

SPECIAL ARTICLE

Global knowledge of medicine: Experiences from Tuzla and Banjaluka, Bosnia & Herzegovina

Rajko Igić

Former Professor and Head, Departments of Pharmacology and Toxicology, Medical Schools at Universities of Tuzla and Banjaluka, Bosnia and Herzegovina, ex-Yugoslavia

Summary

When English became *lingua franca*, a significant change in the language of scientific publication in Central and Eastern European countries occurred; many journals instead of the local language, and German, French or Russian used English. The shift occurred due to the intention of both the journal editors and contributors to achieve international recognition and inclusion of the journal in prestigious international medical databases. As a consequence, publications in English are cited on average six times more frequently than those in German, Japanese or French. In the Northern part of Bosnia and Herzegovina (B&H), three medical journals are published in English. However, these journals are not yet included in the Medline indexing base. In unenviable socio-economic state such as B&H, one cannot expect enough quality submissions to recognized journals. Gross domestic product per capita in

2012 in B&H, neighboring Croatia, Serbia and Slovenia was 9,545; 21,314; 13,020 and 27,474 US\$, respectively. Thus gross domestic expenditure on research and development in 2009 of about 0.02%, 0.85%, 0.923% and 1.86% in these states clearly shows incapability of B&H to support adequately recognized scientific research. Temporarily, the main goal for the majority of the medical professionals is to keep health of patients in modest circumstances, and reproduce new generations of qualified practitioners. For that reason, there is a long way to reach the noble point of "the internationally recognized evaluation criteria" for assessing scientific accomplishments.

Key words: Bosnia and Herzegovina, Fulbright commission, publishing in English, substance P symposium, U.S. von Euler, war

When English became the *lingua franca*, the language of scientific publication in Central and Eastern European countries changed significantly. Many journals previously used the local language or sometimes German, French or Russian. Before World War II, German was the main foreign language in Yugoslavia. The shift to English in medical journals allowed editors and contributors to achieve international recognition and inclusion in prestigious international medical databases. The hope was that publishing in English would

enlarge readership, increase submissions of quality papers and secure more capable reviewers. In fact, publications in English are cited six times more frequently than those in German, Japanese or French [1].

When this language shift first occurred in B&H, I was a dean associate at the Medical School in Tuzla (founded in 1976). I decided in 1978 that we should follow the trend and introduce English classes for both medical students and medical doctors who were acquiring the knowledge and

skills for scientific research and publication. The resulting two-year research program was called *postdiplomski studij*. To accomplish that linguistic goal, a local English teacher was employed, and we asked the Fulbright Commission in Belgrade to provide lecturers from the USA. We were most fortunate for help from three U.S. Fulbright Fellows who stayed in Tuzla at various times during the 1980s. Along with the local lecturers from the former Yugoslavia, more than twenty notable researchers from foreign countries presented seminars in Tuzla, including E. G. Erdős and K. U. Malik (USA), G. Muacevic (Germany), P. Krough (Denmark), S. Chiba (Japan), L. Szekeres, V. Varró, S. Karácsonyi, and M. Tenyi (Hungary).

We were pleased to have Ulf Svante von Euler [2], a Nobel Prize winner from Sweden, as a guest-lecturer in Tuzla. The photo below shows him at the First International Symposium on Substance P, Sarajevo 1961. To facilitate our relationship with foreign Universities, the University of Tuzla signed exchange contracts with the University of Szeged, Szeged, Hungary, and Shinshu University, Matsumoto, Japan [3]. This program included participants from the Medical School, University of Banjaluka, as well.

Medical students in Tuzla were instructed in



Photo. Participants at the First International Symposium on Substance P, Sarajevo 1961. Participants were elite scientists of that time: Martha Vogt, G. Zettler, D. Beleslin, V. Varagić, B. Perrnow, K. Lissak, S. Huković, F. Lembeck, B. Radmanović, M. Milošević, U.S. von Euler (third standing from the right), P. Stern (sixth standing from the right). In 1970, von Euler received Nobel Prize for physiology and medicine. Von Euler discovered substance P; Stern was a leading scientist in research on the substance P, and the organizer of this symposium. Von Euler participated at the Yugoslav Congress of Physiologists and Pharmacologists in Belgrade (1968), and he visited Tuzla (1982). The original photograph was destroyed when my office at the Department of Pharmacology in Tuzla was investigated during the Bosnian War. Luckily, we published this rare photo in a booklet just before von Euler visited Tuzla in 1982 [2].

medical English during two or three semesters (depending on their previous knowledge). This enabled them to read medical textbooks and papers. Medical doctors were taught to read scientific articles and to write and communicate in English. Fifty-seven medical doctors graduated at the *postdiplomski studij*. Before graduation they published a total of 14 original articles in journals indexed by Medline. After graduation they published 821 papers [3].

Two medical journals are published in Tuzla, *Acta Medica Saliniana (AMS)* and *Pedijatrija Danas (PD, Pediatrics Today)*. Before the Bosnian War, the AMS published all papers in Serbian or Croat language but later switched to English. The PD was launched after the Bosnian War, and it now publishes papers only in English. When I was editor-in-chief from 2011 to 2014 of the *Scripta Medica*, published in Banjaluka, this medical journal turned gradually from a partial (submissions in either Serbian or English) to complete English policy (all major papers in English). However, none of these three journals are yet included in the Medline indexing base.

Unfortunately, the lack of wider transnational presence and recognition, the low number of submissions and the limited attention of capable reviewers result in some weak papers. In addition, these inadequate publications often suffer from methodological faults, lack of novelty, unsophisticated research technologies and low analytical strength. Along with the language issue, this tends to marginalize the medical journals from our country, despite attempts of the journal editors and authors to seek help from the language professionals who are not specialized in scientific English. The end result is that authors with better quality research data submit their manuscripts to more prestigious journals that are indexed by Medline and other databases.

In an unenviable socio-economic state, such as B&H, there are few quality submissions to recognized journals. The gross domestic product per capita in 2012 for B&H was \$9,545 in US \$, according to the UNESCO Institute for Statistics. In neighboring Croatia, Serbia and Slovenia the amounts are 21,314, 13,020, and 27,474 US\$ respectively. Thus, we can see that in 2009 B&H had a gross domestic expenditure on research and development of about 0.02% compared to 0.85%, 0.92% and 1.86% in other three states. Clearly this renders B&H unable to support significant scientific research. As a consequence, few researchers reach the scientific excellence necessary to pro-

duce papers acceptable for publication in well-known international medical journals. The rare opportunity for international cooperation provides a chance for those who are selected mainly on political grounds.

In these modest circumstances, the main goal for most medical professionals should be to maintain the health of their patients and to produce new generations of qualified practitioners. Thus, they are a long way from reaching the “internationally recognized evaluation criteria” [4] for assessing scientific accomplishments and thriving in a professional research career.

Great scientific discoveries rarely originate from small and poor countries, but a few outstanding individuals overcame obstacles such as wars and civil unrest to contribute significantly to medical research [5,6]. However, in countries heavily shaken by war [6] most researchers and innovators had to wait until the normal functions

of society were restored. Perhaps the day will come when some of us can continue the work of our honorable men: Milan Jovanovic-Batut [7], Ivan Giaja (Jean Giaja) [5], Milutin Milanković [8], Andrija Stampar [9,10], Pavel Stern [5], and other Yugoslav discoverers. Until then, those of us in B&H and other damaged states of Yugoslavia, should publish our research in both our local languages and in English. We will present our innovations to an international audience, and perhaps in time some of us will continue in the path of our great predecessors. For now, in order to compete and communicate with other international scientists, the majority of us should practice the *lingua franca* to the point where it becomes better than a second language.

Conflict of interests

The author declares no conflict of interests.

References

1. Schein M, Farndon JR, Fingerhut A. A surgeon's guide to writing and publishing. Shifnal, UK, tfm Publishing, 2001.
2. Igić R (Ed): Ulf Svante von Euler. Tuzla, Medicinski fakultet, 1982.
3. Tahirovic H. Postgraduate studies (1978-1985) at the Medical Faculty of the University of Tuzla, Tuzla, Bosnia and Herzegovina. *Acta Med Acad* 2015;44:68-74. doi: 10.5644/ama2006-124.128.
4. Zerem E. Right criteria for academia in Bosnia and Herzegovina. *Lancet* 2013;382:128. doi: 10.1016/S0140-6736(13)61565-2.
5. Igić R. Can outstanding research be done under less than ideal conditions? *Einstein J Biol Med* 2003;20:23-27.
6. Igić R. War and scientific output moving beyond war. *J BUON* 2005;10:495-497.
7. Simić L, Marjanović B. [Life and work of Prof. Dr. Milan Jovanović-Batut]. *Med Glas* 1962;16:304-307.
8. Igić R, Škrbić R, Stoisavljević-Šatara S. Great scientists from a small country in war and peace. *Scr Med* 2011;42:110-115.
9. Cvjetanović B. Homage to Andrija Štampar. *World Health Forum* 1990;11:376-380.
10. Horton R. Offline: The case against (and for) public health. *Lancet* 2016;388:2578.