Research and Writing Activities in the Field of Sport Science Publishing in Montenegro

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Abstract
The goal of this study is to analyse the scientific productivity of Montenegrin researchers in the field of sports sciences, as well as the trend of publishing in Montenegrin sports sciences journals. The research covers studies with a focus on the sports sciences issues published in the period from 2002 to 2019. Google Scholar, Scopus, and Web of Science (the electronic databases) were searched for articles available until September 22, 2021. Results were summarized according to the instructions of PRISMA guidelines and present the number of citations, h-index, i10-index and the number of articles by the authors. The study results show that researchers from the field of sports sciences publish multiple publications in 2021 compared to 2002. In Google Scholar database, citation rate is highest, and span from 596 and 14959. On the other side, the same researchers were cited quite less in Scopus and Web of Science databases. When we talk about Montenegrin journals, three are registered in the Google Scholar Database. The Sport Mont journal is the most cited one with the highest h-index (44); the Montenegrin Journal of Sports Science and Medicine is the best ranked Montenegrin journal according to the bibliometric data from the Scopus and Web of Science databases; the Journal of Anthropology of Sport and Physical Education have constant progress in the last years. It was indicated the highest impact was recognized in the last four years, according to citations of available articles published by Montenegrin authors. Also, the number of published articles in the last four year is significant, and progress can be expected in the future.

Keywords: Development, Ranking, Journal, Researcher, Montenegro.

Introduction
Writing and publishing is certainly a very valuable educational mechanism, because by reading quality material, and researching insufficiently examined topics, the researcher acquires and refines his knowledge on a topic, and thus acquires a better basis for better quality practical work. However, today science has developed so much that the amount of knowledge outstrips a person's ability to read and study everything, and bibliometric studies today are necessary to help the existing knowledge be systematized and easier to use. Visibility and ease of search help to the further scientific and practical work, and they provide the next generations at a much higher level.

Today, bibliometric studies are no longer limited to the fundamental sciences and technical sciences, there are more and more of them in the sports science (Milosevic, Corluka, Malovic, & Redzepagic, 2020). The progress of sports has influenced the sports sciences to become most current and popular today (Popovic, 2018). Therefore, it is necessary quantified and analyzed work of both individuals and institutions, in order to more accurately assess their contribution to science.

The sports sciences in Montenegro are developed under the auspices of the higher pedagogical school in Cetinje, later a pedagogical academy in Niksic and Faculty of Teachers and the Faculty of Philosophy in Niksic, until the establishment of the Faculty of Sports and Physical Education as an independent institution at the University of Montenegro in 2008 (Vukasevic, Bajramovic, Corluka, Masanovic, Milosevic, & Georgiev, 2020).

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cial academy in Niksic and Faculty of Teachers and the Faculty of Philosophy in Niksic, until the establishment of the Faculty of Sports and Physical Education as an independent institution at the University of Montenegro in 2008. Later, the Montenegrin Sports Academy, through its 19 years of existence, influenced to raise sports science to a higher level beyond through its quality work. The leaders of this institution are the founders or co-founders of three scientific journals, and the organizers of the annual scientific conference, one of the most important scientific events related to sports science in the region (Bavecvic, 2019).

Therefore, the main objective of this study is to analyze the research productivity of Montenegrin researchers in the field of sports sciences, and also the trend of publishing in Montenegrin journals when it comes to sports sciences.

Methods

The goal of this study were articles in the field of sports sciences published between 2002 and 2021. For this purpose all registered journals in area of sports sciences from Montenegro were analyzed: “Montenegrin Journal of Sports Science and Medicine”, “Sport Mont” and “Journal of Anthropology of Sport and Physical Education”. Also, the bibliographic data of all researchers in the field of sports sciences has been processed.

Google Scholar, Scopus and Web of Science (the electronic databases) were searched for research articles available until 22 September 2021. Mentioned databases have been selected because of their quality, availability and recognition among researchers in the field of sports science. The “Google Scholar” database is easy-to-search, free and accessible for everyone, with a disadvantage that does not guarantee the quality as “Web of Science” and “Scopus”. On the contrary, “Scopus” database is is towards quality stronger, and is increasingly accepted and used in European countries. Lastly, “Web of Science” database is the most quality, and in most countries today is used an indicator of quality in the scientific public, and is as such a major instrument for evaluating journals, scientific productions of authors, institutions and countries (Brajenović-Milić, 2014).

Results

In Table 1 analyze of the “Google Scholar” database are showed. A significantly higher number of citations than the remaining two journals (also h-index and i10-index) has the “Sport Mont” journal. Given that this journal has been published since 2003, this is no surprise. However, the second place where “Journal of Anthropology of Sport and Physical Education” is located is a big surprise. The third place of the “Montenegrin Journal of Sports Science and Medicine” is a big surprise, since this journal is published five years longer than previously mentioned.

Table 1. Bibliometric analyses of Montenegrin journals in “Google Scholar” database on 22 September 2021

| Journal          | Number of Citations | h-index | i10-index |
|------------------|---------------------|---------|-----------|
| SMJ              | 6574                | 44      | 125       |
| JASPE            | 2796                | 28      | 110       |
| MJSSM            | 2024                | 20      | 80        |

Note. SMJ - “Sport Mont” journal, JASPE - “Journal of Anthropology of Sport and Physical Education”, MJSSM - “Montenegrin Journal of Sports Science and Medicine”, h-index - is an author-level metric that attempts to measure both the productivity and citation impact of the publications of a scientist or scholar, i10-index - the number of publications with at least 10 citations; this very simple measure is only used by “Google Scholar”, and is another way to help gauge the productivity of a scholar.

In Table 2 analyze of the “Scopus” database are showed. This database allows analysis only for journals indexed in it, and therefore parameters are only available for two older journals. “Montenegrin Journal of Sports Science and Medicine” is better ranked, reaching “CiteScore” 3.0 in 2020. “Sport Mont” achieved a very significant result in the “Scopus” database and scored “CiteScore” 2.2 in 2020.

Table 2. Bibliometric analyses of Montenegrin journals in “Scopus” database on 22 September 2021

| Journal | CiteScore 2020 | SJR 2020 | SNIP 2020 |
|---------|----------------|----------|-----------|
| MJSSM   | 3.0            | 0.302    | 0.633     |
| SMJ     | 2.2            | 0.366    | 0.527     |
| JASPE   | Not calculated | Not calculated | Not calculated |

Note. CiteScore - measures average citations received per document published in the serial, SJR - SCImago Journal Rank that measures weighted citations received by the serial, citation weighting depends on subject field and prestige (SJR) of the citing serial, SNIP - Source Normalized Impact per Paper measures actual citations received relative to citations expected for the serial’s subject field.

In Table 3 analyze of the “Web of Science” database are showed. This database, allows the ability to analyze citations for non-indexed journals. Inspection of the table notes that the “Spor Mont” has the most citations. Second is the “Montenegrin Journal of Sports Science and Medicine”, whose quality is indicated by fact that it has 3.3 citations per published article, which is an extremely great success. The third is the “Journal of Anthropology of Sport and Physical Education”, cited for 29 time in this most prestigious database to this year.

In Table 4 analyze of the “Google Scholar” database are showed, with the citation of the 10 most productive Montenegrin journals.
researchers in the field of sports sciences being analyzed this time. It is interesting that six sports science researchers have over 1000 citations, and seven of them are ranked among the top 30 most highly cited researchers in the entire University of Montenegro, which shows that sports science is one of the leading scientific fields at the aforementioned institution.

Table 4. Bibliometric analyses of top ten Montenegrin researchers in “Google Scholar” database on 22 September 2021

| Researcher          | Number of Citations | h-index | i10-index |
|---------------------|---------------------|---------|-----------|
| Dusko Bjelica       | 14959               | 61      | 210       |
| Stevo Popovic       | 11623               | 53      | 139       |
| Jovan Gardasevic    | 4551                | 45      | 96        |
| Bojan Masanovic     | 3541                | 39      | 77        |
| Ivan Vasiljevic     | 1965                | 29      | 41        |
| Rajko Milasimovic   | 1091                | 19      | 20        |
| Marina Vukotic      | 702                 | 14      | 25        |
| Dragan Krivokapic   | 674                 | 12      | 13        |
| Rasid Hadzic        | 604                 | 14      | 16        |
| Miroslav Kezunovic  | 596                 | 8       | 8         |

In Table 5 analyze of the “Scopus” database are showed. The number of citations is lower. The reason is the fact that the Scopus database has a much narrower scope of documents, which leads to the conclusion that it should show higher quality. Specifically, “Google Scholar” database accepts and notes all documents available on the Internet, on the contrary the “Scopus” database has clearly defined standards that each journal must meet in order to be indexed. Therefore, the bibliometric data obtained in the analysis in the “Scopus” index database shows more credible data when it comes to the quality of researchers. If this table compares it with the previous one, it can be noticed that eight out of 10 authors’ names are the same, but it can be noticed that the rank of researchers now has changed comparing to the “Google Scholar” database, which indicates that certain researchers put more emphasis on the quality of published articles compared to their quantity.

Table 5. Bibliometric analyses of top ten Montenegrin researchers in “Scopus” database on 22 September 2021

| Researcher          | Number of Citations | h-index | Documents by author |
|---------------------|---------------------|---------|---------------------|
| Stevo Popovic       | 3221                | 15      | 65                  |
| Dusko Bjelica       | 3125                | 12      | 70                  |
| Jovan Gardasevic    | 308                 | 10      | 52                  |
| Bojan Masanovic     | 230                 | 10      | 43                  |
| Kemal Idrizovic     | 183                 | 9       | 26                  |
| Miroslav Kezunovic  | 104                 | 3       | 10                  |
| Jovica Petkovic     | 74                  | 2       | 5                   |
| Ivan Vasiljevic     | 70                  | 5       | 21                  |
| Dragan Krivokapic   | 70                  | 3       | 15                  |
| Rasid Hadzic        | 36                  | 1       | 9                   |

In Table 6 analyze of the “Web of Science” database are showed. The far lower number of citations also indicates a higher quality compared to the previous two databases, because the “Web of Science” is the most prestigious database. The “Web of Science” is an indicator of quality in most scientific countries today, and

Table 6. Bibliometric analyses of top ten Montenegrin researchers in “Web of Science” database on 22 September 2021

| Researcher          | Number of Citations | h-index | Documents by author |
|---------------------|---------------------|---------|---------------------|
| Stevo Popovic       | 2950                | 13      | 57                  |
| Dusko Bjelica       | 2857                | 12      | 56                  |
| Kemal Idrizovic     | 150                 | 8       | 16                  |
| Jovan Gardasevic    | 88                  | 5       | 30                  |
| Bojan Masanovic     | 73                  | 4       | 35                  |
| Miroslav Kezunovic  | 67                  | 3       | 6                   |
| Jovica Petkovic     | 51                  | 2       | 2                   |
| Rasid Hadzic        | 31                  | 1       | 7                   |
| Ivan Vasiljevic     | 27                  | 3       | 11                  |
| Dragan Krivokapic   | 21                  | 2       | 7                   |
Discernable improvement of researchers depends largely on the publication of articles in scientific journals indexed in this database. A review of the table shows that four Montenegrin researchers have over 30 published articles in journals indexed in “Web of Science”, and that seven researchers have over 50 citations in this database.

Discussion

Evident progress of the quality of work of Montenegrin researchers from year to year is visible. Since the 2013 when the first article in the Web of Science database was published (Popovic, 2018) until now when there are over 250, a huge step forward has been made. Only in the previous year, compare with Milesevic et al. (2020) study, 28 new publications in the “Web of Science” database were recorded in, which means that progress in citations and productivity can be expected in the future as well. In recent years, names of new researcher have appeared among the top 10, as well in future exist the opportunity to bring a younger researcher to the forefront. Also, some of Montenegrin sports science researchers have articles published in journals indexed in category Q1, in last couple years, which is not a common occurrence in the entire Montenegrin society of researchers. For example, Dusko Bjelica, and Stevo Popovic, published article in the leading international journal Nature (IF for 2018 was 41.577) (NCD Risk Factor Collaboration, 2019), Jovanka Gardasevic, Bojan Masanovic published articles in Frontiers in Physio21logy (Xiao et al., 2021) (IF for 2020 was 4.134), while Dragan Krivokapic published articles in Frontiers in Pediatrics (IF for 2020 was 2.634) (Vukovic et al., 2020). Articles published in such high-ranking journals also contribute significantly to the citation of the researchers mentioned. It is therefore no surprise that the first four researchers mentioned are in the top 20 most highly-cited scientists (“Google Scholar”) throughout the University of Montenegro. Also, inevitably is that at the top 30 throughout the University of Montenegro seven researchers in the field of sports sciences are found.

When it comes to scientific journals in the field of sports sciences, improvement in the quality of work is also evident year after year. “Sport Mont” journal is the most cited journal in the “Google Scholar” database and his citation number increase. Only in the last year the number of citations has increased by 1403. A good indicator of progress is the quality work of eminent researchers, which was published during 2020 (Lee, Noh, & You, 2020; Auer-spger, Juruc, Laurenccak, Leskosek, & Skof, 2020; Moscastelli, et al., 2020; Osipov et al., 2020; Rohmantsyah, Prastiti, Zhanna, & Hiruntrakul, 2020; Otaraly et al., 2020; Bon & Pori, 2020; Vasilica, Costa, Figueiras, & Vaz, 2020; Espinosa-Mendez, Renereo-Carrillo, Martin-Rodrigez, & Flores-Chico, 2020; Griaban et al., 2020), which is no surprise that the citation of the researchers mentioned is at an extraordinary level. In next couple jeers is expected that the “Sport Mont” journal can be accepted in the leading “Web of Science” database and will continue to make progress. When the “Journal of Anthropology of Sport and Physical Education” is not yet indexed in the “Scopus” database and therefore not could be analyzed in this database. However, this does not detract from the contribution of this study, since the “Google Scholar” database provided some useful information related to the progress of Montenegrin publishing, while the remaining two databases made it possible to clearly understand the citation of Montenegrin authors and Montenegrin journals this year, and to compare this data with last years. The recommendations for further study can be to regular updating of data for each subsequent year in order to analyze bibliographic data of individual Montenegrin researchers, as well as Montenegrin publications, with the goal of presenting new information to the scientific community and gaining insight into developments, i.e. how much is needed for further progress.

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Conflict of Interest

The authors declare that there is no conflicts of interest.

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