



Research Paper

Research Progress and Expectation of China's Sports Volunteer Service in the Past Two Decades: Quantitative Analysis Based on the Bibliometric Method

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Abstract

Volunteer service is one of the symbols of social progress and civilization. Domestic researchers have conducted many research in this field for nearly 20 years. Analyzing 387 papers of China's sports volunteer service based on the bibliometric method by CNKI (China National Knowledge Infrastructure) advanced search, Microsoft Excel 2019, CiteSpace software and other tools, the researchers find that the topics of sports event volunteer service are relatively rich and the research of national fitness volunteer service has been attached great importance gradually. However, the theoretical research is still at the initial stage of development and research fields need to be expanded. Therefore, the research trend in the future is to concern about national fitness volunteer service, focus on studies of collaborative governance of sports volunteering, strengthen interdisciplinary research and expand research fields.

Keywords: sports volunteer service; research progress; quantitative analysis

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I. Introduction

General Administration of Sport of China has issued "Key Points of Mass Sports Work in 2021^[1]", advocating people actively engage in national fitness volunteer service and striving for a leading sports nation. At present, China has completed the building of a moderately prosperous society in all respects, people have put forward higher requirements for a better life, and their demands of scientific fitness have become much stronger, which requires more volunteers to take part in sports volunteer service. Since 2008 Beijing Olympic, sports volunteer service has developed steadily and met unprecedented opportunities of development. Nonetheless, there is still a long way to go to achieve participation by all people, multiple interaction and high-quality development. Thus, sports volunteer service needs to be improved in both theory and practice. Therefore, with the method of bibliometrics, this study reveals the research trends and hotspots of sports volunteer service, so that it is expected to provide reference for follow-up research.

1. Research data and research methodology

1.1 Research data

All the data were collected from CNKI, China Master's Theses Full-text Database and China Doctoral Dissertations Full-text Database from 2002 to 2020, and searched by titles of papers with some keywords, including "sports volunteering", "sports volunteer", "sports event volunteer", "sports event volunteer service", "Olympic volunteering", "national fitness volunteering" and so on. The papers irrelevant to sports volunteer service, duplicate papers and non-papers were removed. Finally, 320 journal articles and 67 doctoral and master degree dissertations were counted, totally 387 papers.

Table 1 Retrieval results of the number of papers on CNKI (2002-2020) Unit: Article

Search terms (title)	CNKI	China Master's Theses Full-text Database	China Doctoral Dissertations Full-text Database	Total
Sports volunteering	45	7	1	53
Sports volunteer	118	12	0	130
Sports event volunteer	59	21	0	80
Sports event volunteer service	28	8	3	38
Olympic volunteering	6	3	1	10
Olympic volunteer	38	7	2	47
National fitness volunteering	26	3	0	29

1.2 Research methodology

With the method of bibliometrics, this study analyzed the 387 sports volunteer service papers (320 journal articles and 67 doctoral and master degree dissertations) from the perspectives of publication trend, the characteristics of publishing time, the characteristics of author's structure, the number of times the paper has been cited, the distribution of journals, the situation of Chinese National Social Science Fund Project, and keywords. In addition, CNKI advanced search, Microsoft Excel 2019 and CiteSpace software were also adopted in the analysis of this study.

2. Bibliometric analysis

2.1 Publication trend

The distribution of the number of papers in time shows the development speed and level of theoretical research on sports volunteer service. Domestic scholars started their research on sports volunteer service at the beginning of 21st century. After Beijing won the bid for the 2008 Olympic Games in 2001, a great number of scholars started to focus on this field. Shown in figure 1, the theoretical research began in 2002. The year of 2008 was the first peak, because of the upcoming Beijing Olympic Games, and more and more scholars joined in the study of volunteer service for sports events. In Post-Olympic period, the Communist Party of China and the government called on people to carry out national fitness activities, which led to the gradually increase of research results. Therefore, it shows an upward trend after 2010.

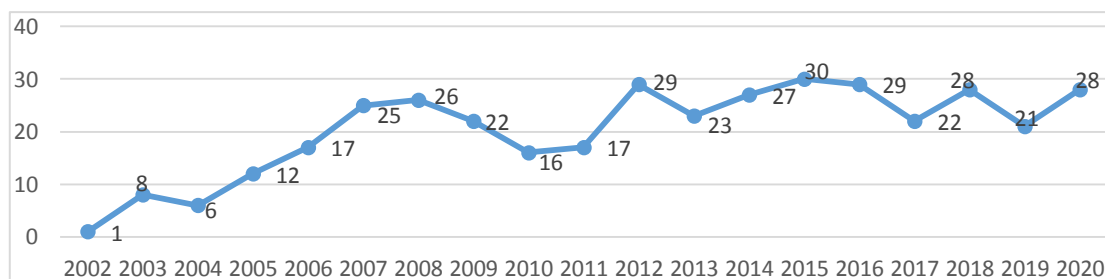


Figure 1 The change of the number of literature of sports volunteer service from 2002 to 2020

2.2 The characteristics of publishing time

Domestic scholars have conducted research on sports volunteer service for about 20 years. The changes of topics and number can reveal the research hotspots and development trend of topics at this stage (table 2). The research topics were selected and classified by human force through reading the titles, keywords and abstracts of papers. It discovers that the status and development research takes the largest proportion, accounting for 34%, followed by motivated incentives and management research, which takes up 25%. These two research topics occupy 59% in total. However, there are few topics on law and policy research, organizational research, Chinese and foreign comparative research, and foreign enlightenment research. In general, it can be seen that the research topics of sports volunteer service are uneven.

Table 2 : The change of research topics in different periods over the past 20 years

	Research topics									Total
	The status and development research	Chines and foreign comparative research	Cultivation and training	Motivated incentives and management	Law research	Value research	Organizational research	Foreign enlightenment	Other research	
2002-2004	1	0	1	1	0	2	4	2	2	15
2005-2008	15	0	10	27	3	9	6	6	4	80
2009-2020	114	7	21	67	6	18	23	15	21	292
total	130	7	32	95	9	29	33	23	27	387
percentage	34%	1.8%	8.3%	25%	2.3%	7.5%	8.5%	5.9%	7%	100%

2.3 The characteristics of author's structure

From 2002 to 2020, domestic scholars have published 320 journal articles related to sports volunteer service, with 261 people (first authors) and 1.48 articles per capita. The most productive author is Liu Xinran from Beijing Sport University. She is the only one author who has published 7 papers, accounting for 0.38% of the total number. There are 229 authors have published one paper, occupying 87.7%. According to Lotka's law (Qiu, 2000a)^[2], the number of authors who write 2 papers is 1/4 (1/2²) of the number of authors who write one paper; the number of authors who write 3 papers is 1/9 (1/3³) of those who write one paper; the number of authors who write n papers is 1/n² of those who write one paper, and the number of author who write one paper take up about 60%. Thus, in this study, the proportion of those who have published one paper is much higher than 60%. But the authors who have published two or more papers do not reach the corresponding value of Lotka, because the ideal values of the number of authors who have published two to seven papers are about 65; 29; 16; 10; 7; and 5, respectively. It indicates the uneven distribution of researchers, the lack of professional scholars and highly productive scholars. According to Price's law (Qiu, 2007)^[3], the number of papers published by core authors is $MP=0.749\sqrt{Np_{max}}$ (Npmax is the highest publication volume=7), $MP\approx 2$. Therefore, those with two or more papers are core authors, who stand for a group of people who are the most productive and have higher academic influence power in a certain field for a long time. In this study, the core authors have published 91 papers, accounting for 12.3% of the total number, which less than 50%. It reveals that core authors have insufficient publications, lack of research depth and lack of continuous research motivation for follow-up studies.

Table 3: Statistics list of author's publications

	1 paper	2 papers	3 papers	4 papers	5 papers	6 papers	7 papers	total
The number of authors	229	20	6	1	2	2	1	261
percentage	87.7	7.66	2.30	0.38	0.77	0.77	0.38	100

2.4 The distribution of journals

If the journals which ranked by the volume of a discipline over a certain period of time (usually one year) are divided into three zones, so that the number of related papers contained in each zone is equal, that is, it is exactly equal to 1/3 of total number of papers published by all journals in this discipline, it can be seen that first zone (core zone) involves a small number of papers from the most efficient n1 journals; the second zone (relevant zone) includes a large number of n2 journals with medium efficiency; the third zone (peripheral zone) includes the largest number of n3 journals with the lowest efficiency (Qiu, 2000b)^[4]. Accordingly, it can be deduced that the number of journal articles in the core zone of sports volunteer service is $320/3\approx 107$ papers. According to Law of Bradford, $n1:n2:n3=1:a:a^2$ ("a" refers to Bradford constant, $a\approx 5$, "n" refers to the number of journals in each zone), the result is $n1\approx 10$. The top ten journals has a total of 128 papers (figure 2), among which *Contemporary Sports Technology*, *Bulletin of Sport Science & Technology* and *Sport* are non-core journals, indicating that there is no stable core journal group in the field of sports volunteer service, the studies show a high degree of dispersion, and the overall research level needs to be improved.

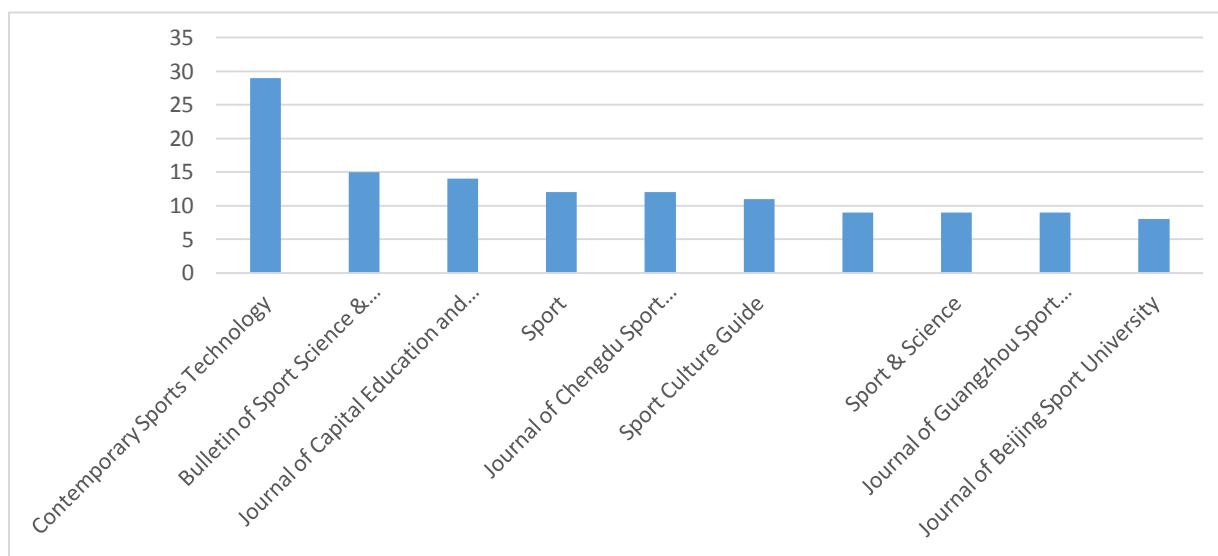


Figure 2: Top ten journals for the number of published papers of sports volunteer service

2.5 The situation of Chinese National Social Science Fund Project

The time that sets up a sports volunteer service project of Chinese National Social Science Fund is closely related to the social background of China, which can reflect the issues that the country needs to focus on and overcome. As an academic expression of national policies, social hot issues and research directions of disciplines, Chinese National Social Science Fund Project plays an important guiding role in the development of the discipline (Sun, 2021)^[5]. After China successfully won the bid for Olympic Games in 2001, the issues related to Olympic Games volunteer service have attracted great attention from domestic scholars. As China's sports volunteer service started late and lacked of experience, it is necessary to learn the experience from developed countries in order to promote its development. After the Beijing Olympic Games, in order to meet people's fitness demands, the party and the government issued a serious of policies to encourage all walks of life to participate in national fitness volunteer service. According to the latest list of Chinese National Social Science Fund Project, national fitness volunteer service now is a research focus and research direction.

Table 6: The list of Chinese National Social Science Fund for Sports Volunteer Service Project

Keywords	Category	Project and Grant No.	Year	Leader
National fitness volunteer service; governance	General program	Collaborative Governance of National Fitness Service by Multiple Subjects (20BTY079)	2020	Lu Zhicheng
Olympic Games; legacy of volunteering	General program	The research on the 29 th Beijing Olympic Volunteering legacy and inheritance and innovation of Beijing Olympic Winter Games (20BTY037)	2020	Qiu Hui
National fitness volunteer service; governance	General program	The research on governance mechanism of national fitness volunteer service based on Contract Theory (16BTY012)	2016	Xia Shuhua
Sports volunteer service system	Youth program	The research on the construction of sports volunteer service in the process of urbanization (13CTY025)	2013	Qiu Hui
Developed countries;enlightenment	General program	The basic experience of sports volunteer implementation in developed countries and the enlightenment to sports development in China (06BTY020)	2006	Cong Ningli
Olympic Games	Youth program	The research on countermeasures of volunteer service in 2008 Olympic Games (02CTY008)	2002	Kan Changjun

Note: the data were collected from Chinese National Social Science Fund Database by December, 2020

2.6 The analysis of the frequency of keywords

The co-word analysis method, which is derived from bibliographic coupling and co-citation of Bibliometrics, can generalize the research hotspots and topics of the discipline (Qiu, Guo, Xiao, et al., 2015)^[6]. The researchers analyzed the frequency of keywords in 320 relevant papers (journal articles) and produced a knowledge map of the research hotspots of sports volunteer service. There are totally 943 keywords in papers, of which 261 words appeared only once. The number of top ten keywords is 368 (table 7), among which the frequency of "volunteer" and "sports volunteer" ranks the top two, demonstrating that volunteer and sports volunteer are the research focuses. "Sports event", "Olympic Games", "Olympic volunteer" and "Beijing

Olympic Games” appear 72 times, taking up 20% of the top ten keywords. It shows that there are many research on sports event volunteer service.

Table 7: The distribution of high-frequency keywords of sports volunteer service research

Number	Frequency	Keywords	Number	Frequency	Keywords
1	89	volunteer	6	21	community sports
2	60	sports volunteer	6	21	sports volunteer event
3	56	volunteer service	7	15	Olympic Games volunteer
4	25	sports event	8	14	university student
5	23	national fitness	9	12	university
6	21	Olympic Games	10	11	Beijing Olympic Games

3. Conclusions and expectations

3.1 Conclusions

1) The topics of research on sports event volunteer service are rich

Compared with national fitness volunteer service, sports event volunteer service has developed earlier and large-scale sports events have promoted its development. In 1990 Beijing Asian Games, volunteers made their first official appearance in public, and they played an important role in sports games. With the improvement of China's comprehensive strength, various large-scale sports events have been hosted, so the study results in sports event volunteer service made by domestic scholars have gradually increased. In addition, the research topics are various, including motivated incentives and management research, value research, Chinese and foreign comparative research, status and development research and so forth. However, the research topics only focus on sports event volunteer service, but the research on the national fitness volunteer service is relatively lacking. Thus, the research topics are unbalanced.

2) The theoretical research is still at the initial stage

Firstly, the characteristics of author's structure reveal the problem of uneven distribution. A shortage of academics and productive scholars causes the lack of motivation for follow-up research. Second, the distribution of journals shows that there is no stable core journal group in the field of sports volunteer service. The theoretical research is relatively superficial, the research depth is insufficient, and overall research level needs to be improved.

3) Research field needs to be expanded

According to the exiting literature, the researchers find that most of research cannot be integrated with other disciplines. The theoretical studies are still at the surface, while many scholars focus on research of status situations and development, and they mainly concern about the number, age structure, educational background, gender ratio, regional distribution and other elements of volunteers. As a result, the research field is narrow and research is not profound enough.

3.2 Expectations

1) Pay attention to the research on national fitness volunteer service

After the Beijing Olympic Games, in order to meet people's growing needs of fitness, the Community Party of China and the government have set up the National Fitness Day on August 8 each year since 2009, appealing mass to engage in national fitness campaign. Moreover, "Outline for Building a Leading Sports Nation", "Key Points of Mass Sports Work in 2021", "National Fitness Program (2021-2025)" and other policies have been issued. These documents have repeatedly mentioned the work points of national fitness volunteer service and highlighted its importance. Therefore, responding to the call of the country, researchers should actively devote themselves into the research of national fitness volunteer service, aiming to write a magnificent chapter for the realization of a leading sporting nation, health for all, healthy China and other strategies.

2) Focus on the research on collaborative governance of sports volunteer service

Lester M.Salamon proposed the Theory of "Voluntary Failure", which means non-profit organizations can make up the shortages between the government and the market, but they are not "perfect tools" all the time, sometimes there will be "voluntary failure". Subsequently, he advocated "New Governance Theory". The development of sports volunteer service requires collaborative governance of the government, volunteer organizations, volunteers, communities and other main bodies to resolve social problems together.

3) Enhance interdisciplinary research and expand research fields

Sports volunteer service is closely related to politics, economy, culture, and the development of social ecology. It also integrates with management, psychology, economics and other disciplines. For instance, research on collaborative governance of sports volunteer service can be combined with public administration. Therefore, the research on sports volunteer service presents a trend of cross-discipline.

II. Conclusion

Volunteer service is a significant channel to build up a harmonious society and improve moral quality of the citizens. The research on national fitness volunteer service is a new trend in the future, because under the background of social governance in the new era, the Community Party of China and the government advocate people to engage in the national governance. Moreover, the development of national fitness volunteer service needs the supports from the government, sports volunteer organizations and communities, so all of them should cooperate with each other to take part in social governance, in order to promote health for all and strive for a leading sports country.

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