicine: Professional Journal for Public Health; ISSN 1857-6699. The publisher is the Specialist Association of Physicians of Social Medicine and Organization of Healthcare. The first issue was published in 2007 and ever since then the editor-in-chief has been I. Gligorov. The aim of the journal is to make a contribution to continuous medical education in the field of public health. The journal can be accessed only in an electronic version at: <http://www.soc-med.org.mk/publikacii.htm>

PRILOZI: Macedonian Academy of Sciences and Arts, Section of Medical Sciences

The first volume of *Prilozi: Macedonian Academy of Sciences and Arts, Section of Medical Sciences* (ISBN 0351-3254) was published in 1969 by the Section of Natural Sciences and Mathematics at the Macedonian Academy of Sciences and Arts (MASA). The Editorial Board consisted of: D. Arsov, B. Popov and Gj. Filipovski. Only 6 papers were included in the first number of the journal, of which 2 were written by medical doctors affiliated to the Skopje Medical Faculty. In the first issue of 1984 Guidelines for Authors were published. It was stated that the papers should be peer-reviewed by two independent experts in the specific field.

Until 2004, papers were written either in Macedonian or in some of the world-recognized languages and the languages of former Yugoslavia. In the period between 1986 and 2005 the journal was published once a year in a double issue, and then, as a result of the larger number of papers submitted for publication, the journal returned to its two numbers per year.

Since 2002 the editor-in-chief has been M. Polenakovic. He and the Editorial Board have succeeded in improving the scientific level of the journal. The papers are written in English with an abstract in Macedonian; they are reviewed by two independent reviewers; and they are proof-read and language-edited.

This increasing trend in scientific quality along with the journal's regular publication contributed to its inclusion in Medline (PubMed) (in 2005). As a result, the interest in publishing in this journal has increased. If up to 2006 approximately six to nine papers per issue were published, the number of papers has increased substantially, reaching 20 and more papers per issue, most of which are from the field of medicine.

Since 2007 the design of the cover has been changed. In 2013 the format of the journal was changed to A4 and it started to be published in 3 issues per year. In 2013 a separate Section of Medical Sciences was established in the Macedonian Academy of Sciences and Arts and this journal is now under its umbrella.

Prilozi publishes original scientific papers, research reports, surveys, case reports, etc. from the field of medical and biological sciences. Papers can be electronically accessed at the following website: www.manu.edu.mk/prilozi/ It is

an open-access journal registered in the Directory of Open Access Journals (DOAJ). In addition to being indexed in PubMed, which is of utmost importance, this journal is also included in the HINARI program, and in the EBSCO (Central & European Academic Source) database.

Discussion

The scientific journal as an institution dates back to the late 17th century. The first scientific journals, published in the 17th century, were the French *Journal des Savants* and the British *Philosophical Transactions of the Royal Society*. The history of journals since then has been one in which each new discipline eventually grew tired of simply being part of a larger whole and started its own publication. General medical journals began at the end of the 18th century and specialist medical journals at the beginning of the 20th century; later in that century came the subspecialty journals.

Today there are almost 30,000 peer-reviewed scholarly journals indexed in Ulrich's periodicals directory, and there are several thousand more, particularly journals published in languages other than English (9).

Most journals can point to landmark studies that changed medicine. The *BMJ*, for example, published some of the first studies on anaesthesia, on the cause of malaria, and on linking cigarettes to lung cancer. Some journals have always been about more than publishing science. They have educated, entertained, campaigned, and provided a forum for medical communities to debate issues in depth [10, 11].

The published articles in the journals serve a number of important functions. They record the achievements of the scientists; give other scientists the information they need to pursue science further; record scientific progress; inform the professionals and the public in the world about achievements – including scientists from other disciplines.

People can read and use journals even from the most remote parts of the world and all authors are equally entitled to publish their articles in those journals. The only condition is that the journal must be indexed in some of the international bibliographic databases. Otherwise, it will stay far from the view of the global scientific community, condemned to vegetation in a narrow and obscure nook bounded by national borders. The key to breaking out of the

"vicious circle" lies in increasing the journal's visibility, i.e. entering international bibliographic databases [12].

Quality reporting of biomedical research in the journals is guided by statements and recommendations from several organizations, most notably the International Committee of Medical Journal Editors (ICMJE). The ICMJE's "Recommendations for Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals" (previously "The Uniform requirements for manuscripts submitted to biomedical journals") [13] provides guidance on preparing a manuscript for submission to a medical journal and on ethical issues related to publishing, for example authors' responsibilities, conflict of interest, and internationally accepted ethical principles for research on humans and animals. These and other aspects of current and emerging issues in the communication of scientific information are also dealt with by the Council of Science Editors (CSE) [14], the European Association of Science Editors (EASE) [15], the World Association of Medical Editors (WAME) [16], and the Committee on Publication Ethics (COPE) [17–19].

Medical journals shape medical science and practice, health policy and biomedical research. But sometimes influential medical journals may become non-influential or cease publication [20]. Macedonian biomedical journals have struggled over the years to survive to date, but many have not succeeded [7, 8]. On the other hand, they have had very limited scientific influence [21].

One possible key to the solution of this problem is to have one national general biomedical journal that would include papers of scientific quality from all fields of biomedicine, and not specialist journals. It should strive to make a difference in the scientific community, first of all by being indexed in certain international bibliographic databases. Thus, our domestic knowledge would be deposited in the world treasury of knowledge and affirm our science and country [22].

Editors of journals play a significant role in shaping the entire content of their journal and the timing of publication of that content. They have various tasks and responsibilities. The journal's editor is there to receive articles from authors, to judge their relevance to the journal, to refer them to equally expert collea-

gues for peer review, to deal with scientific misconduct, and to raise standards in methodological rigour, scientific reporting and public knowledge. Editors should base editorial decisions on the validity of the work and its importance to the journal's readers, and should be free to express critical but responsible views about all aspects of medicine [13, 23–25].

The editors of the Macedonian medical journals can find some clues to their hard work if they become members of the Macedonian Association of Medical Editors (MAME). MAME has been established in accordance with the Law on Associations and Foundations in R. Macedonia upon the proposal of the Initiative Board and Organizational Board of the Scientific Workshop for Journal Editors in Biomedicine, held in the Macedonian Academy of Sciences and Arts, Skopje on 25th of April, 2014. The aim of MAME is to promote cooperation among editors for improving the quality of medical journals published in the Republic of Macedonia through networking, education, exchange of information and knowledge for editorial and publishing policies and practice, and through discussion about the editorial principles and international standards of scientific and publishing ethics and integrity.

Conclusions

Journals from Macedonia should aim to be published regularly, should comply with the Uniform requirements for manuscripts submitted to biomedical journals, and with the recommendations of other reliable organizations working in the field of publishing and research.

Papers have to be compulsorily peer-reviewed, and they have to have quality content; they record the achievements of scientists, but at the same time the scientific progress in a country, and consequently they inform the world about these achievements.

Macedonian journals have a clear purpose and mission: to present the results of biomedical science from the Republic of Macedonia to the international scientific arena.

Finally, as recommended by WAME, in addition to the specific goals, each biomedical journal has a social responsibility to improve the human condition and safeguard the integrity of science.

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