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Bibliometric Analysis on Motivation of Sport Event Volunteer using the Scopus Database

Siti Nurhafizah Ahmad, Adaviah Mas'od, Zuraidah Sulaiman, Nornajihah Nadia Hasbullah

Azman Hashim International Business School, Universiti Teknologi Malaysia

Email: sitinurhafizahahmad@graduate.utm.my, adaviah@utm.my, zuraidahs@utm.my, najihahnadya@yahoo.com

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Abstract

This paper contains research in the most productive journals, the most prolific and productive country, dedicated to the study of the motivation of volunteers for sporting events. Over the past 40 years, the number of journal publications devoted to these areas has grown exponentially. This paper addresses the most important contributions in these areas with the help of a bibliometric method. Furthermore, this paper uses the similarity view for graphical mapping important themes and keywords. Several researchers in these fields have reviewed all of the articles published on the Web of Science for an as broad time as discussed in this study. This research is useful for various purposes. It is possible to identify the greatest potential of countries and institutions to help academics and researchers in their research development and research exchanges, and possibly to determine what would be important to pursue their doctorate and improve their careers.

Keywords: Volunteer Motivation, Sport Event, Social Media, VOSViewer, Bibliometric Analysis, Review.

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Introduction

Many areas of society have benefited from the help of volunteers. Tourism and events are heavily dependent on volunteers, who are an essential resource for organizing a memorable experience. The tourism industry is characterized by a highly competitive economic sector which further promotes and expands the tourism offer in order to lay the foundations for a successful tourist attraction (Schlemmer, Barth, & Schnitzer, 2020; Benur & Bramwell, 2015; Mariani et al., 2015). Sports tourism can be defined as a trip made for recreational purposes (and not for commercial purposes), to participate in or pursue sports activities which take place outside one's usual place of residence (Hall, 1992) and which may or may not have a competition objective (Latiesa & Paniza, 2006). Previous research on sports tourism has mainly focused on the impact and legacy of major sporting events. In recent years, however, tourism has also gained a prominent place in event and recreational literature (Preuss, 2015) which has triggered a number of approaches and interrelationships and established a "together'' relationship. between event tourism, sports tourism and / or leisure. tourism (Deery, Jago, & Fredline, 2004). Although the effects of events are still controversial in the academic literature, events can be seen as drivers of local tourism strategies and regional marketing concepts (Getz, 2007). In practice, this may include, for example, the use of sporting events in low season. (e.g. Schnitzer, Schlemmer, & Kristiansen, 2017) or the organization of sporting events with the aim of changing the image of the destination. (Arnegger & Herz, 2016). This makes the link between events and tourism visible, which requires an integrative approach in scientific research.

In this study, we focus on volunteering at events related to volunteer tourism. Event volunteering encompasses various forms of volunteering, such as international, formal, informal, episodic, occasional, long-term and short-term. Although some organizations hire volunteers for year-round positions, most volunteers participate in one-off events to ensure the development of the event (Smith, Lockstone-Binney, Holmes, & Baum, 2014). The volunteer commitment not only supports the success of the events, but also increases the potential of a place as a tourist destination.

The event industry is an important sector of volunteer involvement, and due to the scale, complexities, and heavy costs associated with holding events, especially in sport. Getz (2007) suggests that sporting events can be characterized according to a number of potential factors such as local, regional, national or international in scale. Events typically rely on the participation of occasional volunteers in more flexible, short-term and one-off volunteering activities (Holmes & Smith, 2009; Lockstone-Binney, Smith, & Baum, 2010), and occasional volunteering at sporting events is possibly more common. For instance, more than 40,000 volunteers were recruited at the Olympic Games in Sydney in 2000 and in Athens in 2004, who worked about 4.5 million hours (Cuskelly, Hoye, & Auld, 2006).

Yoshioka, Brown, & Ashcraft (2007) argued that volunteer managers need an understanding of voluntary sports motivation (MSEV) to effectively handle volunteers and establish a voluntary program that serves the interests of potential volunteers. Motivation to volunteer is a concept that is seen by researchers as a factor that can be interpreted and critically tested by volunteer organizations based on the hypothesis of potential volunteer retention issues (Cuskelly et al., 2006). Although the results of previous studies suggest that the motivation for volunteering is scientifically understandable, it is also important to rule out the need to know more about it as a phenomenon that includes factors of human behavior such as perceptions or motivations.

However, although sport volunteers have been providing their valuable services for a long time, they have largely been taken for granted (Ellis, 1985). Research on volunteering in sports settings is limited and all measures and concepts identified so far come from studies in non-sports sectors (Green & Chalip, 1998). Research efforts have also been proven to be insufficient to establish whether volunteering in sport relies on considerations that apply only to sport and has not adequately answered all questions about the complexity of volunteer behavior in sport. Understanding what motivates people to offer free help is extremely important. The processes of recruiting, selecting and training volunteers can be very expensive in most cases. Limited awareness of current trends in volunteering, or ignorance of the real needs and motivations of volunteers, can be can be an expansionary disaster of volunteer human resources, the morale of the organization, or the holding of a sport event.

Volunteers are essential for many sporting events (Allen, 2009; A.Costa, Chalip, Green, & Simes, 2006; Dickson, Terwiel, & Blackman, 2013) imperative subject of the study (Giannoulakis, Wang, & Gray, 2008; Love, Hardin, Koo, & Morse, 2011). Volunteer contributions are important for every organization and it is therefore important to understand the basic motivations of volunteers, volunteer recruitment and their retention (Bang & Chelladurai, 2009). As there is an increasingly competitive market for finding volunteers in various areas of society, sporting and sporting events must identify the factors that make the volunteer experience interesting (Costa, Chalip, & BC Green, 2006) what actually drives volunteers to take up their jobs , and what contributes to future volunteer engagement or retention (Clary, Snyder, & Ridge, 1992; Cuskelly, 2004). This is particularly important because the benefits of volunteering are assessed based on value and are far more significant than the benefits of a paid employee (Cuskelly, McIntyre, & Boag, 1998). Moreover, Baum & Lockstone (2007) highlight the lack of research on volunteers although this type of research is particularly important for sports administrators and policymakers. This lack of this study include motivation (Baum & Lockstone, 2007). Therefore, the purpose of this study is to contribute to research on the motivation of volunteers in the sports events employing basic techniques of bibliometric analysis with the technical support of VOSviewer software.

Bibliometric in Studies

Bibliometric technology provides a valuable method for quantitative study of the production of university empirical studies in a particular subject area (Tsay, 2008). The greatest use of bibliometrics in tourism literature is with respect to the evaluation of journals and those who publish them (Hall C. , 2011). In contrast, there are several related studies published in the bibliometric literature (see: (Barrios, Borrego, Vilaginés, & Somoza, 2008; Tokić & Tokić, 2015; (Zhang, Lyu, & Yan, 2015; Zopiatis, Theocharous, & Constanti, 2015; Koseoglu, Rahim, Okumus, & Liu, 2016; Garrigos-Simon, Narangajavana-Kaosiri, & Lengua-Lengua, 2018) divided previous tourism bibliometric analysis into six categories: journal evaluation and stage review, article introduction study, content analysis, citation analysis, disciplinary relationship analysis, and country research analysis. However, the progress of these bibliometric studies in tourism specifically the trends of sport event has not been explained. Therefore, the current study aims to address this gap in the field. Additionally, Web of Science (WoS) is used as the source for data mining in this study.

As bibliometric studies create new research agendas and directions for disciplines and/or areas, researchers can identify gaps in literature and practice. The results of the bibliometric analysis in sport event can highlight the relationship between field and other fields or areas. In this way, new guidelines can be developed to enrich this relationship. In addition, this study

is useful for policymakers and senior administrators working in universities, government agencies, and research funding organizations as they make policy decisions and allocate resources. Hence, bibliometric studies at any level of a mature subject or discipline are always required.

Although the databases of Scopus and WoS are closely related, the examples of indexed journals overlap, but different journals are also indexed (Chadegani, et al., 2013; Vieira & Gomes, 2009). Scopus is recognized as the largest source of abstract and cited literature on a wide range of subjects (Chadegani, et al., 2013; Vieira & Gomes, 2009). Scopus is known to be the largest source of abstract and cited literature on a wide variety of subject matter. This analysis focuses on the literature published in the Scopus citation database as an experiment and thus includes additional topics which may not be accessible in WoS and which were reviewed by Bang et al. (2018). In this article, our objectives were as follows: (i) to examine temporary dissemination trends of sporting activities journal articles; (ii) to display the contribution of prolific authors, leading countries of the most prolific academic institutions; (iii) to highlight terminology and general research topics; (iv) to assess country supremacy based on core applications; and (v) to include an overview of core applications. The paper would be useful to academics, policymakers and individuals to consider research patterns in sporting activities and to identify possible future research opportunities.

Methods

The research of bibliometric analysis is a mechanistic method of using the results of the database of journal article to understand the patterns of global search within a given field (Elsevier, 2019). This type of approach that differentiates them in a given subject apart from the abstract of the Bibliometrics article is most applicable to the current trends, challenges and future directions. It requires quantitative analysis and statistics to explain trends of authors, journals, publications, countries and organizations working together and researching. They 're used to determine your input on other topics though. Bibliometric analyzes are commonly used in a variety of areas, including scientific, technological, financial, and humanitarian. (Bakker, Groenewegen, & Hond, 2005; Nederhof, 2006; Campbell, et al., 2016; Zyoud, 2014).

Data source and search strategy

Between 7 to 14 February 2020, data extraction was performed using the Scopus database. This study based on the research papers found in the title and in the abstract “motivation of sport event volunteer*”. The oldest publication dates from 1950 (Simanovsky, 1950) and the last publication from 2018 (Dixon, et al., 2018). The search query string used was: (TITLE-ABS ("motivation of sport event volunteer*" OR "volunteer* motivation" OR "sport event*")) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (EXCLUDE (PUBYEAR , 2020) OR EXCLUDE (PUBYEAR , 2019)). 2048 documents were created via this query string. Additional sentences were added to the query string to ensure that no review articles were included in our analysis, resulting in 148 articles which may not be relevant to our study. Such papers included words in the title and abstract such as highlighting, updating, advancing, revisiting, latest, advance, critical. We have found 115 review articles after having chosen them by reading summaries and complete texts. EID, is a special Scopus identifier. This research article has been commented on and added to the following search string so that the search results below do not appear.

Results of the research were analyzed by year, source, author, affiliation, domain and language, country / region. For ranking purposes, bibliometric metrics including total number of articles, total number of citations, CiteScore and h index were used. As a measure of journal visibility and quality, citation analysis and impact factors continue to be widely used (Levine-ClarkEsther & Gil, 2011; Shilbury, 2011). The summary of the research methodology is shown in Table I. Details of the search strings used in Scopus are listed in Table A1 (Appendix).

Table 1
Summary of data collection

Document type	Journals
Period of analysis	1950-2018
Search engines	Scopus
Query String	TITLE-ABS ("motivation of sport event volunteer*" OR "volunteer* motivation" OR "sport event*")) AND NOT (EID **(insert EID of review articles here**)** AND (LIMIT-TO (SRCTYPE,"j")) AND (LIMIT-TO (DOCTYPE,"ar")) AND (EXCLUDE (PUBYEAR,2020) OR EXCLUDE (PUBYEAR,2019))
Total number of articles	1933

Bibliometric maps

Bibliometric data such as CiteSpace can be processed with several software (Chen, 2006), Visualization of Similarity (VOS) Viewer Eck & Waltman (2010) and Gephi M. Bastian (2009), apps, each with different capabilities and limitations. Details on citations, bibliographies and keywords from 1933 papers were exported during this analysis to VOSviewer (version 1.6.14, Center for Science and Technology Studies, University of Leiden, Netherlands), a software tool for bibliometric map production and viewing. The maps created with the VOS viewer contain items. The articles are the objects of interest, that is, the countries or keywords of the author. Any pair of associations of elements or connections between two elements can be connected together. Each relationship has a strength which has a numerical value that is positive. The greater this importance, the stronger the partnership is. The strength of the country-to-country relation describes the number of publications in which in the co-authors' review, two related countries were co-authors, while the strength of the overall link indicates the total strength of the links between the co-authors of one country and another. In the same way, in the case the number of articles in which the two keywords are found. Detailed information on of co-occurrence analysis, the strength of the link between keywords of the author indicates the functions of VOSviewer can be found in the Eck, N.J. Van and L. Waltman User Guide (2020).

Results and Discussion

Publication output and growth of research interest

A total of 1933 research articles were published over a period of 68 years (Fig. 1). The oldest publication dates from 1950 (John M. Farrell) and there were no further publications until 1966. It was also an inconsistent record of the number of publications from 1976 to

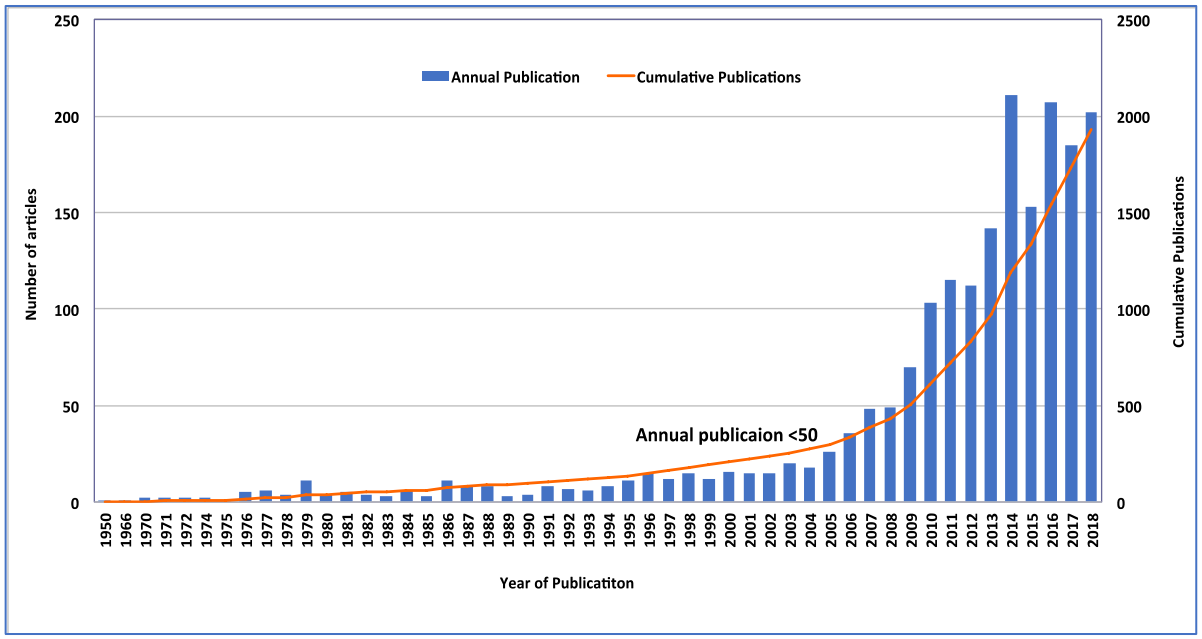

Fig. 1 The annual and cumulative numbers of research articles on MSEV indexed in Scopus from 1950 until 2018

2018. It is believed that there is strong interest in the motivation of sports event (MSEV) research. The percentage was raised by the annual growth rate (AGR) in 1979, and doubled in 2004 and 2006. Since then, the number of annual releases has steadily increased, this resulted in a rapid rise in the total number of cumulative publications. Thus, the annual version is expected to continue to grow. Most of these s are not accessible for free. However, to access the information stored inside the user must pay. We believe that it's likely to get even more citations when an article is written in an open access journal. As of 2018, just 11.7 percent (226 articles) were published as a type of open access.

There are broad research areas in MSEV, and several research areas are groups around the world are working actively in these fields. Study of this field showed that MSEV studies concentrate on environmental issues. This shows the total publications number given in the following fields: business, management and accounting (679 articles), social science (662 articles), arts and humanities (116 articles), and psychology (articles 104). MSEV is also a multidisciplinary area, and one of the publications in the field of health care professional's subject area has been listed.

Even the findings revealed that the papers used in this analysis have been written in 12 different languages. English (1,733; 89.7%) was the most used language, followed by Russian (54; 2.8%), and Spanish (34, 1.8%). Other languages (112; 5.8%) such as German, Chinese, French, Japanese, Portuguese, Polish, Croatian and Italy were used in less than 5 articles. When a Scopus editor submits an indexing article in a foreign language, the article must have a title and a summary in English (Khudzari, Kurian, Tartakovsky, & Raghavan, 2018). English is also the official language of various conferences around the world. (Tsay, 2008).

Table 2 The top 10 most productive journals on MSEV research with their most cited article.

Rank	Journal	TP (%)	TC	CiteScore 2018	The most cited article (reference)	Times cited	Publisher
1	Journal of Sport and Tourism	55 (2.85)	1974	1.89	Towards social leverage of sport events	355	Taylor & Francis
2	Event Management	54 (2.79)	456	1.24	Affective event and destination image: Their influence on Olympic travelers' behavioral intentions	54	Cognizant Communication Corporation
3	Teoriya I Praktika Fizicheskoy Kultury	47 (2.43)	25	0.24	Recreational physical culture formation concept for economic university	7	Committee on Physical Culture and Sports of the Council of Ministers of the USSR
4	Journal of Sport Management	46 (2.38)	1437	2.87	Effects of sport event media on destination image and intention to visit	168	Human Kinetics Publishers Inc.
5	Biotechnology an Indian Journal	45 (2.33)	1	-	University taekwondo education model component factors consistency test analysis based on AHP	1	Trade Science Inc.
6	Sport in Society	39 (2.02)	164	0.86	The 'caged torch procession': Celebrities, protesters and the 2008 Olympic torch relay in London, Paris and San Francisco	25	Taylor & Francis
7	Sport Management Review	36 (1.86)	918		Leveraging Subculture and Identity to Promote Sport Events	133	Elsevier
8	European Sport Management Quarterly	33 (1.71)	464	2.93	The social impact of the tour de France: Comparisons of residents' pre-and post-event perceptions	69	Taylor & Francis
9	International Journal of Event and Festival	32 (1.66)	274	1.73	Sports events and tourism: The Singapore Formula One Grand Prix	40	Emerald

10	Management International Journal of The History of Sport	27 (1.4)	62	0.39	Perception of the culture and education programme of the youth Olympic games by the participating athletes: A case study for Innsbruck 2012	11	Taylor & Francis

TP: total publications; TC: total citations; USSR: Union of Soviet Socialist Republics

Preferred journals

Our results show that six different publishers belong to the 10 most productive journals (Table 2). The first journal was published by Taylor & Francis with a total of five. The top two and three were published by Cognizant Communication Corporation and followed by Committee on Physical Culture and Sports of the Council of Ministers of the USSR. The rest five journals were published by the Human Kinetics Publisher Inc., Trade Science Inc, Elsevier and Emerald.

The Sports and Tourism Journal was the most productive publications with 55 articles representing 2.85% of all publications. In addition, Journal of Sport and Tourism, the Taylor & Francis Journal, one of the papers published in 2018, was also the most cited paper with 355 citations, with the highest number of citations in 1974. It followed by Event Management (54, 2.79%), Teori I Praktika Fizicheskoy (47, 2.43%) and Journal of Sport Management (46, 2.87%). Having been established in 1987, JSM has the longest history, and it is not surprising that the citation counts have been dominated by it (Shilbury, 2011).

According to the CiteScore 2018 report, five articles had a CiteScore of 1 and above Journals of the highest and lowest CiteScore belonged to European Sport Management Quarterly (2.93), and Biotechnology an Indian Journal with none CiteScore, respectively. Biotechnology was slightly lower compared to other journals, while it ranked fifth with 45 articles in Scopus, the total citation from one Indian journal. This was likely due to withdrawn journals that do not claim to be indexed by Scopus, and do not meet the quality performance of the journal. The journal's indexing status is one of the things considered by the researchers.

We also know that CiteScore may affect some authors' decision to choose articles related to their latest and most significant work. CiteScore is an alternative to the Elsevier Scopus alternative to Clarivate Analytics influencer, and a metric for measuring analysis effect based on the results of Scopus database citations. CiteScore should not, however, in our opinion be seen as the only metric. Besides CiteScore, editors may also verify that the article provides the right audience with research and contributes to advances in the field. Table A2 (Appendix) we listed the top 20 CiteScore scores to help our fellow researchers identify possible journals for publishing their MSEV-related articles.

Leading countries, top institutions, and international collaboration

Fig. 2 illustrates the 15 most successful countries that are contributing to MSEV research worldwide. The United States and the United Kingdom have published about 60% of the world 's publications, suggesting that these two countries are key players in developing MSEV research. With a total of 407 publications in 160 journals, the United States was the largest country, accounting for 21% of all worldwide publications. United Kingdom is the second most productive country in the United States with half of all circulation. Although the total number

of publications (TPi) for Loughborough University is slightly lower than that for the University of Florida, it should be noted that the University of Florida has 16 university colleges and more than 150 centers and institutes. research, so a direct comparison is a bias could. The University of Texas at Austin can otherwise be considered the most active academic institution in the United States with 17 publications.

In addition to figure 2, we also identified the 20 most successful institutes based on the number of MSEV papers these institutes have written. These can be reported in Table A3 (Appendix). Amongst the 15 countries, only China (84.7%), Spain (70.5%), Russian Federation (84.5%), South Korea (87%) and Japan (78.8) had more than 2/3 single-country publications (SCP). This indicates that these countries have close internal collaboration.

Rank	Country	TPc	SCP (%)	The most productive academic institution	Tpi	Rank	Country	TPc	SCP (%)	The most productive academic institution	Tpi
1	United States	407	60.0	University of Florida	48	8	Russian Federation	71	84.5	Kazan Federal University	7
2	United Kingdom	217	54.8	Loughborough University	22	9	France	61	65.6	Université Claude Bernard Lyon 1	4
3	China	196	84.7	Shanghai University of Sport	13	10	South Africa	61	54.1	University of Johannesburg	13
4	Australia	178	50.6	Griffith University	50	11	South Korea	54	87.0	Kyung Hee University	14
5	Canada	136	50.7	University of Ottawa, Canada	24	12	Japan	52	78.8	University of Tsukuba	6
6	Germany	125	66.4	Johannes Gutenberg Universität Mainz	13	13	Norway	43	46.5	Norges Teknisk-Naturvitenskapelige Universitet	7
7	Spain	78	70.5	University of Valencia	12	14	Italy	42	54.8	Università degli Studi di Torino	4
						15	Switzerland	40	42.5	Université de Lausanne UNIL	7

Fig. 2. The top 15 most productive countries and academic institutions in MSEV publications. TPc: total publications of a given country; TPi: total publications of a given academic institution; SCP: single country publications.

On the other hand, Switzerland was the country with the lowest SCP (42.5%), in which 56 of 40 publications were related to several affiliations from 14 different countries. The benefits of international collaboration are not limited to network expansion, the exchange of knowledge and experience, but also an effective strategy to increase the rating. For example, South Africa, although it is an upper-middle-income economy country, 54.1% (61 articles) of its publications were international collaborative papers which affiliated to 17 countries, as a result of which it became the 10th most productive country. International cooperation in science provides many benefits, for example: providing opportunities for the exchange of experiences, data and methods that may offer new perspectives for existing practice. Furthermore, international research cooperation also constitutes an important classification strategy (Khudzari, Kurian, Tartakovsky, & Raghavan, 2018).

In addition, nine universities were listed in the top 100 best universities based on the World University Rankings 2018 (THE, 2018). University of Florida (ranking 178th), Loughborough University (234th), Griffith University (201st), University of Ottawa, Canada (141st), University of Valencia (401st), Kazan Federal University (601-800th), University of Johannesburg (601-800th), Kyung Hee University (301-350th) and University of Tsukuba (401-500th) . This shows that the MSEV area caught the attention of the world's top universities.

This illustrates the distribution of countries / territories by country Fig. 3. The closer the two countries are in VOSviewer, the better their relationship and the greater the two countries' link, the thicker the line. Europe (34) was the largest number of countries per country, followed by Asia (31), Africa (12), America (10), and Oceania (1). Co-authorship results showed that the US was the most affiliated country, linked to 49 countries / territories with 227 co-authorship times. UK (35 links, 134 co-authorships), Germany (30 links, 74 co-authorships), Australia (24 links, 120 co-authorships), Canada (19 links, 89 co-authorships), and others followed the chart. It has also been shown that 2/3 of the countries listed have collaboration international publications with less than 10 countries. Therefore, only the articles published on MSEV.

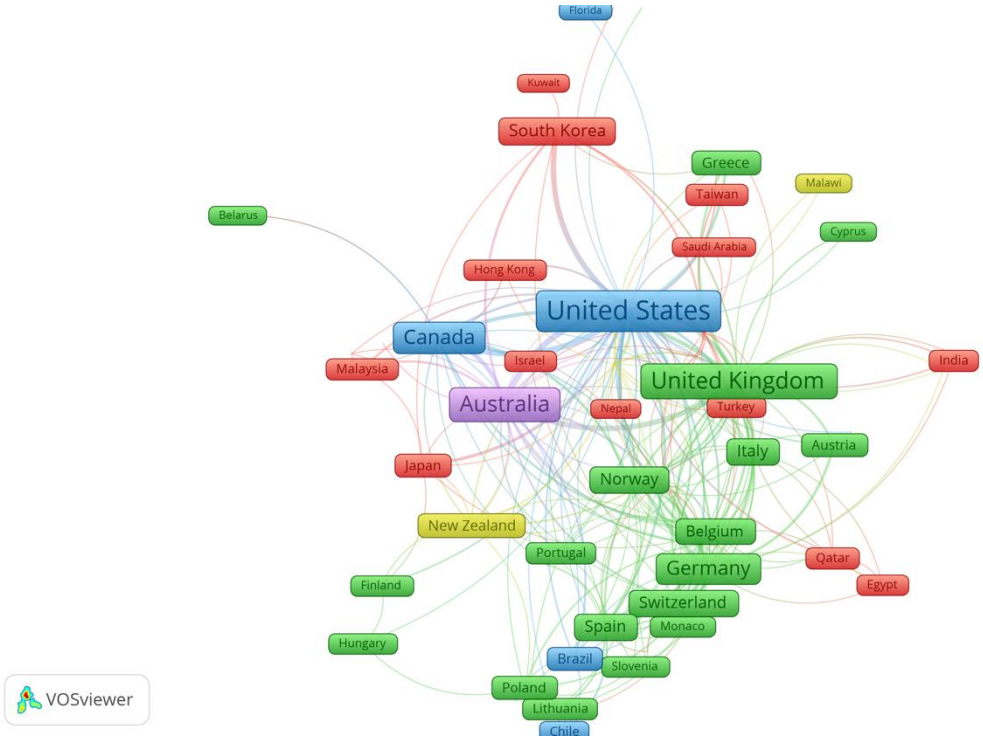

Fig. 3. A screenshot of bibliometric map created based on co-authorships with network visualization mode. The following URL can be used to open Fig. 3 in VOSviewer: https://bit.ly/3bGZWyG

A number of factors can contribute to the dynamism of international cooperation due to the variety of research partners, the high proportion of foreign PhD students / visiting researchers and the high level of research funding. It is also important to have a flexible and stable research policy to guarantee the sustainability of international cooperation. (Khudzari, Kurian, Tartakovsky, & Raghavan, 2018).

Table 3 lists the 15 most productive MSEV authors affiliated with five countries as follows; United States (4 authors), Australia (4 authors), Canada (4 authors), Germany (1 author), and

South Africa (1 author). The first publications varied between 1998 and 2013, with 12 authors as first authors, 2 as co-authors and 1 as the last author. Although the authorship sequence does not contain any specific rules, the last position is usually related to seniority and oversight. The authors' affiliations have shown that MSEV research is in areas such as management, events and tourism, psychology and social sciences.

Table 3 List of the 15 most prolific authors in MSEV research area.

Author	Scopus author ID	Year of 1st publication*	TP	h-index	TC	Current affiliation	Country
Kaplanidou, K.	16307513200	2007 a	20	24	595	University of Florida, George Mason University, Fairfax Campus,	United States
Chalip, L.	10242509200	1998 a	18	29	1409	Griffith University,	Australia
Filo, K.	25222319800	2009 a	16	15	245	Temple University,	United States
Funk, D.C.	7103032354	2007 a	13	34	354	University of Illinois	United States
Green, B.C.	10240279400	1998 b	12	24	432	University of Queensland, Bond	Australia
Fairley, S.	10244069000	2007 a	11	13	160	University	Australia
O'Brien, D.	55803817200	2005 c	11	17	450	University of Ottawa	Canada
Parent, M.M.	16040336100	2008 a	11	17	97	University of Ottawa	Canada
Taks, M.	16065218800	2008 b	11	16	222	University of Cologne	Germany
Hallmann, K.	36238695900	2010 a	10	17	180	Western University	Canada
Misener, L.	57202553386	2013 a	10	14	156	Johannes Gutenberg Universität Mainz,	Germany
Preuss, H.	16231394300	2007 a	9	11	530	North-West University,	South Africa
Saayman, M.	55904406100	2003 a	9	20	85	University of Waterloo,	Canada
Snelgrove, R.	35932847100	2008 a	9	6	95	University of Canberra,	Australia
Dickson, T.J.	14059934500	2013 a	8	11	102		

Role in co authorship, superscripts.
a First author.

b Co-author.
c Last author

Leading Authors

K. Kaplanidou from the United States led the list with a record of 20 publications since 2007, 24 h-index, and 595 times citations followed by L. Chalip from the same conuntry United States. Although L. Chalip fall in the 2nd top author, the time citations of 18 publications record was 1409 with 29 h-index. The 3rd top author, K. Filo affiliated with the Griffith University, Australia with a record of 245 publications since 2009. Other two Authors from United States whom affiliated to Temple University and University of Illinois ranked 4th and 5th respectively. The 6th, 7th and 10th most proflic authors in MSEV also from Australia. S. Fairley and O'Brien, D whom affiliated to University of Queensland and Bond University with 11 record of publications meanwhile T.J Jackson with a list record of 8 publication since 2013 affiliated with University of Canberry. There are four authors from Canada and two of them, M.M. Parent (8th) and M. Task (9th) whom affiliated to Universiti Otawa. Another pair from Canada is L. Misener (11th) and R. Snelgrove (14th), whom are affiliated to Western University and University of Waterbo. K. Hallmann and H. Preuss from Germany fall into !0th and 12th place in most profilic authors. Although H. Preuss is rank to 12th most prolific authors but the publication received a total of 530 citations. We also found also at least one author represent South Africa, M. Saayman with 8 publications record and 20 h-index since 2003. We have also noted that the 1998 publication of Table 3 relates to the same article (Chalip, 1998) by two prolific authors, Chalip, L., Green, BC. Although both authors come from the United States, the latter is currently affiliated with the authoring affiliation of the University of Illinois. It should be noted that Table 3 does not necessarily list the authors of the most frequently cited articles. Their names would only appear in both tables if they were frequently published, such as the authors Kaplanidou, K., Chalip L. and Green BC.

Author Keywords

Keyword is a name or sentence that can reflect a publication's basic content. The simultaneous occurrence of keywords was analyzed with VOSviewer, in order to illustrate the most important research fields in the MESV field. Co-occurrence analysis of keywords analyses the strength of an association of terms describing publications in a given field by measuring the frequency of keyword pairs (Heamalatha Krishnan, 2020). This approach helps to better understand the keywords that help MESV search expand. There was ambiguity between terms with the same definition as decision-making and decision-making. Analysis of the simultaneous occurrence of keywords for the period 1950-2018 was carried out. For the analyzes a criterion was set for a minimum number of keywords to 5. The study identified 45 out of a total of 159 keywords, after re-labelling basic synonymic terms and general sentences.

Keyword co-occurrence analysis

The study of key words occurrence simultaneously generates a network of subjects and their relationships that reflect the intellectual space of a field (Cancino, Merigo, Merigo, Coronado, & Coronado, 2017; Martínez-López, et al., 2018). The size of the circle indicates the relevance of the elements in the graphical display, and the most closely related elements are determined by the network connections. The arrangement of circles (nodes) and colors allows for grouping of the elements. The distance between two nodes is inversely

proportional to the number of occurrences between the keywords at the same time. So shorter distances are a better match between keywords.

Fig. 4 shows few different nodes. Our results show that "sporting events" with 428 occurrences and 47 links to other keywords was the most common keyword. The node with the second highest number of keywords is led by Volunteer Motivation (156 occurrences, 37 links). This node has strong relationships with concepts linked to 'experience (80 occurrences, 25 links), volunteer satisfaction' (46 occurrences, 17 links), and 'future volunteer intention' (13 occurrences, 12 links). It followed by volunteerism (143 occurrences, 34 links), which is the keyword that corresponds to the highest number of occurrences in Fig. 4. This node has connections with keywords related theory of MSEV including Social Exchange Theory (23 occurrences, 12 links), and Self-Determination Theory (5 occurrences, 5 links).

We also noticed the usage of general terms such as tourism (78 occurrences, 24 links) and events (47 occurrences, 24 links) while MSEV engaged in alternative event forms such as major events, mega events and special events. MSEV has played an particularly important role in event achievement. For example, the authors keywords co-occurrence analysis showed that motivates why people volunteer. This is evident from several terms such as 'costs' (32 occurrences, 14 links), 'benefits' (31 occurrences, 16 links), 'social media' (30 occurrences, 12 links) and 'altruism' (11 occurrences, 6 links). A summary of the link and general information about link strength for the top 15 co-occurrences keywords was presented in Table 4.

Table 4 List of the Link and Total Link Strength of the Top 15 Occurrence

Rank	Keyword	Links	Total Link Strength	Occurrence	Average Publication Year
1	Sport Events	41	457	428	2013
2	Volunteer Motivation	32	214	156	2012
3	Volunteerism	33	207	143	2013
4	Tourism	22	192	78	2012
5	Experience	25	196	80	2014
6	Events	24	95	47	2013
7	Volunteer Satisfaction	17	75	46	2013
8	Legacy	13	51	27	2014
9	Economic Impact	15	47	37	2012
10	Marketing	13	48	35	2013
11	Major Events	15	42	35	2014
12	Image	15	41	29	2011
13	Benefits	17	37	31	2009
14	Costs	14	36	31	2013
15	Social Media	12	35	30	2014

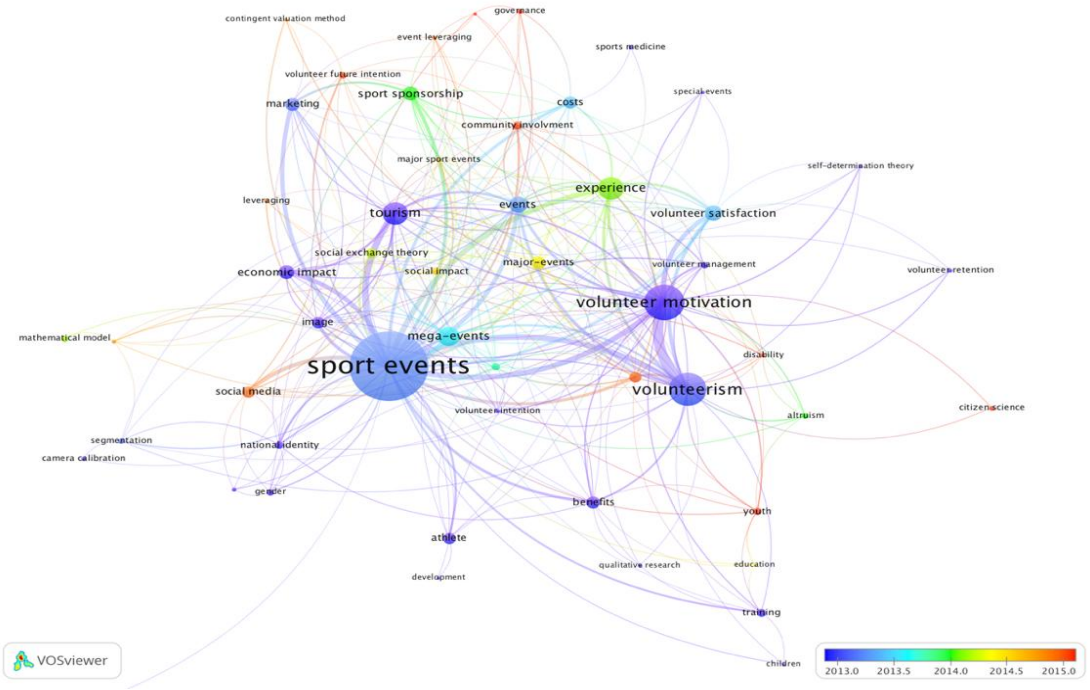

Fig. 4. Co-occurrence of author keywords for a citation threshold of 15 most representative connections; size of nodes is proportional to number of appearances of any keyword; colors highlight different nodes; figure produced in VOS viewer software. The following URL can be used to open Fig. 4 in VOSviewer: https://bit.ly/354uckM

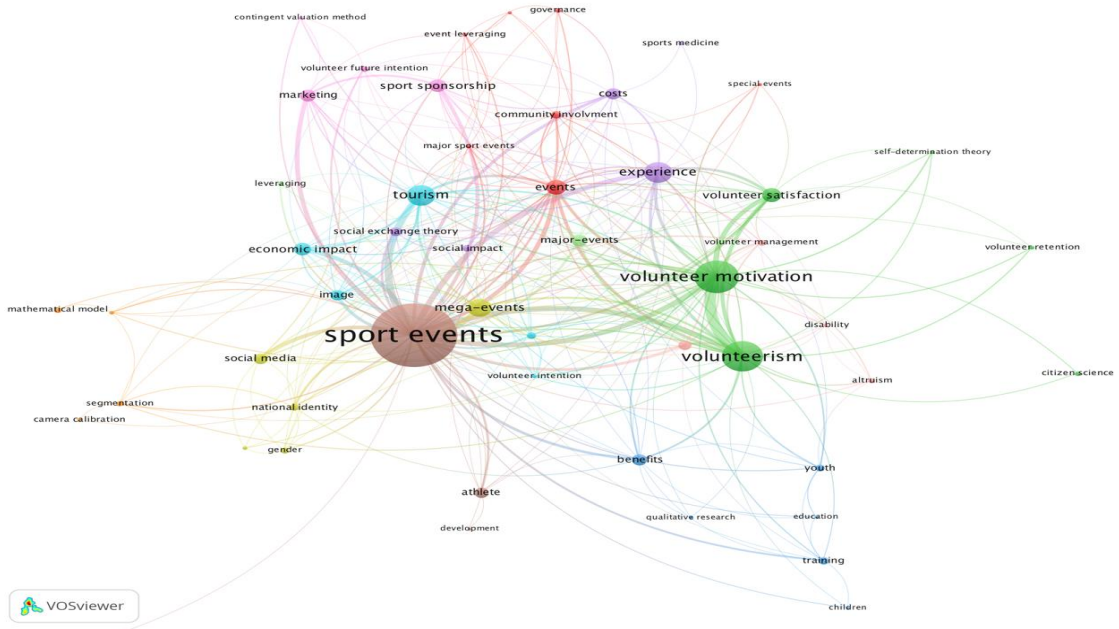

Fig. 5. Co-occurrence of author keywords for a citation threshold of 15 most representative connections; size of nodes is proportional to number of appearances of any keyword; colors indicate the year when a given keyword was most used; figure produced in VOS viewer software. The following URL can be used to open Fig. 5 in VOSviewer: https://bit.ly/354uckM

Then, Fig. 5 Indicates the average year of publication of publications where the keyword appears. The color is purple blue, the sporting events. This means the total year of releases

containing this keyword is between 2013 and 2014. The next keyword is volunteer inspiration, highlighted in blue, meaning 2013 is the typical year of publication that includes this keyword. However, major events are yellowish, which indicates that the average year of publication containing this keyword is before 2015.

Thus, in Fig. 5 shows how keywords prevail at the beginning. The study period is more associated with volunteering, events, the theory of self-determination, volunteer management, volunteer satisfaction, costs and benefits. They are no longer hot topics although they are relevant in this field. Keywords about the social exchange theory, key events, experience, social impact and altruism emerged in the middle of the century. Since early 2015, the keywords have been linked to history, social media, and youth. Certain issues which also appeared on 2015 relate to community involvement, future volunteer intentions, governance, and major sporting events. Hence, while these issues have earned few citations so far, they present high potential opportunities for study.

Topics of interest

In recent years, interest in volunteering related to sporting events has increased due to data from several studies regarding their significance for variables such as MSEV in early age (Kim, 2018). The keyword containing sport event were the most frequently encountered keyword with 428 occurrences in MSEV while volunteerism was repeated 143 times. The recruitment of volunteers as an integral part of a sporting event's human resources management process is a vital issue for a sporting event 's success (Sharififar, 2011). Keywords addressing event (47 occurrences) were also found. For instance, 'Major Event' (35 occurrences`, 'Mega Events' (63 occurrences), 'Special Events' (5 occurrences) and 'Major Sport Events' (7 occurrences).

It is important to identify the main drivers of volunteering in sporting events in terms of volunteer motivation, satisfaction and retention given the important benefit that volunteers make to sporting events. (Kim, 2018). Volunteer motivation of sport event (MSEV) which second highest occurrences keyword were repeated 156 times. Volunteer motivation has been proposed as a significant factor for predicting volunteer satisfaction, retention of volunteers and possible volunteering intent.

The keywords 'volunteer satisfaction', 'future volunteer intention', and 'volunteer retention' were used 46, and 13 and 7 times, respectively. This shows MSEV are better predictors of volunteer satisfaction and future volunteer intention than volunteer retention. To draw volunteers to sporting events, organizers and volunteer management (13 occurrences) should consider the motivation of volunteers for sporting events and the relationship of these volunteers to the volunteers' satisfaction and future intentions. (Kim, 2017). We found that the factors of MSEV can be seen by certain keywords such as benefits (87 occurrences), costs (32 occurrences), and social media (30 occurrences).

Research interest in particular areas can also be analyzed through the strength of the links between the two keywords. For example, 'experience' had 25 links to other keywords such as 'volunteer motivation', 'social impact, 'economic impact', 'social exchange theory', and 'self-determination theory'. It suggested that the research interest in the theory of social exchange was stronger than the theory of self-determination, as shown by the total link strength which were 24 and 9, respectively. It is because volunteering is seen as an exchange relationship, where individuals offer their time, skills, and energy to assist with an event, and experience various benefits, as well as costs, in return (Cropanzano & Mitchell, 2005). In brief,

social exchange theory considered to be one of the strongest psychographic variables to measure post-event volunteer that trigger future volunteer intention compared to self-determination theory to collect data during the event to measure behavioral intention.

Limitation of Study

No bibliometric analysis focuses, to our knowledge, exclusively on MSEV studies. Our findings will help to plan , design and publish future research on this subject. This article is intended to fill that gap in the literature in this sense. However, there are several limits to the interpretation of the results presented and discussed above. First of all, this study is based on a selection of documents published in Scopus. No other MSEV studies published in journals not cited by Scopus have been included, although they may contribute to scientific productivity in MSEV studies. Second, improvements such as "document types" were made during data collection. For this study, journal articles have been evaluated which restrict the variety of academic articles included in the data collection phase. This was because articles were available, which was necessary for a thorough analysis. Thirdly, while a thorough literature review has been undertaken as far as the authors understood, it is possible that not all publications have been obtained, because some reviews did not apply to "motivation for volunteer sporting events" and the related words in the article title. However, these terms have been mentioned throughout the text. Fourth, our analysis does not consider the number of researchers who contributed to the writing of a particular publication when analyzing the most influential researchers. Therefore, articles with a single author are also presented as works with multiple authors. Fifth if the results give a picture of the current situation, this situation may change over time, especially for publications over the past two years, which should still increase significantly in terms of the number of citations. In order to compare the findings of many databases, such as the Web of Sciences, Google Scholars or Emerald, further research is advisable. Web of Science search results, for example, automatically view the most common papers in this field through a feature called "hot paper." This feature is still missing in Scopus (Khudzari, Kurian, Tartakovsky, & Raghavan, 2018). This function of hot paper shows important documents which will be recognized soon after publication. This is expressed in a rapid and substantial number of quotations. Using various data sources, the bibliometric analysis is useful for further study.

Conclusion

In this study, a bibliometric analysis of scientific publications from the Scopus database in the MSEV research area is carried out over the period 1950-2018. We first identify the general distribution of publications, including trends in publications and citations, distribution of topics, as well as productive journals, authors, affiliations, countries, etc. The annual distributions of collaboration agreements from a country, affiliation and author perspective are analyzed. Scientific collaboration relationships are more visualized using a network analysis method. A cluster analysis based on a keyword co-occurrence analysis is used to examine the main research topics. We visualize the results of keyword analysis and cluster analysis using a network analysis method to identify the emergence and development of keywords. The results of the analysis thus broadly illustrate the trend in research and the development of motivation of volunteers during sporting events. You may be able to help the researchers involved understand the state of the research, find research assistants and optimize the selection of research topics.

Research can help decision-makers by researchers, politicians, and institutions. This document provides researchers with a guide to help them focus on publishing and identify scientists conducting research in common areas, which facilitates the networking of researchers. It also helps policy makers and institutions by providing guidance for their decisions on funding specific research areas. This study has certain limitations. Firstly, the results are supported by Scopus. Therefore, the limits of Scopus should be considered. The main problem is that over the past 10 years, most motives from volunteer magazines for sports events have been added to the database. Secondly, many articles about topics related to events and tourism are not published in journals exclusively dedicated to event and tourism research. This study only considered articles, reviews, notes and letters. Another limitation is that the Scopus database collects data under a complete counting system.

Given these limitations, this article offers a comprehensive summary of the most influential volunteer motivation studies for sporting activities, based on a quotation analysis. Even the paper provides a starting point for potential bibliometric studies in these areas. Future studies can build on this analysis by providing an index of citations for new sources. Citation index journals of new sources offer less experienced researchers a good chance. These journals can help to develop important research areas which other journals do not support. Yet such publications are riskier since not all new sources are indexed in Scopus eventually.

APPENDIX

Table-A1 The search strategies and query strings used in Scopus

Item	Search for	Search string	Search result
i	MSEV Research Article	(TITLE-ABS ("motivation of sport event volunteer*" OR "volunteer* motivation" OR "sport event*")) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (EXCLUDE (PUBYEAR , 2020) OR EXCLUDE (PUBYEAR , 2019))	2048
ii	Review articles in (i)	(TITLE-ABS ("motivation of sport event volunteer*" OR "volunteer* motivation" OR "sport event*")) AND (TITLE ("recent" OR progress OR review OR critical OR revisit OR advance OR development OR highlight OR perspective OR prospect OR trends OR bibliometric OR scientometric) OR (ABS (progress OR review OR bibliometric OR scientometric))) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (EXCLUDE (PUBYEAR , 2020) OR EXCLUDE (PUBYEAR , 2019))	257
iii	EQ reseach without review articles	(TITLE-ABS ("motivation of sport event volunteer*" OR "volunteer* motivation" OR "sport event*")) AND NOT (EID **(insert EID of review articles here**)** AND (LIMIT-TO (SRCTYPE,"j")) AND (LIMIT-TO (DOCTYPE,"ar")) AND (EXCLUDE (PUBYEAR,2020) OR EXCLUDE (PUBYEAR,2019))	1933

*****EID of review articles:***

(2-s2.0-0017762087 OR 2-s2.0-0017521988 OR 2-s2.0-0020320546 OR 2-s2.0-0002351571 OR 2-s2.0-0026456423 OR 2-s2.0-0040135618 OR 2-s2.0-84965404684 OR 2-s2.0-0002751742 OR 2-s2.0-0001859410 OR 2-s2.0-1242281682 OR 2-s2.0-0034956821 OR 2-s2.0-18744408189 OR 2-s2.0-67650475960 OR 2-s2.0-34248635674 OR 2-s2.0-34147106987 OR 2-s2.0-34247596054 OR 2-s2.0-38949163071 OR 2-s2.0-70450206415 OR 2-s2.0-84978506905 OR 2-s2.0-64049101539 OR 2-s2.0-77951827820 OR 2-s2.0-78650444521 OR 2-s2.0-84931062993 OR 2-s2.0-72149090405 OR 2-s2.0-77950846658 OR 2-s2.0-77649234806 OR 2-s2.0-77953708823 OR 2-s2.0-77954561873 OR 2-s2.0-77956043179 OR 2-s2.0-77956244430 OR 2-s2.0-79551659919 OR 2-s2.0-79954481963 OR 2-s2.0-79960211499 OR 2-s2.0-84986067717 OR 2-s2.0-80655124636 OR 2-s2.0-84858596710 OR 2-s2.0-84875386576 OR 2-s2.0-84859142851 OR 2-s2.0-84861017316 OR 2-s2.0-84861925027 OR 2-s2.0-84864201378 OR 2-s2.0-84869989959 OR 2-s2.0-84878570268 OR 2-s2.0-84871234196 OR 2-s2.0-84867614909 OR 2-s2.0-84872382056 OR 2-s2.0-84880448093 OR 2-s2.0-84881492901 OR 2-s2.0-84890569419 OR 2-s2.0-84888410897 OR

2-s2.0-84920875777 OR 2-s2.0-84922826107 OR 2-s2.0-85005973730 OR 2-s2.0-84897357378 OR 2-s2.0-84906911010 OR 2-s2.0-84922758574 OR 2-s2.0-84897725895 OR 2-s2.0-84926509371 OR 2-s2.0-84900463446 OR 2-s2.0-84977525313 OR 2-s2.0-84938417002 OR 2-s2.0-84996605953 OR 2-s2.0-84974688116 OR 2-s2.0-85027151218 OR 2-s2.0-84920485209 OR 2-s2.0-84959522452 OR 2-s2.0-84947232170 OR 2-s2.0-84958525754 OR 2-s2.0-85052561086 OR 2-s2.0-84953924119 OR 2-s2.0-84948720294 OR 2-s2.0-85006483716 OR 2-s2.0-85000916261 OR 2-s2.0-84953426386 OR 2-s2.0-85006415514 OR 2-s2.0-84948119623 OR 2-s2.0-85007403511 OR 2-s2.0-85013841002 OR 2-s2.0-84955692708 OR 2-s2.0-84960383981 OR 2-s2.0-84971219378 OR 2-s2.0-84961970507 OR 2-s2.0-84977079021 OR 2-s2.0-84975275214 OR 2-s2.0-84991030685 OR 2-s2.0-84977591358 OR 2-s2.0-84977601334 OR 2-s2.0-84988916509 OR 2-s2.0-84994078718 OR 2-s2.0-85000439094 OR 2-s2.0-85015310141 OR 2-s2.0-85013380263 OR 2-s2.0-85048561038 OR 2-s2.0-85013395108 OR 2-s2.0-85026820042 OR 2-s2.0-85013040670 OR 2-s2.0-85000996069 OR 2-s2.0-84946430311 OR 2-s2.0-85040902799 OR 2-s2.0-85032173267 OR 2-s2.0-85028964852 OR 2-s2.0-85029127081 OR 2-s2.0-85038220992 OR 2-s2.0-85051328328 OR 2-s2.0-85044718506 OR 2-s2.0-85061281862 OR 2-s2.0-85050874761 OR 2-s2.0-85059511377 OR 2-s2.0-85056076923 OR 2-s2.0-85047157099 OR 2-s2.0-85050498812 OR 2-s2.0-85029417310 OR 2-s2.0-85058483691 OR 2-s2.0-85056747591 OR 2-s2.0-85008698164))

Table A2 The top 20 CiteScore journals publishing MSEV research

Rank	Journal	CiteScore 2018	Journal's homepage	Publisher	No. of publications
1	Tourism Management	8.2	https://www.journals.elsevier.com/tourism-management	Elsevier	13
2	Sport Management Review	3.66	https://www.journals.elsevier.com/sport-management-review	Elsevier	36
3	European Sport Management Quarterly	2.93	https://www.tandfonline.com/toc/resm20/current	Taylor & Francis	33
4	Journal Of Sport Management	2.87	https://www.tandfonline.com/toc/resm20/current	Human Kinetics Publishers Inc.	46
5	Nonprofit And Voluntary Sector Quarterly	2.39	https://journals.sagepub.com/home/nvs	SAGE	13
6	Leisure Studies	2.32	https://www.tandfonline.com/toc/rlst20/current	Taylor & Francis	10

7	International Review For The Sociology Of Sport	2.14	https://journals.sagepub.com/home/irs	SAGE	25
8	Journal Of Sport And Tourism	1.89	https://www.tandfonline.com/toc/rjto20/current	Taylor & Francis	55
9	International Journal Of Event And Festival Management	1.73	https://www.emerald.com/insight/publication/issn/1758-2954	Emerald	32
10	Voluntas	1.62	https://www.springer.com/journal/11266	Springer Nature	15
11	Event Management	1.24	https://www.tandfonline.com/toc/rjto20/current	Cognizant Communication Corporation	54
12	International Journal Of Sports Marketing And Sponsorship	1.01	https://www.emerald.com/insight/publication/issn/1464-6668	Emerald	25
13	Journal Of Advanced Oxidation Technologies	0.88	https://www.degruyter.com/view/journals/jaots/jaots-overview.xml	Walter de Gruyter	10
14	Sport In Society	0.86	https://www.tandfonline.com/toc/fcss20/current	Taylor & Francis	39
15	Journal Of Convention And Event Tourism	0.82	https://www.tandfonline.com/toc/wcet20/current	Taylor & Francis	10
16	International Journal Of Sport Management And Marketing	0.68	https://www.inderscience.com/jhome.php?jcode=ijsmm	Inderscience	19
17	Managing Leisure	0.66	https://www.tandfonline.com/doi/abs/10.1080/13606710701612231	Taylor & Francis	17

18	International Journal Of The History Of Sport	0.39	https://www.tandfonline.com/toc/fhsp20/current	Taylor & Francis	27
19	South African Journal For Research In Sport Physical Education And Recreation	0.38	https://journals.co.za/content/journal/sport	University of Stellenbosch	15
20	Teoriya I Praktika Fizicheskoy Kultury	0.24	https://www.scimagojr.com/journalsearch.php?q=21100258947&tip=sid&clean=0	Committee on Physical Culture and Sports of the Council of Ministers of the USSR	47

Table A3 The top 20 most productive institutions in MSEV research.

Rank	Institution	Country	No. of publications
1	Griffith University	Australia	51
2	University of Florida	United States	48
3	University of Ottawa, Canada	Canada	24
4	University of Queensland	Australia	24
5	University of Technology Sydney	Australia	23
6	Loughborough University	United Kingdom	22
7	Western University	Canada	19
8	Deutsche Sporthochschule Köln	Germany	19
9	The University of Texas at Austin	United States	17
10	Sheffield Hallam University	United Kingdom	17
11	La Trobe University	Australia	16
12	University of Brighton	United Kingdom	16
13	Norges idrettshøgskole	Norway	15
14	Kyung Hee University	Korea	14
15	University of Johannesburg	South Africa	13
16	University of Alberta	Canada	13
17	Johannes Gutenberg Universität Mainz	Germany	13

18	Shanghai University of Sport	China	13
19	University of Valencia	Spain	12
20	University of Innsbruck	Austria	12

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