EDITORIAL

doi: 10.5455/medarh.2021.75.408-412
MED ARCH. 2021 AUG; 75(4): 408-412
RECEIVED: DEC 05, 2021
ACCEPTED: DEC 11, 2021

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On the Occasion of the Symposium "Scientometry, Citation, Plagiarism and Predatory in Scientific Publishing", Sarajevo, 2021

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ABSTRACT

12th Days of the Academy of Medical Sciences of Bosnia and Herzegovina (AMNuBiH) this year were organized together with the International Academy of Sciences and Arts in Bosnia and Herzegovina in Sarajevo on December 4, 2021. The title of the symposium was "Scientometry, Citation, Plagiarism and Predatory in Scientific Publishing". Experiences in the scientific area covered by title of this conference were presented by some of the most influential scientists from Bosnia and Herzegovina, who are included between 2% of authors in the Stanford scientometric list, which was published in October 2021 in the journal Biology Plos. Some of the authors are former or current Editors-in-Chiefs of indexed biomedical journals in Bosnia and Herzegovina, Croatia, North Macedonia (Izet Masic, Asim Kurjak, Doncho Donev, Osman Sinanovic). Also, Sylwia Ufnalska and Izet Masic are or were members of the European Association of Science Editors (EASE) and they have great experiences about the topic of this conference. Science that analyzes scientific papers and their citation in the scientific journals – called scientometrics – day by day has become important for measuring scientific validity and quality of all kinds of publications deposited in the most important on-line scientific databases, like WoS, Scopus, Medline, PubMed Central, Embase, Hinari, etc., but also in academic platforms ResearchGate and Academia.edu. Scientometrics use the Impact and Echo factor for measuring the quality of publications in WoS journals, Scopus uses the h-Index, and the most common one used in the last 10 years is Google Scholar index. All of them have advantages and disadvantages, and also positive and negative influences in the academic praxis. One of the greatest, and sadly too common, problems which participants in the academic process encountered are plagiarism and predatory publishing. In order to prevent this severest form of academic fraud, authors must give credit to someone whose work has helped him/her by citing references correctly. This presentations of the symposium "SWEP 2021") analyzed the major components of scientometrics, the basic mechanisms of citations in medical publications and plagiarism, as an opposition to the primary goal of scientific enterprise: search for truth.

Keywords: Scientometrics, Citation, Plagiarism, Predatory.

1. THE TOPIC AND TITLES OF PRESENTATIONS AT SWEP 2021

On December 4, 2021, a scientific Symposium on the topic "Scientometry, Citation, Plagiarism and Predatory in Scientific Publishing" was held at the Holiday Hotel in Sarajevo. The lecturers at the Symposium were from Bosnia and Herzegovina, Croatia, Serbia, Northern Macedonia, Poland and the United States (1). The Symposium was organized on the occasion of the annual scientific conference "Days of the Academy of Medical Sciences of Bosnia and Herzegovina" (AMNuBiH), this time in cooperation with the Medical Department of the International Academy of Sciences and Arts in Bosnia and Herzegovina (IANUBIH). Over 20 participants were present in the conference hall, mostly members of the two academies, and through Zoom meeting technology over 50 other participants, including several members of AMNuBiH, followed the presentations of our lecturers.

This was one of the rarely organized scientific gatherings in the field of scientometrics in Southeast Europe and beyond. The topic of scientometrics has especially attracted the attention of the scientific and academic public with the recent publication of the so-called "Stanford list" of the most cited

Figure 1. Opening speech of the "Days of AMNuBiH 2021 and SWEP 2021" , Sarajevo, December 4th, 2021

Figure 2. Participants of the Symposium: "Scientomtrics, Citation, Plagiarism and Predatory in Science Editing", Sarajevo, BiH, 2021

scientists – authors who have published their articles in various indexed journals covered by the SCOPUS index database, located in Amsterdam, the Netherlands. On that list, among the 2% of the most cited authors, there are over 20 academics from existing academies in Bosnia and Herzegovina. Out of 10 lecturers at this Symposium, 5 are on this list.

After all the presented lectures (four were held by Zoom - Ufnalska, Donev, Djulbegović, Arnautović), the participants wholeheartedly welcomed the idea of holding a symposium on this topic and expressed their satisfaction with the quality of presentations and content presented. The lecture of the respected academician Benjamin Djulbegovic (Beckman Research Institute, City of Hope, Duarte, CA, USA) attracted special attention, and with the permission of the author we decided to post it on our website by Vimeo platform, to make it available for use by colleagues who did not have the opportunity to follow it live.

Academies, universities and other scientific institutions and associations, and especially experts (including some self-proclaimed experts) who deal with or are interested in scientometrics can gain from the experiences presented at this Symposium some new knowledge, which can assist them in their future profession in this field of science, called scientology.

Participants and titles of the presentations at the Symposium "Scientometrics, Citation, Plagiarism and Predatory in Science Publishing" were as follows (1):

* Asim Kurjak (Zagreb, Croatia): How to correctly and objectively assess science and scientific validity of scientific research in practice?

* Izet Masic (Sarajevo, Bosnia and Herzegovina): Scientometrics as an appropriate method of validation of scientific content.

* Slobodan M. Jankovic (Kragujevac, Serbia): Inflation of co-authorship as the main source of scientometric (non)objectivity.

* Osman Sinanovic (Tuzla, Bosnia and Herzegovina): Impact of the COVID-19 pandemic on scientific research in the biomedical sciences.

* Benjamin Djulbegovic (City Hope, USA): Avoidable and unavoidable research waste in (biomedical) research.

* Enver Zerem (Mostar, Bosnia and Herzegovina): Influence of scientometrics on academic promotion and ranking of universities.

* Doncho Donev (Skopje, North Macedonia): Predatory publishing and predators – almost unsolvable problem of today in biomedical sciences.

* Kenan Arnautovic (Memphis, USA): Bibliometric analysis of published papers in six most influential neurosurgical journals in the world during past ten years.

* Muharem Zildzic (Tuzla, Bosnia and Herzegovina): Relationship between education and family medicine practice: what did we learn in Covid-19 pandemic?

* Sylwia Ufnalska (Poznan, Poland): We need more efficient communication of research results: what can we do to improve it?

Abstracts of the presented lectures were published in the journal Acta Informatica Medica, can be viewed

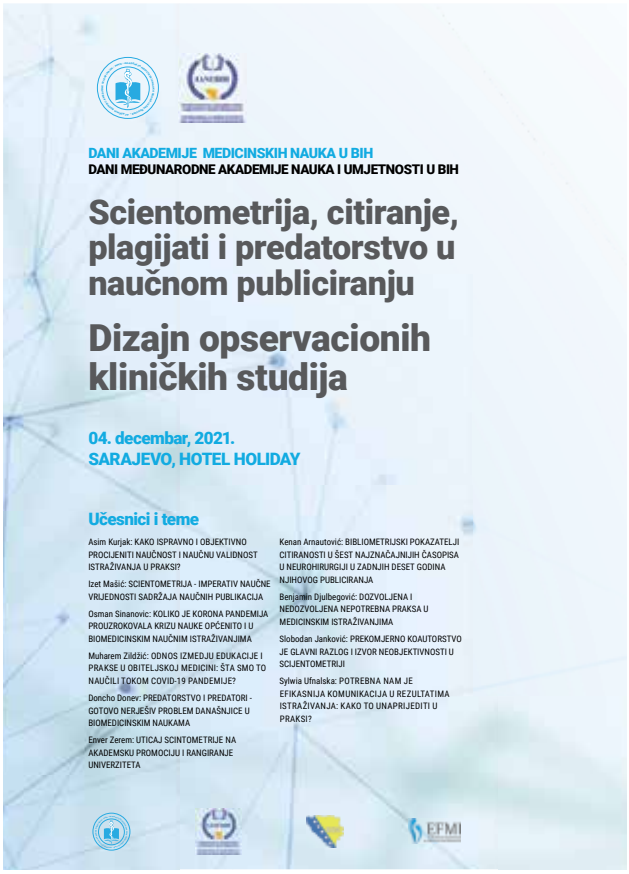

Figure 3. Poster of the "Days of AMNuBiH 2021 and SWEP 2021"

at www.actainfommd.org and www.bibliomed.org, and will be available in the PubMed database (1).

2. THE FACTS ABOUT STANFORD BIBLIOMETRIC LIST OF THE MOST CITED AUTHORS

In the Introduction of the first abstract, written by Masic I, Kurjak A, Jankovic MS. (1), authors stated "in order to explain in some way the weight of the allegations that these and those academics, and these academies in Bosnia and Herzegovina are among the 2% of the most cited scientists in the world. Doesn't the fact that the h-Index of 4 academies in Bosnia and Herzegovina in the year 2017 is 12, which is significantly small compared to the well-organized countries of the world with a high level of education and high-ranking journals, bring up the question about the credibility of the data in the media and that the Stanford list may have been misinterpreted. Therefore, the data must be analyzed more seriously and possibly argued for their accuracy and credibility."

The original title of the paper with the Stanford list is: "Updated science-wide author databases of standardized citation indicators", published by Elsevier (Amsterdam, the Netherlands), by John P. A. Ioannidis, Kevin W. Boyack and Jeroen Baas, professors at the University of Stanford in California (USA) (2, 3). The authors of the study state that the influence of world scientist citations is often misinterpreted, and in order to achieve maximum objectivity, they created a publicly available database with more than 190,000 leading scientists of the world. Using the principles of artificial intelligence that deal with algorithm design, the authors correlated several parameters that, in their opinion, are important for the objective evaluation of each scientist. They especially emphasized the importance of distinguishing between the concepts of the number of citations and their impact. The available database contains standardized information on citations, h-index, hm-index, citations of articles in different positions of authors/co-authors in the analyzed article and a summary indicator of the impact of citations. Scientists are classified into 22 scientific fields and 176 scientific branches. For all scientists who have published at least 5 articles, percentages specific to the scientific field are given. Collective data for each author/co-author were analyzed and updated from the beginning of the career until the end of 2020. The selection is based on the first 190,000 according to the c-score (with and without self-citations) or on the percentage range of 2% of the most cited. The methodology used during preparation of the list of scientists with the greatest impact on citations was published in the scientific journal PLOS Biology in 2020 (2).

The authors who created the Stanford scientometric list of the most cited authors from articles stored in the SCOPUS bibliographic database methodologically took into account whether someone was the first, last or only author, and the like, and did so in great detail. Unfortunately, they did not take into account the number of authors per article. Then, they looked at the number of citations according to SCOPUS, and half of our citations are missing there (there are almost twice as many on ResearchGate). By random sampling control, we found that many well-known scientists from the Balkans are not on the list. Whether it is up to SCOPUS and the articles deposited in its database or whether some journals were omitted by mistake should be explored. The example of the journal Folia Medica Facultatis Medicine Universitatis Saraeviensis, which does not exist at all, because it is registered in the SCOPUS database as if it were published in Zagreb (Croatia), is one of the proofs of this claim.

3. WHAT IS MISSED AT STANFORD LIST AND WHAT NEED TO BE IMPROVED IN THE FUTURE

Speaking about the Stanford list, circulating in the scientific community, we have agreed that it is necessary to suggest that scientometric analysis with the method used by authors from Stanford University in the USA should take into account two very important variables: (1) each author's contribution, when there are co-authors of the article, so the number of citations from the total number of authors should be divided by each co-author individually, and not for each co-author to receive a citation as if they were the first; and (2) it is necessary to take into account the evaluation of the quality of the content published in the research results in the paper published and stored in the index databases. Only then would the Stanford list be more complete and of

better quality. In that case, perhaps half of the authors from that list would be dropped out, especially if the numbers of citations as the first author or as a co-author were singled out. This would avoid manipulations, which are widely used in practice and especially abused by the media, which we could see these days by reading unverified and flat-out comments, mostly in a pompous and bombastic manner.

Apparently, the list is misleading mostly because many publications have been excluded and the number of citations for each author was not divided by the number of authors per article. Only after these corrections it would be realistic, but then half of the authors would drop out of the existing list (3).

Some of our colleagues, who deal with the problems of scientometrics as a team, believe that the ranking that was made and applied for publishing the Stanford list of the most cited scientists is global and based only on the analysis of published articles deposited in one of the world's databases, SCOPUS, but dangerous to science in general. This list emphasizes the formal part and the citation, no matter what caused it. Especially ignorant or insufficiently versed in the essence of such "meta-analyses", mostly close to a very small circle of scientists who understand this problem (and almost 3% of authors who have published articles and are not close to this list), and who, especially journalists – or those more or less vicious, who seek exclusivity in this – will inevitably misuse the data in the list without delving into its essence and the accuracy/inaccuracy of the data. The list includes some well-known names in a very high position, and the content of their contribution to science is more than modest.

No one is interested in the real state of affairs in such a chaotic state locally and globally, where everyone hunts in the dark, including scientists, because the value system has reached the bottom, especially when it comes to honesty, ethics and morality.

It is not disputed that we have scientists with a high scientific rating in Bosnia and Herzegovina and our experts in other countries, where they are employed in scientific institutions and who with their publications are high on lists like the one that is currently being promoted. However, it is out of common sense to publish in the most widely circulated daily news article in Bosnia and Herzegovina that one of the cited scientists, allegedly among the 2% (and who calculated that they account for just 2% of them) is one of "the greatest minds of today", and such a qualification is rarely read in any source, and especially in serious scientific journals, it can only happen in our area (5). Also, we analyzed in the sample used randomly from the Stanford list and calculated how many of them have citations as author or co-author in the published papers in SCOPUS database, and we found that almost half of citations they have as co-authors of published papers.

In the future, we should find ways to evaluate the content, e.g., if someone did 200 experiments and showed something about an unresolved issue (irrespective if the result is positive or negative), then that work must be valued more than if someone published a secondary or tertiary publication, where he only listed and commented a little on primary data that other people collected (6-16). Also, criteria for assessment of scientific status of somebody in his/her scientific or academic career, besides the mentioned indexes in this text, must take into account also authorship of textbook(s), books, monographs etc.; the proof of organized congresses or scientific conferences or chaired of scientific sessions at conferences, etc.; editing of scientific indexed journals recognized internationally, membership in scientific associations at international or national levels, some special awards at international level, etc. I think the mentioned criteria are more important for quality assessment of scientific biosketch of scientists. How we can validate these criteria? Current academies and academicians can propose it with consultation of scientific bodies and experts at universities in one country, selected regions or worldwide.

4. OTHER IMPORTANT MATTERS DISCUSSED AT THE SWEP 2021 SYMPOSIUM

During SWEP 2021 Symposium we discussed about improving "Guidelines for scientific editing and publishing in biomedical journals". BOMRAD Form for editing and preparing articles for publishing in biomedical journals mentioned in Guidelines established by AMNuBiH members are accepted in scientific practice, also. Additionally, the "Sarajevo Declaration on Integrity and Visibility of Scholarly Journal", proposed by AMNuBiH members, is already accepted as standard in more than 50 journals (6, 7). An important discussion was about the use of the EASE Quick-Check Table for Submissions, adopted in 2020, and other improvements explained by Sylwia Ufnalska (1, 25, 26). There is growing belief that peer review and publication are keys to building trust in models and algorithms applied to health and health care, and Izet Masic commented on the experience of the Learning Health Systems journal, which has established a program for publishing models as computable artifacts along with a written paper describing them. Also, the same experts proposed new submissions. Submission is a two-step process, as detailed in this excerpt from the policy. The first step requires a brief proposal that will be quickly evaluated to be sure the proposed submission is in scope. The second step is the submission of the manuscript itself along with the computable artifact and instructions for testing it. We will discuss it in the future and try to include it as the way to improve our Guidelines for authors who eventually intend to publish articles using BOMRAD Form.

A lot of authors have cited articles published in other indexed journals (PubMed, PMC, Embase, EBSCO, Hinari, etc.) and stored in ResearchGate and Academia.edu (not only papers, also books, monographs, PhD and Master's theses, etc) and they have even several thousand or several hundred READS. The question is how to validate these citations, maybe more scientific or professional databases, not only papers deposited in Scopus.

Finally, what about papers published in Scopus index journals but with incorrect citations of references, because every paper with wrong citing of references in the list is excluded from the Stanford list. It is reason that some journals insisted. that authors should follow the rule written at the end of the article with the sentence "How to cite this article". We hope that this publication will contribute to solving many problems.

During this conference, academician Benjamin Djulbegovic proposed establishing of "Waste Research Index" (WRI), because almost 50% of international research in the world are waste.

5. CONCLUSION

The general conclusion of the Symposium participants was the following: scientometric indices most commonly used in practice (h-Index, Google Scholar index, etc.) to evaluate scientific research and their results published in indexed journals and stored in index databases, and from which they are analyzed and disclosed, are definitely necessary in academic practice. However, existing indices also have their ambiguities that need to be improved in the future, based on experiences of their use in practice.

We hope that the presented contents of the papers from this Symposium and the experiences of the lecturers presented will help to create a realistic picture of the state of science at our and wider area, and assumptions for its real future based on assessment and estimate of the current state and circumstances in which science and scientists exist.

- **Author's contribution**: Author was involved in all steps of the preparation this article including the proofreading.
- **Conflict of interest**: None declared.
- **Financial support and sponsorship**: Nil.

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