

## Correspondence

### Handicapped research institutions winning the global research competition: A focus on Croatia

We recently introduced a web application linked to spatial visualization approaches and published academic ranking lists (eg the Academic Ranking of World Universities [ARWU]).<sup>1</sup> This application maps and ranks academic and research institutions by a statistical method which integrates factors influencing research performance – Best Paper and Best Journal Rates (see [www.excellencemapping.net](http://www.excellencemapping.net)). The best paper rate is the proportion of papers that belongs to 10% of the world's most cited papers, while the best journal rate is the proportion of papers published in 25% of the world's most influential journals.

One of the potential confounders of research performance is the Gross Domestic Product (GDP). Countries with high GDP are generally better represented in science than those with low GDP. This is particularly true for medicine, where scientific research often employs expensive laboratory techniques. Another powerful confounder of research performance is corruption, which hinders scientific progress worldwide. Corruption may be particularly harmful for the recruitment of well-educated and highly skilled specialist researchers in non-mainstream science countries.<sup>2</sup>

We also argued that a handicap, or a certain disadvantage such as weak financial stance, can turn into an opportunity for some countries.<sup>3</sup> Disadvantaged countries and research institutions that beat the competition with powerful rivals prove that the “handicap principle” works. The handicap principle was originally proposed by a biologist, Amotz Zahavi, to explain the evolutionary development of certain qualitative features of biological species that help them look more attractive and strong and to struggle for survival.<sup>4</sup>

The proposed web application depicts the outlook for research institutions worldwide and distinguishes those with higher rankings and better “survival” prospects. Institutions with outstanding research performance despite a weak financial stance, corruption, or other putative disadvantages




in their home country are highlighted. As a good example, Figure 1 depicts some research institutions from Croatia that are included in the excellence mapping of medicine. The country ranking is corrected for the Corruption Perception Index (CPI) which is set to a global mean. Controlling for the CPI results in a meaningful increase in the performance of Croatian academic and research institutions; suggesting that corruption handicaps scientific research. In fact, the University of Zagreb improves its ranking by 228 positions after correcting for the CPI, or by excluding the potential influence of corruption. This university is viewed as a strong and winning global competition institution, with the adjusted Best Paper Rate reaching 13.2%, or approximately 3% greater than the expected Best Paper Rate.

**Lutz Bornmann**

*Division for Science and Innovation Studies,  
Administrative Headquarters, Max Planck Society,  
Munich, Germany  
bornmann@gv.mpg.de*

#### References

- Bornmann L, Stefaner M, de Moya Anegón F, Mutz R. Ranking and mapping of universities and research-focused institutions worldwide based on highly-cited papers: A visualisation of results from multi-level models. *Online Information Review* 2014;38(1):43–58. doi: 10.1108/OIR-12-2012-0214
- Ariu A, Squicciarini MP. The balance of brains - corruption and migration. *EMBO Reports* 2013;14(6):502–504. doi: 10.1038/embor.2013.59
- Bornmann L. Ranking institutions by the handicap principle. *Scientometrics* in press [http://www.lutz-bornmann.de/icons/Handicap\\_final.pdf](http://www.lutz-bornmann.de/icons/Handicap_final.pdf)
- Zahavi A. Mate selection - selection for a handicap. *Journal of Theoretical Biology* 1975;53(1):205–214. doi: 10.1016/0022-5193(75)90111-3

Institution	Country	Papers	Indicator value	Δ rank
University of Zagreb	HRV	1779		13.2% 228 ↑
University Hospital Centre Zagreb	HRV	1222		8.8% 50 ↑
University Hospital Sisters of Mercy	HRV	610		7.1% 22 ↑

Croatian academic and research institutions ranked by the Best Paper Rate ([www.excellencemapping.net](http://www.excellencemapping.net)). The ranking is based on papers published from 2006 to 2010 in medicine and is corrected for the Corruption Perception Index.

## Archiving *Biochemia Medica* in PubMed Central

*Biochemia Medica* is the second Croatian scientific journal which has been accepted for archiving in PubMed Central (PMC) from 2012 onwards.

PMC is a free full-text archive for biomedical and life sciences journals hosted and managed by the National Institutes of Health's National Library of Medicine (NIH/NLM, USA). For a journal of a small scientific community, run by a non-profit scientific society (Croatian Society of Medical Biochemistry and Laboratory Medicine), such an achievement is an important milestone on the way towards improving research performance.<sup>1</sup>

Nowadays, a sizeable proportion of scholarly periodicals are published by commercial publishing corporations which have sufficient financial and human resources to support the continuous development of their infrastructure and publications. Scientific societies are often limited in funding for their periodicals and heavily rely on enthusiasm and voluntary professional services of their members. *Biochemia Medica* is one such periodical with limited funding and a small team of enthusiastic editors, who voluntarily donate most of their time to continuously improving the quality of the journal and preserving its papers for current and future readers.<sup>2</sup> For our editors, it is difficult to keep abreast of all the advances in the demanding world of digital publishing. There are many challenges faced by our team to improve the digital format of the journal. We currently implement mobile and multimedia applications, assign Digital Object Identifiers (DOI) to our papers, and use the CrossCheck software from iThenticate® to avoid plagiarism. The XML conversion for CrossRef and PMC has already been successfully implemented. We are now moving towards using CrossMark, FundRef, and ORCID IDs. We recently appointed a research integrity editor to check submissions for plagiarism by CrossCheck software.<sup>2</sup> Korean colleagues, particularly Prof S. Huh from the Department of Parasitology and Institute of Medical Education, College of Medicine, Hallym University, helped us produce XML files and meet the technical requirements for archiving in PMC. We are convinced that the availability of our journal papers in PMC will increase their retrievability of and will boost citations. Only a few medical journals in Southeast and Central Europe are archived in PMC, and our journal is now in an advantageous position.

We are glad that the forthcoming annual meeting of the European Association of Science Editors in Split, Croatia will accommodate Prof S.Huh's and Ms. R. Lamme's (CrossRef) workshop on advanced information technologies, which will be of great interest to editors of society-supported journals struggling with the production of XML files. We also hope that the workshop will encourage editors to learn more from experience of journals already archived in PMC, such as *Biochemia Medica*, and will help them achieve greater visibility and accessibility for their publications.

## References

- 1 Simundic AM. Editing a scientific journal in Croatia: the case of *Biochemia Medica*. *European Science Editing* 2012;38(3):69-70.
- 2 Simundic AM. *Biochemia Medica* appoints Research integrity editor. *Biochemia Medica* 2012;22(3):271.

**Ana-Maria Simundic**

Editor in Chief, *Biochemia Medica*, Zagreb, Croatia

am.simundic@gmail.com

Journal List > Biochem Med (Zagreb)

**BIOCHEMIA MEDICA**  
This Journal Area and Scope Instructions for Authors e-Submission

Biochemia Medica  
Vols. 22 to 24; 2012 to 2014

Vol. 24 2014	v.24(1): 5-182 Feb 2014		
Vol. 23 2013	v.23(1): 5-116 Feb 2013	v.23(2): 139-224 Jun 2013	v.23(3): 235-359 Oct 2013
Vol. 22 2012	v.22(3): 271-384 Oct 2012		

Articles from Biochemia Medica are provided here courtesy of Croatian Society for Medical Biochemistry and Laboratory Medicine

**Biochemia Medica**  
The Journal of Croatian Society of Medical Biochemistry and Laboratory Medicine

Home About the Journal Editorial board Indexed in Journal metrics Guidelines to authors Orders submission

The journal is a member of and subscribes to the principles of the Committee on Publication Ethics (COPE): www.publicationethics.org

Online content Search content Contact Useful links ScienceCentral Events

**Introduction**  
Biochemia Medica, the official journal of the Croatian Society of Medical Biochemistry and Laboratory Medicine, provides a wide coverage of research in all aspects of clinical chemistry and laboratory medicine.  
The Journal's articles are issued in English. Following categories fit into the scope of the Journal: general clinical chemistry, hematology and hemostasis, molecular diagnostics, immunology, analytical toxicology, neurochemistry, endocrinology, analytical techniques, laboratory organization, automation, quality control and evidence based laboratory medicine.  
Development and evaluation of novel analytical methodologies applicable to clinical chemistry and laboratory medicine are welcome as well. Authors are invited to contact the Editorial Board, if in doubt about any aspect of scope, format or content of a proposed contribution.

Biochemia Medica indexed in PubMed Central (PMC)  
Biochem Med (Zagreb). Feb 2014; 24(2): 5.

**BIOCHEMIA MEDICA**  
The Journal of Croatian Society of Medical Biochemistry and Laboratory Medicine  
http://www.scribd.com/biochemia-medica

**Biochemia Medica indexed in PubMed Central (PMC)**  
Ana Maria Simundic  
Additional article information  
As announced in the last journal issue (1), with great pleasure we wish to inform you that *Biochemia Medica* has just been accepted for indexing in PubMed Central (PMC) journal database (<http://www.ncbi.nlm.nih.gov/pmc/>). All articles starting from 2012:22(3) are now available as free PMC articles and can be accessed directly at PMC. Free full PMC articles can also be accessed through links from PubMed.  
The first ever Croatian journal accepted for indexing in PubMed Central was Croatian Medical Journal, *Biochemia Medica* to the second journal from Croatia that appears in PMC. It is a dream for many society journal editors. This is certainly an important milestone in our pursuit to join the competitive world of the mainstream science biomedical journals. We hope that through PMC, our journal will become more visible and accessible to much wider research community.  
PMC is a free full-text archive of biomedical and life sciences journal literature at the U.S. National Institutes of Health's National Library of Medicine (NIH/NLM). Currently, almost 3 million articles are archived in PMC, provided by more than 4,000 Journals. We are proud to be one of them! Such recognition is a result of a hard work of our editorial team who is determined to maintain and continuously improve the journal quality, by adhering to highest quality standards (2).  
Editors at *Biochemia Medica* wish to thank to all our authors and reviewers for their continuous contribution to the success of our journal. We also wish to thank to our readers for their valuable feedback.  
Article information  
Biochem Med (Zagreb). Feb 2014; 24(2): 5.  
Published online Feb 13, 2014. doi: 10.11613/BJM.2014.005  
PMCID: PMC3888675

## Editorials should be encouraged and enriched by cascading peer review

Galbán-Rodríguez and Arencibia-Jorge should be commended for their timely reminder of the importance of editorials highlighted in their article “Editorials and the cascading peer review”.<sup>1</sup> Editorials stir interest by providing critical overviews and insightful commentaries, making them one of the most-read journal articles. Editorial opinion pieces serve as the conscience of scientific undertakings.

The essence of the index article lies in its acceptable contention that the “internationalization of peer review of editorials potentially reduces publication bias, avoids editorial conflicts of interest, and prevents excessive journal self-citations via external evaluation”. Importantly, Galbán-Rodríguez and Arencibia-Jorge emphasize the critical role of cascading external peer review for journal indexing.

The current global move from subscription-based to open-access journal publishing justifies the authors’ open-access model for editorials. It facilitates archiving and indexing, and increases the retrievability through bibliographic databases. Open-access publishing, in turn, has inspired cascading peer review, which redirects peer-reviewed articles to a more suitable publication venue.<sup>2</sup> In the case of editorials, cascading can be realized in journals within the publisher’s portfolio through a peer review consortium.

An essential aspect discussed by the authors is the need to properly acknowledge the ‘surrogate’ reviewers’ efforts throughout the cascading process. This is particularly important when cascaded editorials are accepted after several rounds of reviewer evaluations within a cascading consortium.

Galbán-Rodríguez and Arencibia-Jorge press to refrain from using editorials to merely boost impact factors. Editorial teams of related journals should therefore set ethical rules avoiding any citation misuse.

Overall, the writing of editorials has to meet certain standards. They are supposed to process available scientific evidence. In-depth organization of the content, concise statements avoiding *a priori* arguments, and

generalizations for future research should be core values of editorials. Topics on writing editorials can be included in the training of science editors, and learned associations may play a decisive role by encouraging evidence-based and ethical writing of editorials. Authors can advance their skills in writing editorials through topical (thematic) education, which is currently supported by most editorial associations.<sup>3,4</sup> Editors of all journals, and particularly those indexed in Web of Science with Impact Factors, can make a major contribution by passing on training about how to write editorials and avoid irrelevant references. Seasoned journal editors can help novice editorialists by acting as reviewers and suggesting changes to conform to the journal’s scope and style. Generally, the reviewers should maintain fairness, avoid bias, and be aware of the cascading peer review and publishing guidelines. Publishers, in turn, can develop guidelines on unsolicited editorials.

The need for more editorials cannot be overemphasized. Editorial writing should therefore be increasingly encouraged through enhancement of author skills, editorial help, and peer guidance. Cascading peer review should not restrict or discourage editorial writing but help to enrich it.

**Edward F. Barroga**

*Department of International Medical Communications  
Tokyo Medical University, Tokyo, Japan  
eb@dimc-tmu.jp*

### References

- Galbán-Rodríguez E, Arencibia-Jorge R. Editorials and the cascading peer review. *European Science Editing* 2014 (THIS ISSUE).
- Barroga EF. Cascading peer review for open access publishing. *European Science Editing* 2013; 39(4):90–91.
- Kim S, Barroga EF. An adaptable model of a biomedical writing and editing course for medical graduates. *European Science Editing* 2014;40(1): 9–10.
- Gasparian AY. Familiarizing with science editors’ associations. *Croatian Medical Journal* 2011;52(6):735–739. doi 10.3325/cmj.2011.52.735

## Gender and sex in medical research

Based on the concept of political correctness and the gender theory,<sup>1-3</sup> editors of science journals have more or less officially introduced the rule that the word *sex* should be replaced by term *gender* (eg in tables, in titles of columns). I believe that this change requires some clarification to ensure more reliable and understandable research data. The World Health Organisation (WHO) defines sex as “the biological and physiological characteristics that define men and women, and gender as a reference to the socially constructed roles, behaviours, activities, and attributes that a given society considers appropriate for men and women.”<sup>4</sup> On the other hand, in the International Statistical Classification of Diseases and Related Health Problems 10<sup>th</sup> Revision (ICD-10) Version for 2010,<sup>5</sup> the relationship between *sex* and *gender* is defined as follows: “F66 Psychological and behavioural disorders associated with sexual development and orientation” – Sexual orientation by itself is not to be regarded as a disorder; “F66.1 Egodystonic sexual orientation – The gender identity or sexual preference (heterosexual, homosexual, bisexual, or prepubertal) is not in doubt, but the individual wishes it were different because of associated psychological and behavioural disorders, and may seek treatment in order to change it”. It means that gender identity is not defined by biological sex. Nonetheless, biological sex is often, if not always, associated with specificities which substantially affect the results of investigations in medical research, even in models that do not emphasize sex differences (eg in cardiology). If a table contains a column entitled Gender/male, it can be interpreted that subjects with female biological sex may be listed in the column because they consider themselves males (and have the respective sexual orientation).

As the WHO approach refers to *sex* as a biological realm, there is no reason for replacing the term *sex* with *gender*. The replacement is grossly incorrect and misleading for medical research.

**Matko Marušić**

Department of Research in Biomedicine and Health,  
School of Medicine, University of Split;  
Šoltanska 2, 21000 Split, Croatia  
matko.marusic@mefst.hr

## References

- 1 Klein F, Sepekoff B, Wolf TJ. Sexual orientation: a multi-variable dynamic process. *Journal of Homosexuality* 1985;11(1-2):35–49. doi: 10.1300/J082v11n01\_04
- 2 Bornstein K. *Gender Outlaw: On men, women and the rest of us*. New York, London: Routledge; 1994.
- 3 Rothblatt M. *The apartheid of sex: a manifesto on the freedom of gender*. New York: Crown Publishers; 1995.
- 4 What do we mean by “sex” and “gender”? Available at <http://www.who.int/gender/whatisgender/en/> [accessed 13 January 2014].
- 5 Disorders of adult personality and behaviour. *International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10) Version for 2010*. Available at <http://apps.who.int/classifications/icd10/browse/2010/en#/F66.1> [accessed 13 January 2014].

## Educating editors

As Armen Gasparyan describes in a recent editorial,<sup>1</sup> editors of journals need to keep up to date with new technologies and publishing trends as well as acquire basic editing skills. Books and articles are available for self-teaching and editors can attend a course or meeting such as those arranged by the European Association of Science Editors (EASE). Editors are busy people, however, and often have to limit the number of meetings they attend. Editors of society journals, in particular, are likely to give priority to their own society's meetings and may miss educational opportunities arranged by EASE and other organizations. It might therefore be useful to have on the EASE website a list of EASE members who would be willing to give talks or lead workshops at other meetings. A society's editorial staff could then arrange a short session attached to their usual meeting at which they could hear and discuss editing topics relevant to their journal. In addition, it would be useful to have some online tutorials or case histories on particular topics on the EASE website. Subjects could include, for example, suggestions for finding good reviewers, marketing a journal, and dealing with ethical issues such as conflicts of interest, bias in peer review, and plagiarism.

**Angela K. Turner**

Managing Editor, *Animal Behaviour*;  
School of Life Sciences, University of Nottingham  
University Park, Nottingham NG7 2RD, UK;  
Angela.Turner@nottingham.ac.uk

## Reference

- 1 Gasparyan AY. Moving towards topical education in science editing. *European Science Editing* 2014;40(1):2.