

Research Trends and Bibliometric Analysis of a Journal: Sport Management Review

Sajad Gholampour

M.Sc. Sport Management, Department of Sport Management, Faculty of Sport Sciences, Kharazmi University, Tehran, Iran. ORCID: 0000-0002-1687-770X. E-mail: sajad908919@yahoo.com

Alireza Noruzi*

Corresponding author, Associate Professor; Department of Knowledge and Information Sciences; Faculty of Management; University of Tehran, Iran. ORCID: 0000-0003-0877-1566. E-mail: noruzi@ut.ac.ir

Behzad Gholampour

M.Sc. Scientometrics; Department of Knowledge and Information Sciences; Faculty of Management; University of Tehran, Iran. ORCID: 0000-0003-4418-1117. E-mail: behzad903727@yahoo.com

Alireza Elahi

Department of Sport Management, Faculty of Sport Sciences, Kharazmi University, Tehran, Iran.
E-mail: alirezaelahi@yahoo.com

Received June 12, 2019; Accepted December 20, 2019

Abstract

Many studies around the world in the field of scientometrics and research trends analysis are carried out using bibliometric techniques to analyze a specific research area or a special journal. The purpose of this bibliometric study was to investigate the research trends of the journal of *Sport Management Review* based on the Web of Science (WoS) citation database in the period 2011-2018. The findings of this bibliometric study can be useful for sport researchers and the editorial board of the above-mentioned journal. The results of this study showed that countries such as the United States of America and Australia, and universities such as Griffith University and Deakin University have the highest number of publications in the journal of *Sport*

Management Review. Moreover, D.C. Funk and S. Fairley are the most prolific authors. Also, based on the journal evaluation criteria of Web of Science, the Impact Factor of Sport Management Review has grown steadily over the years. The co-occurrence map based on the author-supplied keywords of the papers published in *SMR* indicates that the keywords *sport*, *marketing*, *intercollegiate athletics*, *sport development*, *sponsorship*, *sport management*, *sport policy*, *social media*, *professional sport*, and *sport marketing* were the most co-occurrences and the hot topics in the journal of *SMR*. The current bibliometric study indicates the growing importance of international journal of *SMR* in terms of research and citation impacts.

Keywords

Bibliometric analysis; Network analysis; Research trends; Sport Management Review; Scientometric

Introduction

Peer-reviewed academic journals are the most reliable and trustworthy source of scientific information. They are one of the most important means of information dissemination in the world, so that they are widely considered and used by researchers and students in all disciplines. Therefore, the most recent scientific findings can be found in specialized and scientific journals, and researchers in all disciplines should read them and write for them. Scientific journals are the main publication channel in many scientific disciplines and provide the latest discoveries and achievements, and due to this feature, they are of particular importance to researchers. Therefore, scientific journals have attracted the attention of scholars and scientists in tracking and tracing of research trends in various scientific fields, especially for researchers and policymakers of science and technology. Monitoring research trends helps researchers, scientists, policy makers, and technology developers to understand the process of science and technology development (Wang, Wang & Zhou, 2012; Wang & Fang, 2016).

Many studies around the world in the field of scientometrics and research trends analysis are carried out using bibliometric techniques to analyze a specific research area or a special journal. The purpose of this bibliometric study was to investigate the research trends of the journal of *Sport Management Review* based on the Web of Science (WoS) citation database in the period 2011-2018.

Elsevier (2018) presents this journal in the following words: "*Sport Management Review* is published as a service to sport industries worldwide. It is a multidisciplinary journal concerned with the management, marketing, and governance of sport at all levels and in all its manifestations -- whether as an entertainment, a recreation, or an occupation." The journal of *Sport Management Review* (SMR) is published on behalf of the Sport Management Association

of Australia and New Zealand. The Editor-in-chief of SMR is George B. Cunningham, a professor of sport management at Texas A&M University. It is published by Elsevier from 1998."

The journal is indexed by the Web of Science (WoS) and Scopus citation databases. The Impact Factor (IF) of *SMR* is 3.516, based on the Journal Citation Reports (JCR) of WoS in 2017. Many journals are published internationally in the field of sports science and physical education. *SMR* is categorized in the quartile 1 (Q1) of the JCR in the following categories:

- Hospitality, Leisure, Sport & Tourism; and
- Management.

The aim of this bibliometric study was to investigate the research trends of the journal of *SMR* based on the WoS citation database in the period 2011-2018 from various bibliometric indicators' perspectives. Although many bibliometric research have been done on journals, there is lack of research done on research trends of journals. Several previous bibliometric studies have been done on journals, including: *A Bibliometric Analysis of Four Sport Management Journals* (Shilbury, 2011a), *Bibliometric Analysis of the Journal of Structural Chemistry* (Buznik et al., 2004), *A Bibliometric Analysis on the Journal of Information Science* (Tsay, 2011a), *A bibliometric analysis of the Journal of Molecular Graphics and Modelling* (Willett, 2007), *Bibliometric analysis of the journal literature on women's studies* (Tsay & Li, 2017), *Bibliometrics of electronic journals in information science* (Hawkins 2001), *Bibliometric analysis of English-language academic journals of China and their internationalization* (Wang, Wang & Weldon, 2007), *A bibliometric study of citations to sport management and marketing journals* (Shilbury, 2011b), *A bibliometric analysis and comparison on three information science journals: JASIST, IPM, JOD, 1998–2008* (Tsay, 2011b), *A bibliometric analysis of hydrogen energy literature, 1965–2005* (Tsay, 2008), *A bibliometric analysis of physics publications in Korea, 1994-1998* (Kim, 2001), *A bibliometric analysis of occupational therapy publications* (Brown et al., 2018), *Bibliometric and scientometric analysis of the articles published in the journal of religion and health between 1975 and 2016* (Şenel & Demir, 2018).

Materials and Methods

The present applied study was conducted on the basis of a quantitative and descriptive research using scientometric techniques and network analysis based on bibliographic records of Web of Science. The bibliographic details with regard to each published article such as number of authors, name of authors, country of authors, number of references and their forms, etc., were recorded and analyzed for making observations. The research data were collected, organized and analyzed using MS-Excel spreadsheets. The tables and graphs were generated in accordance with the objectives of the research. The population of the current study included all documents published in the journal of *Sport Management Review* published in the period 2011-2018 and indexed in the Web of Science Core Collection published by Clarivate Analytics. This study was done in two steps, each of which is described below.

Data Retrieval

The data were collected on April 23, 2018 from the Web of Science (WoS) citation database, which means that research trend data analyzed at other points in time could yield different results. The search strategy was constructed using the advanced search of WoS for: SO="Sport Management Review" AND PY=1998-2018. A total number of 403 documents were obtained and exported in the Histcite software for further analysis.

Data extraction was done in two steps. First, the data was read by the HistCite software in Plain Text format in a 500-bit category and then entered into the HistCite for analysis. Secondly, the extracted data were entered into the VOSviewer software for bibliometric visualization. The data in the tab-delimited format (Win, UTF-8) was stored in a 500-bit category and entered into the VOSviewer software for analysis.

Data Analysis

The bibliographic records of all 403 records of the *Sport Management Review* journal, indexed in WoS from 2011-2018 are stored in Plain Text and Tab-delimited formats (Win, UTF-8) and entered in the HistCite and VOSviewer softwares for final analysis. The HistCite software was used to analyze the data on research trends, the type of documents published, the identification of institutions, countries, and authors in the journal. The VOSviewer software was used for revealing the thematic content of the publication set based on the analysis of the keywords, applying term co-occurrence mapping techniques.

The Nodexl software was used to analyze co-authorship networks and patterns of scientific collaboration among countries and institutions using network analysis indicators. For data readability, VOSviewer was used as a data interface for Nodexl. Data were first entered as tab-delimited (Win, UTF-8) into VOSviewer and then data were presented in Pajek's ".net" format. The extracted data were analyzed by Nodexl.

Results

Research Impact of Sport Management Review

Since the number of scientific documents is merely an indicator that reflects a small amount of research, so in order to obtain a comprehensive picture of the research trends of *Sport Management Review*, the citation rate and research impact (i.e., impact factor, h-index, etc.) of the journal has been reviewed. For this purpose, the scientific quality of the *SMR* journal, the impact factor values and other bibliometric indicators of journals (i.e., impact factor (IF), 5 year impact factor (5-IF), average journal impact factor (AJIF), IF without self-cites, impact factor without journal self-cites, and Eigenfactor score, immediacy index, cited half-life, and h-index) of the journal of *SMR* have been examined in Table 1.

Table 1. Bibliometric indicators of the journal of Sport Management Review

Year	IF	5-IF	AJIF	IF Without Self Cites	Eigenfactor Score	Immediacy Index	Cited Half-Life	H-Index
2017	3.516	3.509	85.619	2.849	0.00100	0.659	5.4	
2016	2.128	2.782	64.768	1.720	0.00143	0.435	5.4	
2015	1.193	-	48.094	0.903	0.00127	0.383	5.2	29
2014	1.214	-	57.247	0.880	0.00074	0.179	4.9	

Table 1 shows that the IF of the *SMR* journal was raised from 1.214 in 2014 to 3.516 in 2017, indicating an almost two-fold increase. The Eigenfactor Score of the journal has grown from year to year, from 0.00074 in 2014 to 0.00100 in 2017, which is slightly lower than in 2016. The immediacy index of the journal was 0.659 in 2017, rising from 2014 and 2015. Cited half-life of the journal was 4.9 in 2014 and increased further in 2017 to 5.4. Judging from Web of Science, the h-index of the journal is 29, which means that at least 29 articles have been cited at least 29 times, over the whole publishing history. The highest cited article ever has 73 citations. Figure 1 indicates the distribution number of publication in *SMR* per year.

Figure 1 illustrates the publication trends of *SMR* (the total number of documents published in this journal) over the past seven-years from 2011 to 2018, and Global Citation Score (GCS) of these years. Figure 1 shows that in the period from 2011 to 2018, a total of 403 documents have been published in *SMR*. It is remarkable that the highest number of documents published in *SMR* were appeared in 2015 and 2016 with 57 and 55 documents, respectively. The Global Citation Score of these years were 611 and 254, separately. While the lowest number of documents was published in 2011, which were 41 documents. The Global Citation Score of 2011 also shows that the highest Global Citation Score is for this year with a global score of 744.

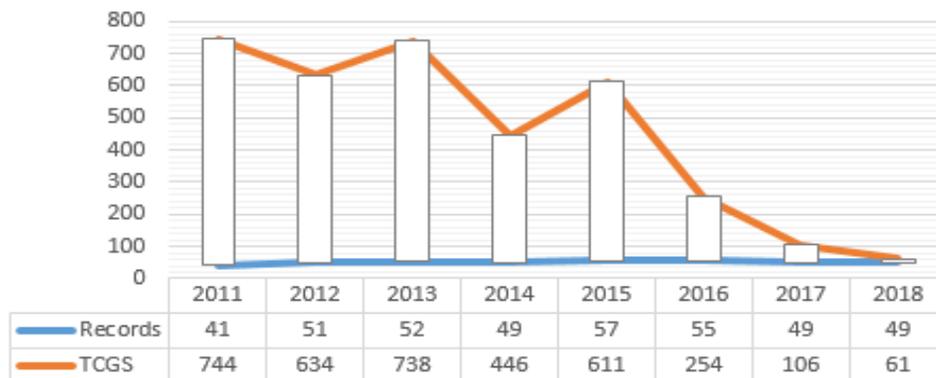


Figure 1. Distribution number of publication in Sport Management Review per year

The results in Table 2 shows that, in total, four types of documents have been published in *SMR*, in which the original articles with 297 documents and the Total Global Citation Score (TGCS) of

2893 ranked first, and the book reviews with 59 documents and the Total Global Citation Score 0.1 ranked second. As presented in Table 2, these two types of documents were 88.4 percent of the most frequent type of documents published in *SMR*. Also review articles and editorial materials each with 41 and 6 documents respectively ranked next, which accounted for 11.6 percent of the total number of documents published in *SMR*. The results indicate that the total number of citations (TNC) to the journal is 3594.

Table 2. Distribution of document types in Sport Management Review

Document Type	Total number of publications (TP)	Percentage out of the total number of documents (% out of 403)	Total Global Citation Score (TGCS)	Percentage out of the total number of citations (% out of 3594)	Average Citations Per Item (ACPI)
Article	297	73.7	2893	80.5	9.74
Book Review	59	14.6	3	0.1	0.05
Review	41	10.2	653	18.2	15.92
Editorial Material	6	1.5	45	1.3	7.5

TP, Total number of Publications; TGCS, Total Global Citation Score; ACPI, Average Citations Per Item.

Documents published by institutions, countries and authors

An analysis of the documents published by institutions, countries, and authors shows that a total of 290 institutions, 31 countries, and 630 authors participated in the publication of documents in the journal of *SMR*. For this purpose, the list of all countries, as well as institutions that have at least 8 authors and published 6 papers are listed in Tables 3, 4 and 5. Therefore, 21 institutions, 31 countries and 16 authors who published the most documents in *SMR* are listed in the following tables.

Table 3 shows the list of institutions that have published at least seven documents in *SMR*. The Griffith University with the production of 34 documents is ranked first. Deakin University with the second place has produced 27 documents and Temple University by producing 25 documents is ranked third. According to Table 3, 31 percent of the documents were written by American universities and 26.3 percent of the publications were contributed by Australian universities.

Table 3. Top 21 productive institutes in Sport Management Review

Institution	TP	403%	Country	TGCS	3594%	ACPI
Griffith University	34	8.4	Australia	525	14.6	15.44
Deakin University	27	6.7	Australia	278	7.7	10.29
Temple University	25	6.2	USA	281	7.8	11.24
University of Florida	20	5.0	USA	268	7.5	13.4
German Sport University Cologne	17	4.2	German	265	7.4	15.58
Florida State University	14	3.5	USA	145	4.0	11
Texas A&M University	14	3.5	USA	182	5.1	13
University of Technology Sydney	14	3.5	Australia	153	4.3	10.92
Brock University	12	3.0	Canada	67	1.9	5.58
La Trobe University	12	3.0	Australia	108	3.0	9

University of Illinois	12	3.0	USA	115	3.2	9.58
University of Memphis	12	3.0	USA	84	2.3	7
University of Massachusetts	11	2.7	USA	115	3.2	10.45
University of Ottawa	11	2.7	Canada	123	3.4	11.18
Massey University	10	2.5	New Zealand	31	0.9	3.1
Victoria University	10	2.5	Australia	68	1.9	6.8
Auckland University of Technology	9	2.2	New Zealand	12	0.3	1.33
University of Connecticut	9	2.2	USA	135	3.8	15
University of Queensland	9	2.2	Australia	4	0.1	0.44
University Loughborough	8	2.0	UK	107	3.0	13.37
University of Texas at Austin	8	2.0	USA	33	0.9	4.12

TP, Total number of Publications; TGCS, Total Global Citation Score; ACPI, Average Citations Per Item.

Table 4 indicates top 31 productive countries contributed to the journal of *SMR*. It is clear that the United States holds 182 documents and 46.8 percent of citations; Australia obtains 118 documents and 35.8 percent of citations; and New Zealand holds 41 documents and 6 percent of citations. They are the most prolific and most cited countries. Altogether, the United States, Australia and New Zealand contributed 84.6 percent of all documents published in *SMR*. Note that there are 10 countries that have just published one document.

Table 4. Top 31 productive countries in Sport Management Review

Country	TP	403%	TGCS	3594%	ACPI
USA	182	45.2	1681	46.8	9.23
Australia	118	29.3	1288	35.8	10.91
New Zealand	41	10.2	215	6.0	5.24
Canada	40	9.9	453	12.6	11.32
UK	32	7.9	249	6.9	7.78
Germany	23	5.7	336	9.3	14.60
Norway	11	2.7	107	3.0	9.72
France	9	2.2	40	1.1	4.44
Belgium	8	2.0	64	1.8	8
Japan	8	2.0	92	2.6	11.5
South Korea	7	1.7	83	2.3	11.85
Greece	6	1.5	109	3.0	18.16
Netherlands	6	1.5	40	1.1	6.66
Unknown	5	1.2	42	1.2	8.4
Denmark	4	1.0	29	0.8	7.25
Spain	3	0.7	15	0.4	5
Taiwan	3	0.7	1	0.0	0.33
Brazil	2	0.5	6	0.2	3
India	2	0.5	0	0	0
Peoples R China	2	0.5	9	0.3	4.5
Switzerland	2	0.5	14	0.4	7
Austria	1	0.2	1	0.0	1
Cyprus	1	0.2	32	0.9	32
Iran	1	0.2	23	0.6	23
Ireland	1	0.2	2	0.1	2
Lebanon	1	0.2	8	0.2	8

Morocco	1	0.2	5	0.1	5
Portugal	1	0.2	9	0.3	9
Singapore	1	0.2	14	0.4	14
Sweden	1	0.2	15	0.4	15
Turkey	1	0.2	0	0	0

TP, Total number of publications; TGCS, Total global citation score; ACPI, Average Citations Per Item.

Table 5 indicates the top 16 most prolific authors contributed more than five times in *SMR*. Totally, 630 authors contributed to the journal of *SMR*. Authors like D.C. Funk producing 14 documents and Global Citation Score, 187, S. Fairley by producing 12 documents and the Global Citation Score of 57 and J.W. Peachey contributing 11 documents and the Global Citation Score of 132 ranked the most prolific authors.

Table 5. Top 16 most prolific authors in Sport Management Review

Author	TP	403%	TGCS	3594%	ACPI
Funk D C	14	3.5	187	5.2	13.35
Fairley S	12	3.0	57	1.6	4.75
Peachey JW	11	2.7	132	3.7	12
Wicker P	10	2.5	187	5.2	18.7
Ferkins L	8	2.0	73	2.0	9.12
Filo K	8	2.0	126	3.5	15.75
Breuer C	7	1.7	169	4.7	24.14
Heere B	7	1.7	35	1.0	5
Hutchinson M	7	1.7	9	0.3	1.28
McDonald H	7	1.7	74	2.1	10.57
Parent MM	7	1.7	73	2.0	10.42
Shilbury D	7	1.7	86	2.4	12.28
Dickson G	6	1.5	22	0.6	3.66
Kerwin S	6	1.5	53	1.5	8.83
Lock D	6	1.5	109	3.0	18.16
Sherry E	6	1.5	51	1.4	8.5

TP, Total number of publications; TGCS, Total global citation score; ACPI, Average Citations Per Item.

Lotka's Law of scientific productivity can be used to estimate the frequency with which authors will appear in a scientific journal. It states that "... the number (of authors) making n contributions is about $1/n^2$ of those making one; and the proportion of all contributors, that make a single contribution, is about 60 percent" (Lotka, 1926). This means that out of all the authors in a given journal, 60 percent will have just one publication, and 15 percent will have two publications ($1/2^2$ times .60). Seven percent of authors will have three publications ($1/3^2$ times .60), and so on. According to Lotka's Law, only six percent of the authors in a journal will produce more than 10 documents.

As shown in Table 6, the analysis of authors of documents published in *SMR* demonstrates that there are 506 single-authors and 42 two-authors. While according to Lotka's Law of authorship, the number of authors of two-documents must be 126. There are also 17 authors with three

documents that should be 56 according to Lotka's Law. To briefly summarize, Table 6 indicates that the single authorship pattern has the most productive publications in *SMR*. The results of Table 6 indicate that the Lotka's Law was not applicable for this journal, since the numbers obtained in this research are significantly different from the predicted numbers of Lotka.

Table 6. Comparing the scientific production of authors in *SMR* using the Lotka's law

Lotka Law	Number of Author (Y)	Number of Documents (X)
-	506	1
126	42	2
56	17	3
31	7	4
14	1	6
5	1	10

Figure 2 shows the co-occurrence map of hot topics in the papers published in *SMR*. Figure 3 reveals the density map of hot topics in the papers published in this journal.

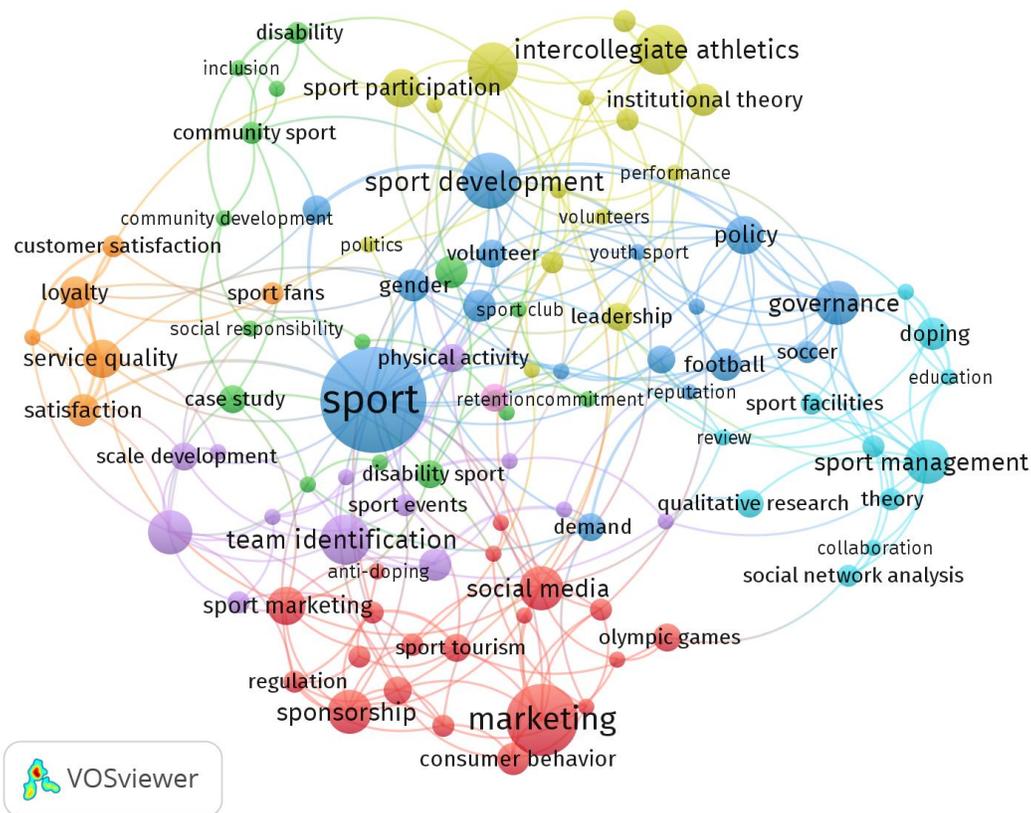


Figure 2. Co-occurrence map of hot topics in papers published by *SMR*

Service Quality	6	13
Institutional Theory	6	8
Sport Participation	6	8
Loyalty	5	13
Leadership	5	11
Football	5	9
Olympic Games	5	9
Consumer Behavior	5	7
Team Identification	5	5
Qualitative Research	5	3

Figure 3 and Table 7 indicate that the keywords *sport*, *marketing*, *intercollegiate athletics*, *sport development*, *sponsorship*, *sport management*, *sport policy*, *social media*, *professional sport*, and *sport marketing* were the most co-occurrences and the hot topics in the journal of *SMR*. Most of these keywords are standing in the yellow zone in Figure 3.

Status of researchers, organizations and countries based on the centrality indicators

The centrality indicators measure a node's importance and its influence rate, as a connecting point in the network analysis. The centrality indicators are calculated using the relationship between the nodes (researchers, organizations, and countries) in a scientific collaboration network. They measure how organisms influence each other in transaction networks. Moreover, centrality indicators are among the most important indicators in studies of social network analysis (SNA). Figure 4 indicates the node degree distribution for authors who have published most in journal *SMR*.

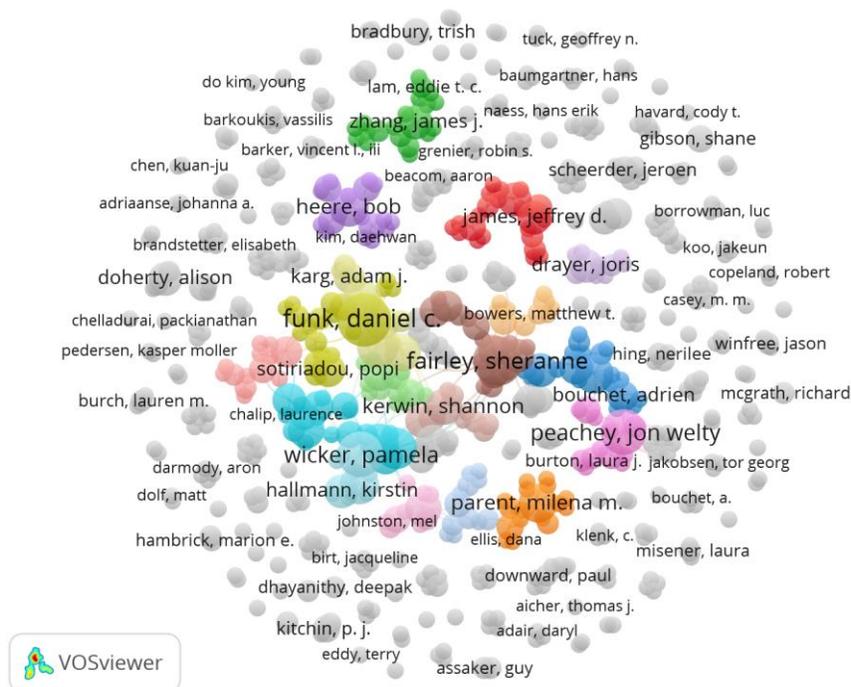


Figure 4. Distribution of co-authorship

Table 8. Ranking by the authors of the Sport Management Review based on centrality indicators

Degree Centrality		Betweenness Centrality		Closeness Centrality		Eigenvector Centrality	
Authors		Authors		Authors		Authors	
Funk, DC	23	Fairley, S	11488.057	Van Den Hurk, M	1/000	Funk, DC	0.042
Fairley, S	22	Ferkins, L	8626.557	Verhoest, K	1/000	Lock, D	0.040
Peachey, JW	20	Warner, S	7156.917	Vagenas, G	1/000	Fairley, S	0.039
Wicker, P	15	Dickson, G	7134.000	Vlachokyriakou, E	1/000	Wicker, P	0.032
Kerwin, S	14	Lock, D	6764.829	Tang, YY	1/000	Kerwin, S	0.030
Parent, MM	14	Funk, DC	6605.683	Wang, MCH	1/000	Ferkins, L	0.028
Ferkins, L	13	Berg, BK	6587.000	Willem, A	1/000	Cunningham, GB	0.027
Lock, D	13	Hutchinson, M	5307.500	Popp, B	1/000	Filo, K	0.026
Spaaij, R	13	Desbordes, M	3876.000	Woratschek, H	1/000	Shaw, S	0.025
Filo, K	12	Wicker, P	3861.007	Pedersen, KM	1/000	Spaaij, R	0.022
Zhang, JJ	12	Hautbois, C	3502.000	Wagner, U	1/000	Zhou, X	0.021
Dickson, G	11	Peachey, JW	3407.500	Morrow, S	1/000	Westerbeek, H	0.020
Hutchinson, M	11	Spaaij, R	2576.767	Robinson, L	1/000	Doyle, JP	0.019
Cunningham, GB	11	Kerwin, S	2554.188	Mccullough, B	1/000	Macdonald, H	0.018

Figure 4 and Table 8 indicates that authors such as D. C. Funk with a degree centrality score of 23, S. Fairley with a degree centrality score of 22 and J. W. Peachey with a degree centrality score of 20 are ranked from first to third and other authors follow in descending order. The high degree centrality of these authors reveals the fact that they have more influence and power within the network, which can have more effect on other authors within the network. Also authors such as S. Fairley, L. Ferkins and S. Warner have the most Betweenness Centrality. In other words, these authors are located within the shortest distance possible amongst other groups of authors and indicate that these authors link all authors in co-authorship network in the journal of *SMR*, through which different authors communicate and are in some way information intermediators. On the other hand, authors such as M. Van Den Hurk, K. Verhoest, and G. Vagenas have the most closeness centrality degree in this journal. Also these authors have the most closeness to other authors in the network. In other words, the abovementioned authors have a top opportunity and a chance to communicate with other authors, and can easily receive and send information.

Table 8 also shows that authors such as D. C. Funk, D. Lock and S. Fairley have the highest Eigenvector centrality in the co-authorship network. In other words, these authors have a higher Eigenvector centrality since they have communication with powerful and effective authors in the network, and somehow easier to exchange information in the form of co-authorship.

Figure 5 presents the node degree distribution for co-institutions contributed to the authorship of papers published in journal *SMR*. Table 9 ranks institutions contributed to the authorship of papers published in journal *SMR* based on centrality indicators.

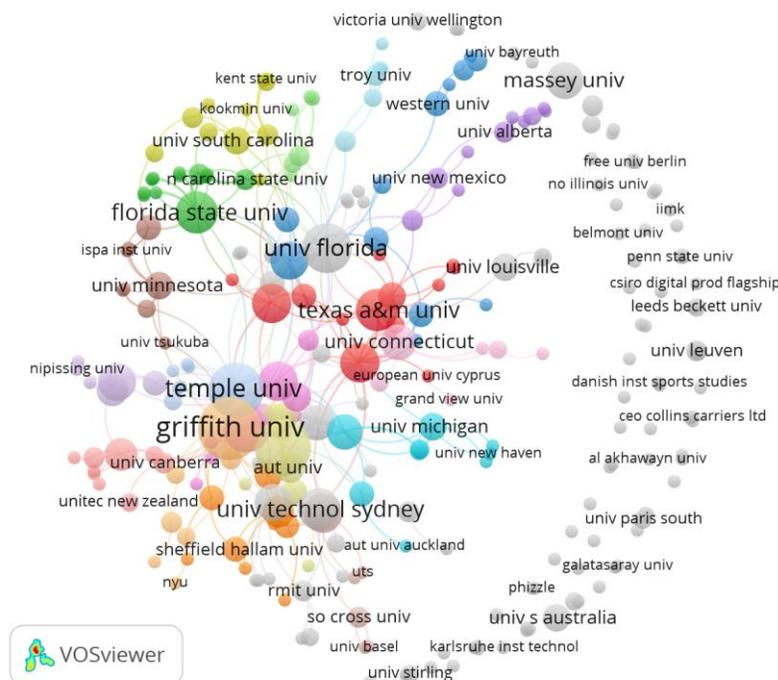


Figure 5. Distribution of co-institutions

Table 9. Ranking institutions contributed to the authorship of papers published in journal SMR based on centrality indicators

Degree Centrality		Betweenness Centrality		Closeness Centrality		Eigenvector Centrality	
Institutions		Institutions		Institutions		Institutions	
Temple University	30	University of Florida	6730.897	University of São Paulo	1.000	Temple University	0.050
Griffith University	27	Temple University	4444.354	University of Stirling	1.000	Griffith University	0.048
University of Florida	24	Griffith University	4356.479	Suffolk University	1.000	Bournemouth University	0.040
University of Illinois	17	University of Massachusetts of Amherst	3334.278	University of Massachusetts Amherst	1.000	Brock University	0.024
Florida State University	17	University of Illinois	2423.112	Molde University College (Specialized University in Logistics)	1.000	Deakin University	0.024
Bournemouth University	16	Florida State University	2235.050	Kingston University London	1.000	Victoria University	0.023
Victoria University	15	Brock University	1812.519	Ohio University	1.000	Swinburne University of Technology	0.022
Deakin University	14	Deakin University	1654.152	Massey University	1.000	University of Queensland	0.021
University of Queensland	14	Victoria University	1483.854	University of Waikato	1.000	German Sport University Cologne	0.020
Brock University	12	University of Texas at Austin	1463.275	Loughborough University	1.000	Auckland University of Technology	0.016
University of Texas at Austin	12	The University of New Mexico	1357.000	Université Claude Bernard Lyon 1	1.000	University of Florida	0.015

Table 9 and Figure 5 indicate that institutes such as Temple University with a degree centrality score of 30, Griffith University with a degree centrality score of 27 and University of Florida with a degree centrality score of 24 are ranked from first to third and other institutes follow. The high degree centrality of these institutes reveals the fact that these institutes are of high position

within the network which can have more effect and influence on other institutes within the network. Also institutes such as University of Florida, Temple University, and Griffith University have the most *Betweenness Centrality*. In other words, these institutes are located within the shortest distance possible amongst other institutes and constitute the link between the other institutes and play an important intermediary role in the network. Therefore, they are the most essential and vital for the network, since they form the linkage between other institutes. On the other hand, institutes such as University of São Paulo, University of Stirling, and Suffolk University have had the most Closeness Centrality in this journal. This means that the closer an institute is to other institutes, the better position in the network it has and it can exchange information with other institutes more easily, since there are less intermediaries between them.

Table 9 also shows that institutes such as Temple University, Griffith University, and Bournemouth University have a higher Eigenvector centrality in the network; i.e., these institutes have a higher Eigenvector centrality, since they have communication with powerful and effective institutes in the network.

Figure 6 presents the node degree distribution for co-countries contributed to the authorship of papers published in journal *SMR*. Table 10 ranks countries contributed to the authorship of papers published in journal *SMR* based on centrality indicators.

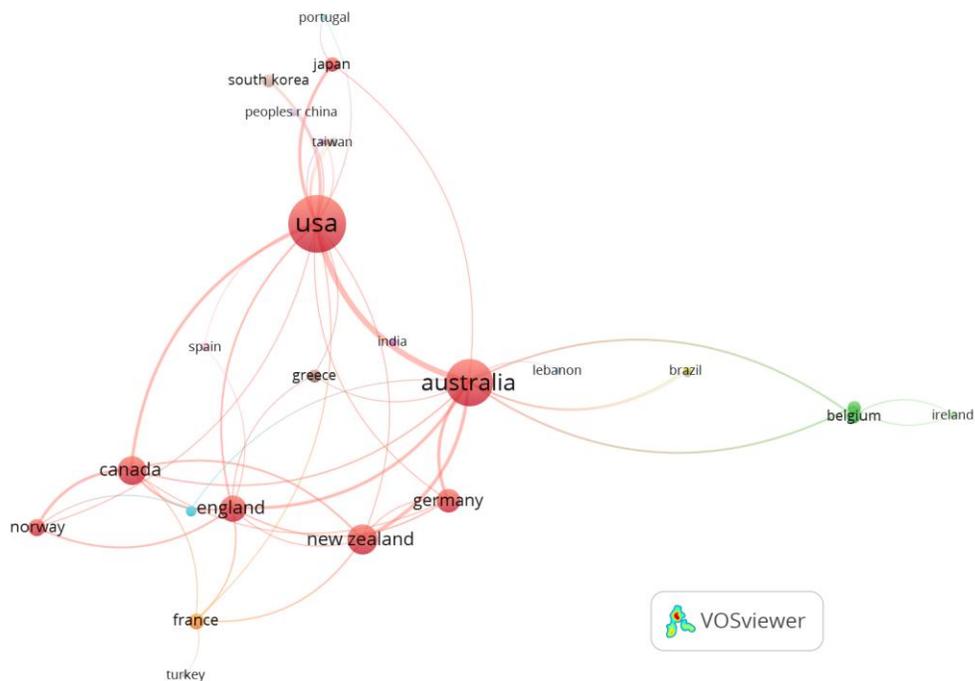


Figure 6. Distribution of co-countries

Table 10. Ranking countries contributed to the authorship of papers published in journal SMR based on centrality indicators

Degree Centrality		Betweenness Centrality		Closeness Centrality		Eigenvector Centrality	
Countries		Countries		Countries		Countries	
USA	17	USA	181.571	USA	0.026	USA	0.113
Australia	13	Australia	170.310	Australia	0.024	England	0.094
England	10	England	44.905	England	0.022	Australia	0.093
Canada	7	France	26.000	Canada	0.020	Canada	0.083
New Zealand	6	Brazil	26.000	New Zealand	0.020	New Zealand	0.076
France	5	Netherlands	12.500	Germany	0.019	Germany	0.069
Germany	5	Belgium	12.500	Greece	0.019	France	0.056
Norway	4	Canada	8.405	Japan	0.018	Norway	0.047
Japan	3	Norway	6.690	France	0.017	Greece	0.045
Brazil	3	New Zealand	4.786	Norway	0.017	Japan	0.034
Netherlands	3	Japan	4.333	Spain	0.016	Spain	0.031

Table 10 shows that based on the three degrees centrality, betweenness centrality and closeness centrality in the journal of *SMR*, the USA, Australia and England are ranked first to third. According to the indicator Eigenvector centrality, the USA with Eigenvector centrality 0.113, England with Eigenvector centrality 0.094 and Australia with Eigenvector centrality 0.093 are ranked first to third, as the most prolific countries contributed to the authorship of papers published in journal *SMR*.

Table 11. Top 10 most cited and highly-cited papers published in SMR

	Title	FA	NA	CR	DT	Year	TGSC
1	Sport and social media research: A review	Filo, Kevin	3	116	Review	2015	72
2	Scarcity of resources in German non-profit sport clubs	Wicker, Pamela	2	62	Article	2011	64
3	Sport involvement: A conceptual and empirical analysis	Beaton, Anthony A.	4	114	Article	2011	63
4	Integrating sport-for-development theory and praxis	Lyras, Alexis	2	85	Review	2011	63
5	Sustainable community development through sport and events: A conceptual framework for Sport-for-Development projects	Schulenkorf, Nico	1	98	Article	2012	62
6	Underrepresentation of women in sport leadership: a review of research	Burton, Laura J.	1	90	Review	2015	58
7	Small-scale event sport tourism: A case study in sustainable tourism	Gibson, Heather J.	3	47	Article	2012	57
8	Analysing the professional sport experience: A hierarchical approach	Clemes, Michael D.	3	96	Article	2011	53
9	Hostile takeover or joint venture: Connections between institutional theory and sport management research	Washington, Marvin	2	86	Review	2011	50
10	The influence of service quality on satisfaction and intention: A gender segmentation strategy	Lee, Jeoung H.	4	52	Article	2011	49
	Highly-Cited Papers	FA	NA	CR	DT	Year	TGSC
	Sport and social media research: A review	Filo, Kevin	3	116	Review	2015	72
	eSport management: Embracing eSport education and research opportunities	Funk, Daniel C.	3	55	Review	2018	8

FA, Number of first-author papers; NA, Number of authors; CR, Cited references; DT, Document Type; TGSC.

The original data given in Figure 1 show that in the period from 2011 to 2018, a total of 403 documents have been published in *SMR*. Table 11 lists the top 10 most cited papers and two highly-cited papers published in this journal. It is worth noting that 6 out of 10 most cited papers, are "research" and 4 are "reviews". Moreover, among 403 articles published in the journal *SMR* two review papers entitled "*Sport and social media research: A review*" and "*eSport management: Embracing eSport education and research opportunities*" were called the "Highly-Cited Paper" by the Clarivate Analytics. These two papers were published in 2015 and 2018.

Figure 7 indicates knowledge communication between *SMR* and other Journal (i.e., cited and citing journals). This figure shows the list of the five journals most cited or citing the *SMR* journal.

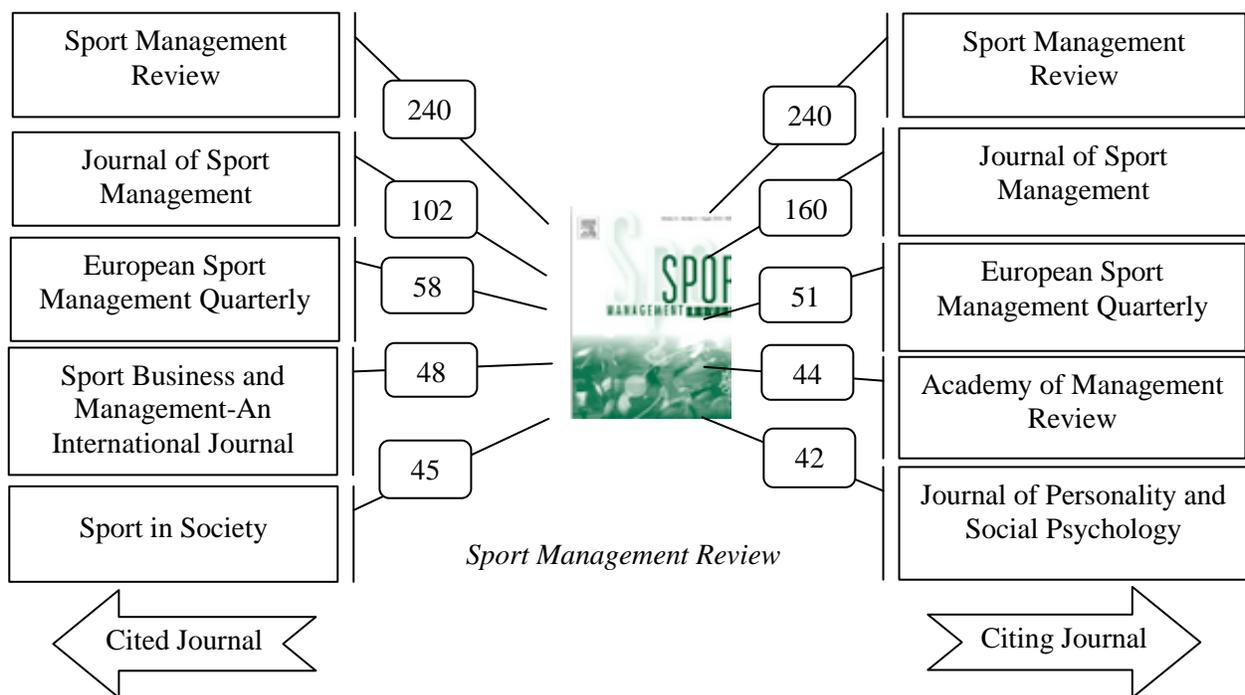


Figure 7. Knowledge communication between *SMR* and other Journal

Figure 7 shows the citation linkages between the journal of *SMR* and other journals including the journal self-citations, and in some way represents the exchange and transfer of knowledge between the journal of *SMR* and other journals. On the left side of this figure, there are five journals that have the most citations to the journal of *SMR*. On the right side, there are also five journals that *SMR* has most cited them. A total of 140 journals cited to papers published in the *SMR* journal, and this journal has cited papers published in 317 journals.

Discussion and Conclusion

According to the Eigenfactor indicator, the weight of a citation from a journal with a high Q (Quartile) and IF (Impact Factor) is more valuable than citations from a journal with a low Q and

IF. Therefore, due to the increase in the Eigenfactor score of this journal in 2016, it can be concluded that the journal *SMR* mostly cited by high-level journals, and the value of the Eigenfactor of this journal has increased. Also, the cited half-life of the journal *SMR* was 4.9 in 2014 and was raised to 5.4 in 2017 (increased 0.5%). The cited half-life measures all of the cites earned by a journal (across all cited years) during the JCR year. If a journal's cited half-life is 5.4, this means that half the citations it earned (where citing year is JCR year) were to items published 5.4 or fewer years ago. And half were to items published longer ago than that. If a journal's cited half-life is high, this indicates that the subject matter of its papers is valuable.

A total of 552 authors affiliated with 251 different institutes from 31 countries contributed to the growth of the journal of *SMR*. Out of 31 countries, there are two countries from the North America, one country from Latin America, two countries from the Oceania, one country from Africa, nine countries from Asia and fifteen countries from Europe. The analysis of the prolific authors shows that D. C. Funk by publishing 12 documents is the most prolific author of *SMR*. Out of 21 most prolific institutes contributed to the production of papers published in *SMR*, 9 are from the U.S., 5 from Australia, and 2 from Canada.

According to the social network analysis and the co-authorship network analysis map, D. C. Funk has the highest degree centrality and eigenvector centrality; S. Fairley has the most betweenness centrality; and M. Van Den Hurk has the most closeness centrality.

The analysis of institutional collaboration patterns, based on centrality indicators, demonstrates that Temple University from the U.S. has the highest degree centrality and eigenvector centrality; University of Florida from the U.S. has the most betweenness centrality; and the University of São Paulo from Brazil has the most closeness centrality.

A more detailed analysis of the countries of authors contributed to *SMR*, based on centrality indicators, showed that the U.S. achieved the highest rank in four indicators: degree centrality, betweenness centrality, closeness centrality and eigenvector centrality. Briefly, based on the degree centrality indicator, D. C. Funk (author), Temple University (institution), and U.S. (country), had the most connections in the collaboration network. They have played an influential and central role in the network.

The co-occurrence map based on the author-supplied keywords of the papers published in *SMR* indicates that the keywords *sport*, *marketing*, *intercollegiate athletics*, *sport development*, *sponsorship*, *sport management*, *sport policy*, *social media*, *professional sport*, and *sport marketing* were the most co-occurrences and the hot topics in the journal of *SMR*.

Relationship analysis of *SMR* showed that this journal is related to journals of management and most relevant to journals in the field sports management. The journal also has played the role of an important bridge between other journals in the field of sports management. On the other hand,

the association of this journal with influential journals in the field of sport management has added value to this journal, as well as its citation linkages to the high IF journals have increased its Eigenvector factor and IF.

The current bibliometric study indicates the growing importance of international journal of *SMR* in terms of research and citation impacts.

Recommendations and Practical Results

The bibliometric analysis of the *SMR* journal will help the scientific community to know the core keywords and hot topics in this journal. These types of studies will help journal managers, the editorial board, and researchers to get acquainted with the intellectual structures and research prospects of this journal as well as the research trend (ascending and descending) of the journal based on the evaluation criteria of journals in citation databases. Therefore, this study can provide the basis for identifying hot topics and prolific authors, countries and academic institutes in the field of sport management in this journal.

Moreover, it is worth noting that *SMR* is cited more than 23500 times on Google Scholar and has an h-index of 78. Therefore, it is suggested that a comparative evaluation trends of *SMR* be performed based on the Scopus and Google Scholar citation databases and their indicators.

References

- Brown, T., Gutman, S. A., Ho, Y. S., & Fong, K. N. (2018). A bibliometric analysis of occupational therapy publications. *Scandinavian Journal of Occupational Therapy*, 25(1), 1-14.
- Buznik, V. M., Zibareva, I. V., Piottukh-Peletsii, V. N., & Sorokin, N. I. (2004). Bibliometric analysis of the Journal of Structural Chemistry. *Journal of Structural Chemistry*, 45(6), 1096-1106.
- Elsevier Journals. (2018). Sport Management Review. Retrieved April 23, 2018, from <https://www.journals.elsevier.com/sport-management-review>
- Hawkins, D. T. (2001). Bibliometrics of electronic journals in information science. *Information Research*, 7(1), 7-1.
- Kim, M. J. (2001). A bibliometric analysis of physics publications in Korea, 1994-1998. *Scientometrics*, 50(3), 503-521.
- Lotka, A.J. (1926). The frequency distribution of scientific productivity. *Journal of the Washington Academy of Sciences*, 16(12), 217-23.
- Şenel, E., & Demir, E. (2018). Bibliometric and scientometric analysis of the articles published in the Journal of Religion and Health between 1975 and 2016. *Journal of Religion and Health*, 57(4), 1473-1482.

- Shilbury, D. (2011a). A bibliometric analysis of four sport management journals. *Sport Management Review*, 14(4), 434-452.
- Shilbury, D. (2011b). A bibliometric study of citations to sport management and marketing journals. *Journal of Sport Management*, 25(5), 423-444.
- Tsay, M. Y. (2008). A bibliometric analysis of hydrogen energy literature, 1965–2005. *Scientometrics*, 75(3), 421-438.
- Tsay, M. Y. (2011a). A bibliometric analysis on the Journal of Information Science. *Journal of Library and Information Science Research*, 5(2), 1-28.
- Tsay, M. Y. (2011b). A bibliometric analysis and comparison on three information science journals: JASIST, IPM, JOD, 1998–2008. *Scientometrics*, 89(2), 591.
- Tsay, M. Y., & Li, C. N. (2017). Bibliometric analysis of the journal literature on women's studies. *Scientometrics*, 113(2), 705-734.
- Wang, S., Wang, H., & Weldon, P. (2007). Bibliometric analysis of English-language academic journals of China and their internationalization. *Scientometrics*, 73(3), 331-343.
- Wang, X., & Fang, Z. (2016). Detecting and tracking the real-time hot topics: A study on computational neuroscience. *arXiv preprint: <https://arxiv.org/abs/1608.05517>*
- Willett, P. (2007). A bibliometric analysis of the Journal of Molecular Graphics and Modelling. *Journal of Molecular Graphics and Modelling*, 26(3), 602-606.
-

Bibliographic information of this paper for citing:

Gholampour, Sajad, Noruzi, Alireza, Gholampour, Behzad, & Elahi, Alireza (2019). "Research trends and bibliometric analysis of a journal: Sport Management Review." *Webology*, 16(2), Article 200. Available at: <http://www.webology.org/2019/v16n2/a200.pdf>

Copyright © 2019, Sajad Gholampour, [Alireza Noruzi](#), [Behzad Gholampour](#) and [Alireza Elahi](#).