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The Importance of Proper Citation of References in Biomedical Articles

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EDITORIAL ABSTRACT

In scientific circles, the reference is the information that is necessary to the reader in identifying and finding used sources. The basic rule when listing the sources used is that references must be accurate, complete and should be consistently applied. On the other hand, quoting implies verbatim written or verbal repetition of parts of the text or words written by others that can be checked in original. Authors of every new scientific article need to explain how their study or research fits with previous one in the same or similar fields. A typical article in the health sciences

refers to approximately 20-30 other articles published in peer reviewed journals, cite once or hundreds times. Citations typically appear in two formats: a) as in-text citations where the sources of information are briefly identified in the text; or b) in the reference list at the end of the publication (book chapter, manuscript, article, etc.) that provides full bibliographic information for each source. Group of publishers met in Vancouver in 1978 and decided to prescribe uniform technical propositions for publication. Adopted in the 1979 by the National Library of Medicine in Bethesda, then the International Committee of Medical Journals Editors (ICMJE), whose

review in 1982 entered the official application by 300 international biomedical journals. Authors writing articles for publication in biomedical publications used predominantly citation styles: Vancouver style, Harward style, PubMed style, ICMJE, APA, etc. The paper gives examples of all of these styles of citation to the authors in order to facilitate their applications. Also in this paper is given the review about the problem of plagiarism which becomes more common in the writing of scientific and technical articles in biomedicine. **Keywords:** citing and quoting references, scientometrics, plagiarism.

1. 1. INTRODUCTION

We live in an era of scientific and technical information explosion that are collected in the inexhaustible knowledge bases through millions of biomedical and other journals into on-line databases (1, 2, 3, 4, 5). Science has made enormous achievements for our understanding of the world and for everyday life. We are witnessing extraordinary advancement of technology, knowledge and applied skills in our everyday life (1). Medicine, as one of the fundamental scientific branches during the last 50 years has experienced a boom in all its spheres. We can certainly say that this growth and progress is based on the number of results in the scientific research of researchers around the world and their mutual exchange. In the late twentieth and early twentyfirst century, to the general population became available information and communication technologies (ICT), primarily in the form of the Internet, which significantly simplify the exchange of information, knowl-

edge and skills (6, 7, 8, 9, 10). Due to the flourishing of ICT use which occurred during 90s of the twentieth century, when the scientific research in Bosnia and Herzegovina (B&H) was significantly depressed by aggression and recovery from war and postwar development, the question is where are the B&H scientists within global scientific scene?

2. STEPS (PHASES) IN THE DEVELOPMENT OF SCIENTIFIC ARTICLE

In order that a person devote itself to science and research, it is necessary to possess the following qualities: intelligence, skills of analysis and synthesis, the power of observation, perseverance, creativity, ethics and responsibility (2). After the selection of research topics, selecting mentors, associates in the project which is being implemented and the implementation of the research, follows the writing the article, using the definition of the methodological postulates. The concept of scientific

research is based on the use of scientifically based principles by passing through the appropriate and necessary steps and division of certain sections of the final written presentation of the results of the study. Each paper is intended for publication in one of the indexed biomedical journal should contain title, abstract, introduction, methods, results, discussion, conclusion and list of references used by appropriate citation (7, 8, 9).

Author Kathrin H. Jacobsen in her book: "Health Research Methods: a Practical Guide" (2102) (7) described 5 steps in process of health research – from idea to realization:

- Identifying a Study Question,
- Selecting a Study Approach,
- Designing the Study and Collecting Data,
- Analyzing Data,
- Reporting Findings.

which is being implemented and the implementation of the research, follows the writing the article, using the definition of the methodological postulates. The concept of scientific which often results in the birth

of the desire of researchers to write cation of the work and why publish? an article (11, 12). Knowledge of the principles established by the process of scientific research demystifies the process. Decomposition process research into simpler trying to animate all those who can contribute to the advancement of medical science. Emphasizes the importance of pursuing the following five steps: identification of the main research questions, the selection of a scientific approach, study design and data collection, data analysis and presentation of the work (7). The first step in the process is exploring a variety of themes as the focus of research. The first step has multiple segments, such as: choice of the major topics of research, literature review, focusing on the question of research, drafting support team. The second step in the research is to select the main access study. Access can be: review or meta-analysis, correlation (ecological) studies, case series, crosssectional studies, case control studies, cohort studies, experimental studies or qualitative studies. The third step of the process of scientific research is the development and implementation of a detailed study plan. It is necessary to know how to create a protocol for primary, secondary and tertiary studies. Overview of developing proposals and flow. Primary studies require: a sample of the population, determination of the sample size, the development of questionnaires, surveys and interviews, additional assessment, ethical issues, ethical review and authorization. Secondary studies include existing data sets, and tertiary studies include a systematic review and meta-analysis. The fourth step in the research is the collection and analysis of data collected in the third step. Most researches require descriptive or comparative statistics. This step includes: management of data, descriptive statistics, comparative statistics and advanced biostatistics. The fifth and final step in the process is writing a research report and preparation for presentation and publication. In this step is described the structure of the article, quote, writing strategies, critical review, posters and presentations, choosing journals for publication, the process of teaching, examination and publi-

In order to discover something new, it should be: the average intelligence, the ability to analyze and synthesis, power of perception, desire, determination, creativity, ethics, responsibility and, most importantly, a pure intention to achieve a desired goal (7).

Author Bjorn Gustavii (2008) in his book "How to Write and Illustrate Scientific Papers" described three basic rules of writing (6):

- a) Brevity elementary rule of writing, not only to save publication space, but also because verbose writing obscures meaning and wastes the reader's time and patients;
- **b**) Logic and clarity what you want to say should be o arranged that reader can follow your argumentation step by step;
- c) Clean typing make sure your manuscript looks carefully prepared; it may influence editors and referees in your favor.

3. THE BASIC COMPONENTS OF SCIENTIFIC-RESEARCH ARTICLE

Scientific articles in almost all cases have the follow structure: abstract, introduction, methods, results and discussion. For didactic reasons is formed the acronym IMRAD (8, 9, 10): I-Introduction, M-Methods Methods and Materials), R-Results, A-and D-Discussion and Conclusion.

3.1. Title

Title of the paper should be as short as possible, as well as concise as possible in describing the content of the article. We can say that the title is a summary of an abstract (2). A good title should be: a) short, b) correct, c) a clear, d) complete, e) informing, d) attractive.

3.2. Name(s) of the authors and their institutions

It is necessary to specify the names and surnames (full texts) of the authors and co-authors who participated in editing of the article, and also their affiliations. Must be respected the instructions that journals require in which the article will be published (Instructions for authors).

3.3. Abstract

Abstract/Summary and Title can be written in two forms: Reference and Information. It can be written in author's native language and English. The structure of the summary should look like this: introduction, goal, materials and methods, the location of the study, measuring the outcomes of the study, the results and conclusions.

3.4. Introduction

Introduction is part of the article with a list of already known facts, presented in order to inform readers on the topic and research issues. It also provides the reader with a basis on which the discussion later in the article was carried out. Writing an introduction has its own rules: a clear definition of the problem and why exactly this issue was explored. There is no need to explain what can be found in the textbooks, nor the terms of the title.

3.5. Materials and methods

Materials and methods describe how the study was conducted and what are the characteristics of the sample (experimental group, controls and their properties). It is necessary to explain what is researched, asked, tested as follows: sampling (random, consecutive, and representative), the sample size (patient gender, age), the control group, and the criteria for exclusion from the study, the control group-if any. It should be described how the research was done: type of study (prospective, retrospective or combined), data collection (surveys, inventory or check-up), the technique of measuring results (operative treatment, laboratory tests).

3.6. Results

The research results are usually most carefully read and should provide a detailed plan, well-documented and at the optimal dose. Results are the most important part of scientific research. Consequently it is essential that graphic and textual part of the article is clearly shown. Results can be displayed in tables or figures. The author(s) will decide on display mode, but never both tabular and chart form. It is essential that the relevant facts are highlighted and clearly displayed.

3.7. Discussion

Discussion is a critical review of the data described in the results. The results should be compared with other findings and discuss the theoretical and practical research outcome.

3.8. Conclusion

The conclusion seems logical sequence of the previous two sections, it does not recount results, but combines them in a clear and understandable context. Conclusion should be short, clear and precise. It is necessary to: make the final statement of what logically follows from the results of the work.

4. WAYS TO CITE REFERENCES

In scientific circles, the reference is the information that is necessary to the reader in identifying and finding used sources. The basic rule when listing the sources used is that references must be accurate, complete and should be consistently applied. On the other hand the quoting implies verbatim written or verbal repetition of parts of the text or words written by others that can be checked in the original text (4). There are several systems of citation and referencing, while the most commonly used systems are "author-date" (such as the Harvard system, APA, etc.) and numerical systems (such as CSA, IEEE, Vancouver style and others). Often, the preferred system of citation is depended on the scientific discipline in which the author writes. Thus the ways the references are written in an article about mathematics differ from the references in the article about biomedicine. Also, the authors are sometimes faced with the need to respect pre-set requirements for quoting sources from the institution, journal or publisher (1, 2, 6, 8, 13). For example, different requirements will be from higher education institutions in the use of reference in the thesis or doctoral dissertation, from the publisher requirements (e.g. journal) that is indexed in the databases (e.g., Web of Knowledge, Medline, Scopus, etc.). Each system includes a precisely de-

fined set of rules for attribution in in the Biomedical Journals. Acta Inthe text of scientific or professional work and a way of referring to them. The aim is to make it recognizable what, in the text, belongs to the author and what is taken from other authors/sources. Once adopted, one way of reference must be applied consistently throughout the text.

4.1. Harvard system of citing

Harvard system of references citation represents the most common method of citation in the natural and social sciences. This system is often referred to as the "author-date" system. The same category include the APA guidance system of references, which from the Harvard system essentially differs in how to use punctuation and conjunctions. Characteristic of Harvard system is listing only the basic information in the text (the author's name, year of publication), while the complete data on the work is cited at the end in the chapter References/Literature. In medical science it can be customary to list references only from papers that are directly used (cited) in the text). During writing the author can read and study many articles, however, these sources are not mentioned in the literature, unless they are directly used (8, 13).

4.2. Other standards for citing references in the text

Author during the preparation for the writing of specific article encounters with different types of secondary data. For example, the publication may be written by one, by several authors, and sometimes the authors are not listed but only the organization by which the work was published. With that in mind, when citing sources, to the publication is variously referred to in the text. During the writing operation, publishers may refer to different sources. In this review, article lists various examples of proper citation which is most commonly used when writing scientific and professional publications (8, 13).

Citing references in the text we will discuss on the example that is recommended by ScopeMedwww.scopemed.org (Figure 1):

Masic I. How to Search, Write, Prepare and Publish the Scientific Papers form Med. 2011 Jun; [cited January 25, 2013]; 19(2): 68-79. doi:10.5455/ aim.2011.19.68-79.

If we want to quote this article in article that we publish in an indexed journal that is covered by DBMS ScopeMed there are several recognized ways of quoting the text. The instructions on ScopeMed list of a few ways in which you can quote this text, in all styles, is seen in Figure 2.

First manner of citation is Pubmed

Masic I. How to Search, Write, Prepare and Publish the Scientific Papers in the Biomedical Journals. Acta Inform Med. 2012 Jun; 19(2): 68-79. doi:10.5455/aim.2011.19.68-79.

National Library of Medicine (NLM) recommends using standard ANSI/NISO Z39.29-2005 (R2010). Bibliographic References standard is the basic format for Pubmed/MED-LINE citation. The last item in the above quotation is the unique identification number in the PubMed database and status citations indexed in MEDLINE. NLM has changed a way of citation - that first is cited the author and title of the work (in November 2008).

Another way of quoting is using Web Style:

Masic I. How to Search, Write, Prepare and Publish the Scientific Papers in the Biomedical Journals. www.scopemed.org/?mno=20169 [Access: January 25, 2013]. doi:10.5455/ aim.2011.19.68-79.

This method of citation is different from others in that after the basic information about the author and the work includes a web address. Commonly used at online portals, web sites, etc.

Third way of citation: AMA (American Medical Association) Style:

Masic I. How to Search, Write, Prepare and Publish the Scientific Papers in the Biomedical Journals. Acta Inform Med. 2011; 19(2): 68-79. doi:10.5455/aim.2012.19.68-79.

AMA citation rules recommend the use of full names of the first six authors and co-authors, if there are more than 6, we write the first three and add "et al".

Most commonly it is recom-



Figure 1. Abstract: Masic I. How to Search, Write, Prepare and Publish the Scientific Papers in the Biomedical Journals. published in the journal Acta Inform Med, displayed at www.scopemed.org

mended to use Vancouver/ICMJE Style:

Masic I. How to Search, Write, Prepare and Publish the Scientific Papers in the Biomedical Journals. Acta Inform Med. (2011), [cited January 27, 2013]; 19(2): 68-79. doi:10.5455/aim.2012.19.68-79.

4.3. Citing references in other biomedical scientific publications

Basic bibliographic elements are: author/s, title, journal title, numerical data on the journal, city of publisher and year of publication, data on the quoted unit (references). References could be cited one time in the text and second time as the list of references at the end of the article. Reference in the text by Arabic numerals starting with 1 and a list of references entered in the order of appearance in the text. Certain types of data separated with the original punctuation symbols that are standard profiled, design references highlighted in red. From this structure we use bibliographic elements that appear in described publication, and all the others are omitted. When omitting an element of bibliographic description do not use punctuation symbol that precedes it (2, 8). For example, if the publication has no subtitle we will not use the semicolon character that preceded the subtitle of the work, but after the title place the point that marks the end of each group of data.

4.4. Basic structure of the reference

As a space character is used as an underscore (_).

Printed an article from a journal

First author, Second author, Sixth author_et_al._Title:_Subtitle._journal name._year; volume (issue or number_Pt_number)_
Suppl_number:pages from—to.

Example 1

Masic I. Plagiarism in Scientific Publishing. Acta Inform Med. 2012 Dec; [cited May 17, 2013]; 20(4): 208-213. doi:10.5455/aim.2012.20.208-213.

More than six authors

Example 2

Stipetić J, Čelebić A, Baučić I, Lazić B, Komar D, Bratolić V, et al. Analysis of occlusal contacts in different types of prosthodontics appliance: Eichner classification: presence RCP-ICP slide and the type of occlusion. Coll Antropol. 2001; 25: 311-6.

Printed book

First author, Second author, ... Sixth author_et_al._Book title:_ Subtitle._volume._City:_First publisher,_Second publisher;_year.

Example 3.

Rang HP, Dale MM, Ritter JM, Moore PK. Pharmacology. 5th ed. Edinburgh: Churchill Livingstone; 2001.

<u>Electronic materials – Compact</u> Disc

Authors/editors._Article title:_ Article subtitle._volume._[CD-ROM]._City: _Publisher;_year.

Example 4

Ash MM, Nelson SJ. Wheeler's dental anatomy, physiology and occlusion [CD-ROM]. 8th ed. Philadelphia: Saunders; 2003.

Electronic materials – article

Authors._Article title:_Article subtitle._journal name_[serial on the Internet]._year_motnh_ [cited_year_month_day]; volume (issue): [about x p.]._Available from:_web adress.

Example 5.

Masic I. How to Search, Write, Prepare and Publish the Scientific Papers in the Biomedical Journals. www.scopemed.org/?mno=20169 [Access: January 25, 2013]. doi:10.5455/aim.2012.19.68-79.

Electronic materials - book

Authors/editors._Article title:_ Article subtitle._volume_[monograph on the Internet]._City:_publisher;_year_[cited_year_month_ day]._Available from:_web address

Example 6.

Lukač J. Klinička imunologija: nastavno pomagalo za studente Stomatološkog fakulteta Sveučulišta u Zagrebu [monograph on the Internet]. Zagreb: Stomatološki fakultet; 2004 [cited 2005 Jun 20]. Available from: http://www.sfzg.hr/files/user/isamija/Klinicka_imu-nologija_skripta.doc

4.5. Citing books, monographs, textbooks, dissertations

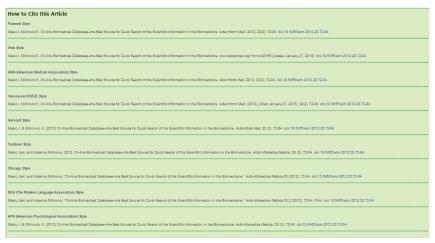


Figure 2. Manners of citation, www.scopemed.org

Author/s: Up to six authors are listed and all the others are listed as et al. First is listed the last name, followed by initial(s) of the first name. More initials of the same person name are written without spaces.

Editor/s: listed in the identical manner authors and adds a tageditor(s). Title and subtitle of the article: transcribed from the original and each separated by the colon. Only the first word of the title and names (personal, geographic, etc.) should be written with a capital letter.

Journal title: By the official acronym of the Index Medicus that is available online through PubMed interface at http://www.ncbi.nlm.nih.gov/pubmed/. In the Search field select Journals database and then enter in the field the full name of the journal. Abbreviation will be listed in field Title Abbreviation. Last word of journal titles ending with point.

Numerical data of the journal: by Arabic numerals enter data in the following order: year, volume, issue, part, supplement, pages. Number of individual issue is entered in parentheses and is obligated to enroll if pagination (numbering) of each individual issue starting from 1. To mark a part of individual issue is used abbreviation Pt. in parentheses. To list supplement use the abbreviation Suppl. and add a number or other designation if any. Pages of the article are written from first to last and without repeating the common parts.

All numerical data are mutually separated by punctuation symbols without spaces except the mark Pt. and Suppl.

Edition of the book (except the first): written by English spelling for item numbers and adds ed. If there is additional information about the volume, the words are transferred from the template. Ordinal number of the volumes of the book (if it is published in several volumes) by an expression vol.

City of publishing: Enter the first city listed in the original and for the other is added etc...

Publisher/s: are transcribed from the original. If the institution is listed as the publisher and its organizational part, the data is separated by a comma. Date of publishing: is transcribed from the title page and if publication year is not specified written is a year copyright. Book Pages: listed only when we quote part of the book, preceded by the label.

Dissertation: to dissertation is referred to as the angular brackets, and put the title (or subtitle) of the work. Pages refer to the total number of pages of the dissertation.

5. PLAGIARISM

The biggest problem which participants in the academic process encountered is plagiarism (9, 10, 11). This is one of the most common ways of compromising the academic integrity of the author and cause of constant conflict in scientific-research sphere of interest. Copy, use or otherwise exploitation of other people's ideas, words or creations, without citing sources in an appropriate form is prohibited. It is not enough to change a few words in a phrase from the source material into "own words". Change the order of words in a sentence is also not acceptable, as well as the use of synonyms, such as changes from the "air" to "atmosphere".

When writing papers it is possible to use other people's words and ideas, but with mandatory labeling and reference to the source from which these words and ideas are taken. People who read can even in the very sentences recognize whether something is written in original work or just taken as a piece from another text. The references, as an indispensable part of any scientific and professional work, contribute to the quality of work, speaks of the sources used and thus the depth of information on the subject by which the work is dedicated. The process of preparation

of each work should begin by consultations with existing resources, potential research and then writing the work giving it a personal stamp.

There are many different definitions of plagiarism. Plagiarism (Latin plagium-kidnapping) is a transcription of other people's works and illegal appropriation of another's spiritual property (13). Plagiarist (Latin Plagiarius - thief, kidnapper) is illegal trespassing spiritual property that and uses other people's ideas, opinions or theories, either literally, or paraphrased, which does not mention the author and source of information. Such a "copy-paste" act constitutes theft of authorship, which is completely unacceptable in scientific, technical articles or in books, monographs, specialist or graduate student papers. In the wider academic community, plagiarism is a serious breach of ethical standards and a disciplinary liability and sanctions of various types and weights (8). There is a dilemma: who, on what basis (criteria, standards, rules), when and how should someone be declared as plagiarist or which someone's scientific work or part of that work to declare as plagiarism. Then, which institutions or which scientific body committee at the national or international level, when plagiarism is proven, can sanction someone and what are the sanctions. It is necessary to work on improvement of the mechanisms for early and sophisticated plagiarism detection through software applications, which in the foreseeable future must become compulsory for every editor of an indexed journal to use. A transparent database in which disclosed plagiarism ("black list of plagiators) could be found should be made at the international level. This would impact on the prevention of plagia-

	OK	N/A	А	A+	Р	P+	%
Bosnian Journal of Basic Medicine Sciences	25		1	1	5		21.88
Medicinski glasnik	31	2	1	1	1		8.82
HealthMED	92	3	3	3	3	1	9.80
TTEM (Technics, Technology, Education, Management)	71		3	3	2	5	17.44

Table 1. Plagiarized papers of Serbian authors (Šipka P. 2012, p.25). Explanation of abbrevation: OK = Plagiarism-free paper; N/A = Unavailable articles; A = Mild self-plagiarism; A+ = Crudeself-plagiarism; P = Mild plagiarism; P+ = Crude plagiarism (17)

Journal's name	ISSN broj	Current Contens	Web of Science	PubMed/Medline	PubMed Central	NLM Catalog	EMBASE	Scopus	Scirus	EBSC0	Index Coperncius	GFMER	CAB Abstract	VINITI database RAS	HINARI	Ulrich's Periodical Directory	CrossRef	NewJour	SCImago Journal and Country Rank	ISC Master Journal List	Genamics Journal Seek	World Cat	Research Gate	GESDAV ScopeMed	Google Scholar	BioinfoBank Library	CIRRIE	Kubon and Sagner OPAC		LUND University Libraries	Academic Search Complete	ProQuest
Acta Informatica Medica	0353- 8109	-	-	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	-	+	+	+	-	+	+	-	-	+	-	+	+	+
Acta Medica Academica	1840- 1848	-	-	+	-	-	-	+	-	+	+	-	+	-	-	+	-	-	-	-	-	+	-	-	+	-	-	-		+	+	-
Acta Medica Saliniana	0350- 364x	-	-	-	-	-	+	+	-	+	+	+	-	-	-	+	-	+	+	-	-	+	+	-	+	-	-	+	+	+	-	-
BHSurgery	2233- 0135	-	-	-	-		-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Bosnian Journal of Basic Medical Sciences	1840- 4812	-	+	+	-	-	+	+	-	+	+	-	+	-	-	+	-	+	+	-	+	+	+	-	-	-	+	+	+	+	+	-
Folia Medica Facultytis Medicinae Universitatis Saraeviensis	0352- 9630	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HealthMED	1840- 2291	-	-	-	-	-	+	+	-	+	+	-	-	-	-	-	-	-	+	+	+	+	+	-	-	-	-	+	-	-	-	-
Journal of Health Sci- ences	2232- 7576	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Materia Socio Medica	1512- 7689	-	-	+	+	+	-	+	-	+	+	+	-	+	+	+	+	+	-	+	+	+	-	+	+	-	-	-	-	+	+	+
Medical Archives	0350- 199X	-	-	+	-	+	+	+	+	+	+	+	-	+	+	+	-	+	+	+	+	+	+	+	-	+	+	+	-	-	-	+
Medicinski Glasnik	1840- 0132	-	-	+	-	-	+	+	+	+	-	-	-	-	-	+	-	+	-	-	+	+	+	-	+	-	+	+	+	+	+	-
Medicinski Žurnal	1512- 5866	-	-	-	-	+	-	+	+	+	+	-	-	-	-	+	-	-	-	-	-	+	-	-	+	-	-	+	-	+	+	-
Pedijatrija Danas	1840- 2968	-	-	-	-	-	-	-	-	+	+	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	-
Scripta Medica	0350- 8218	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
South Eastern Europe Health Sciences Journal	2233- 0186	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+	+	-	-
I.J.C.R. on Internal Medi- cine & Public Health	1840- 4529	-	-	-	-	-	+	+	-	-	+	+	+	-	+	+	-	-	-	-	+	-	-	-	+	-	-	-	+	+	+	+

Table 2. Biomedical journals printing in Bosnia and Herzegovina indexed in on-line databases in 2013

rism ("principle of fear from possible sanctions"). Here will be mentioned one of examples published by CEON (ww.ceon.rs) (17):

"For practical and economic reasons, plagiarism was checked only in the papers of Serbian authors. For the same reasons, in DRUNPP journals this was done for authors who published more than five papers in analyzed period. This criterion ensured a sufficient number of papers for determining the incidence of plagiarism but, due to the selection of authors publishing in DRUNPP journals, the results obtained for these two and control journals (Table 1) should not be understood as mutually strictly comparable (17) ".

DRUNPP journals. Cases of crude plagiarism and self-plagiarism (A+ and P+) were found practically only in HealthMed and TTEM. For an orientation, by using the same criteria in 2010 we found about the same level of plagiarism in Serbian non-WoS journals (15, 16), but meanwhile, thanks to CEON/CEES activities, this was reduced to much lower levels. All in all, the results strongly suggest that two DRUNPP journals and a group of authors from a few Serbian academic institutions are organized into an arrangement that has to be labeled as "joint unethical enterprise". Its rationale seems to be quite simple. Some is taken into account, it is obvious journals of formally high interna- crossing the self-citation rate limits,

that plagiarism is more frequent in tional prestige. This brings them quite tangible benefits (so called points) important for their careers and incomes. In return, the editors collect from them a substantial amount of money for fictitious editing job and, on top of this, as a sort of tip, some fictitious citations to help their journals maintaining the status of highly esteemed publications. What this enterprise makes extraordinary and unprecedented, are clear signs of forced collections of this non-monetary fee: if authors in their citing role are not sufficiently generous, editors simply snatch their "deserved" tip forcefully, by adding themselves some impact inflating self-citations to the paper authors are allowed to publish lim- reference lists. Being practical people, "However, even if this restriction itlessly without regular reviewing in in order to protect themselves from

Dbase	ISI Wol	<			SCOPL	JS			EMBAS	E	PubMEI	D
Author	А	Ci	Co-A	Ci	А	Ci	Co-A	Ci	А	С	А	С
Senka Dinarevic	12	50	18	171	10	53	23	187	11	22	10	11
Muhidin Hamamdzic	6	35	28	18	6	1	18	22	1	6	3	10
Mirsada Hukic	10	44	39	224	10	61	30	238	11	31	9	28
Asim Kurjak	254	3038	196	1431	215	2579	176	1497	169	147	163	107
Lidija Lincender	3	1	15	16	7	4	20	18	6	14	4	11
Slobodan Loga	25	144	22	30	17	44	22	31	12	22	14	20
Ljerka Ostojic	10	8	27	87	11	9	29	90	7	25	11	26
Husref Tahirovic	25	61	29	48	30	100	32	57	26	38	28	33
Berislav Topic	16	6	15	20	10	7	13	28	3	13	11	18
Enver Zerem	40	118	36	51	38	145	31	72	37	33	39	32
Total	401	4505	423	2096	284	2803	351	2240	283	361	292	296

Table 3. Number of published papers in indexed journals and number of citations in on-line databases of academicians of Department of Medical Sciences of Acadamy of Sciences and Arts of Bosnia and Herzegovina in ISIWoK, SCOPUS, EMBASE and PubMed (accessed on May 20th, 2013) (alphabetic order). Explanation od abbreviation: A-Author, C-Citations,

they occasionally put citations onto status and price level. Also, the inother DRUNPP journal account (17)."

"The economic dimensions of the phenomenon are equally impressive. In just a few years DRUNPP journals grew from anonymous to the most popular international journals in neighboring Serbia, attracting a fastgrowing number of papers, and collecting even faster-growing publication charges. The spending of Serbian authors on publishing in the two journals in 2012 only was predicted to exceed €200.000 (18), an amount that has to be regarded a serious burden for the national R&D budget in crisis and a fortune for the family of editors. There are many signs that the family business is on the right track. The same publisher created recently two additional medical journals (19, 20), with the same editor on board, them to the same official (WoS/JCR) scientific B&H medical science we

ternational online "round-a-clock" conference is already here (21, 22) to round up the "production line"."

6. MEDICAL JOURNALS IN B&H

In B&H there are series of biomedical journals which are indexed in international databases. Table 2 shows a series of indexed biomedical journals published in Bosnia and Herzegovina (14, 15). It is assumed that the most cited scholars and experts in the academic community, who have published their research results in one of the journals indexed in the reference world recognized online databases, whose articles are available for scientific validity. This all through their representation in the form of abstracts or full article on the website of these on-line databases. For example, and with unveiled intention to bring the current reference and quality of

will take in the current analysis involved 10 academics from Academy of Sciences and Arts of B&H from the Department of Medical Sciences, for which we should say that are "most scientific" part of our academic community in the field of biomedicine. Used are sources from the current 4 most cited world-renowned databases: ISI Web of Knowledge, SCOPUS, EMBASE and PubMed (3, 22). Analyzed is the number of published papers on the basis of two criteria: a) tested scientist as first author and co-author in published papers in indexed those journals; b) scientist examined with citations of their articles as author and co-author by other authors of published papers in indexed journals in mentioned databases (Table 3).

7. SCIENTOMETRICS

Scientometrics is the science of

	Title	SJR	H index	Total Docs. (2011)	Total Docs. (3years)	Total Refs.	Total Cites (3years)	Citable Docs. (3years)	Cites / Doc. (2years)	Ref. / Doc.	Country
1	Medicinski Arhiv	0,121	10	101	281	0	69	277	0,29	0,00	
2	Bosnian Journal of Basic Medical Sciences	0,204	7	53	221	1.120	108	212	0,56	21,13	
3	HealthMED	0,190	5	260	280	6.329	114	279	0,44	24,34	
4	Technics Technologies Education Management	0,193	5	161	148	2.727	74	148	0,49	16,94	
5	International Journal of Collaborative Research on Internal Medicine and Public Health	0,196	3	43	47	1.061	21	46	0,46	24,67	
6	Sport Science	0,186	2	36	87	680	14	87	0,17	18,89	
7	Acta Medica Saliniana	0,101	1	34	32	580	1	27	0,04	17,06	
8	South East European Journal of Economics and Business	0,101	1	20	39	702	0	39	0,00	35,10	

Table 4. Presentation of biomedical journals in B&H ordered by the h-index values in 2012

measuring and analyzing science. In practice, Scientometrics often uses bibliometric methods for measuring the impact of scientific publications. Modern Scientometrics is based largely on the work of Derek J. de Solla Price and Eugene Garfield. Garfield founded ISI - Institute for Scientific Information and is considered to be the father of scientometrics and methods of evaluation of scientific publications. Research Methods of scientifically important publications include qualitative and quantitative methods and computer analysis approach (6, 8, 13). Garfield has been striving to mathematical representation, so he developed several factors that allow the assessment value and importance of scientific publications, including the most important impact factor (IF) and the H-index. Each article has its impact factor. Impact factor shows how much scientific paper, published in a magazine is quoted. Title of the scientific paper contains a brief description of the content. Impact Factor (IF) in the academic journal is a measure that reflects the average number of citations of articles published in the journal. Impact factor is used to compare different journals in a particular area. In a given year, the impact factor (IF) of the journal is the average number of citations received per paper published in that journal during the previous two years. For example, if a journal IF = 3 in 2008, then the articles published in 2006 and the 2007 had three citations on average in 2008. (Figure 3,4,5 and Table 5)

IF for the 2008 of an journal will be calculated as follows: A = number of cited articles published in 2006 and 2007 in indexed journals during the 2008 B = the total number of articles published by the journal in 2006 and 2007. 2008 IF = A/B.

H-index is an index that attempts to measure the productivity and impact of published work of scientists. The index is based on the basis of the most cited papers and the number of citations that papers received in other publications. This index can also be applied to the productivity and impact of a group of scientists, such as department or faculty, as well as journal. H-index proposed by Jorge

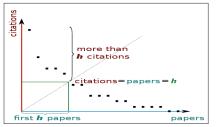


Figure 3. h-index from a plot of decreasing citations for numbered paper

E. Hirsch, a physicist at UCSD, as a tool for determining the relative quality (7, 22). The index is based on the distribution of citations received by a given researcher's publications. Hirsch writes: A scientist has index h if h of his/her N_p papers have at least 10. h citations each, and the other $(N_p$ h) papers have no more than h-citations each. In other words, a scholar with an index of h has published h papers each of which has been cited in other papers at least h times. Thus, the h-index reflects both the number of publications and the number of citations per publication. The index is designed to improve upon simpler measures such as the total number of citations or publications (22).

The index works properly only for comparing scientists working in the same field; citation conventions differ widely among different fields.

From Table 4. It is clear that the h-index of the oldest biomedical journal Medical Archives is significantly higher with h-index of 10, which means that the scientist who in this magazine published 10 papers have at least 10 citations for each work in other journals.

,	
	1996-2011
H Index	40
Documents	3.524
Citable Documents	3.436
Citations	11.353
Self Citations	1.864
Citations per Document	3,22

Table 5. The table explains where's the position of B&H in the world today in all areas that are represented in scientific research work since the 1996-2011 years.

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