International Journal of Business and Management; Vol. 19, No. 3; 2024
ISSN 1833-3850 E-ISSN 1833-8119
Published by Canadian Center of Science and Education

Management of Sports Public Services in Ganzi Prefecture

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Received: March 12, 2024 Accepted: April 8, 2024 Online Published: April 16, 2024

doi:10.5539/ijbm.v19n3p123 URL: https://doi.org/10.5539/ijbm.v19n3p123

Abstract

Purpose – The aim of this study is to analyze the role of Service Quality (SVQ) and Service Demand (SVD) as balancing indicators in the Supply Performance (SPP) generated by Sports Public Supply Subject (SPS).

Design/methodology/approach – A survey was conducted on 790 volunteers participating in sports public services in Ganzi Prefecture. We constructed a structural equation model using AMOS and analyzed the direct and indirect relationships.

Findings – The research results found that there is a relationship between SPS and SVD, SPS and SVQ, SPS and SPP, SVD and SPP, SVQ and SPP, and SVD and SVQ. The research results revealed that SVD plays a mediating role between SPS and SPP, SVQ plays a mediating role between SPS and SPP, and SVD and SVQ successively mediate the relationship between SPS and SPP.

Research limitations/implications – The chain mediated effect provides various theoretical significance for the direct and indirect impact on the supply performance of sports public services.

Practical implications – From the perspective of improving the performance of sports public services, it has practical significance for the managers of service providers. Meanwhile, this study also contributes to improving relevant policy.

Originality/value –The innovation of this study lies in proposing Service Quality (SVQ) and Service Demand (SVD) as continuous mediators, which have a direct and indirect impact on Supply Performance (SPP).

Keywords: Sports public services, sports management, supply subjects, service quality, service demand, supply performance

JEL Classifications: H

1. Introduction

Sports public services refer to the services provided by government organizations, social profit organizations, and non-profit organizations in urban communities and rural areas where residents gather, including sports infrastructure, sports knowledge, skill guidance, and activity organization, to meet the daily sports needs of residents. The purpose is to improve the physical fitness of all residents and create a healthy and upward lifestyle. At present, sports public services in China have penetrated into various regions of urban and rural construction, and the vast sports market provides comprehensive services for people participating in sports exercise. However, with the increasing demand for personalized services, new contradictions have emerged between existing service methods and the growing demand for services. The specific manifestations can be divided into the continuous increase in resident income and the lagging improvement of the sports public service system by government departments. With the rapid development of China's social economy, the income of residents has shown an increase in purchasing power. At the same time, their demands for health have also begun to rise, showing a positive trend in the purchase of sports equipment, the use of sports venues, and the demand for fitness guidance. However, the current functional design of sports public service venues and the number and quality of guidance personnel are gradually showing an unsatisfactory situation, which poses a serious challenge to sports public service supply organizations led by government organizations. While government organizations provide public sports services to society, there is a problem of time lag in the improvement of their own systems. With the increasing demand for sports public services, it is not enough for government organizations to provide them

alone. The human, financial, and material resources of government organizations are clearly insufficient. This requires government organizations to increase the channels of supply, allowing other social organizations to participate in the supply, releasing the right to supply sports public services, and improving the vitality of other social supply organizations.

From the current situation of public sports service supply in China, there is a sharp contrast between the increasing demand for sports among residents and the shrinking capacity of government organizations for sports supply. The traditional government organization's single supply form has begun to show time lag and low efficiency. The low satisfaction of residents with the quality of sports public service supply, dissatisfaction with the total amount of services provided, and low service efficiency have not been effectively controlled, but have instead begun to show an increasing trend year by year. The continuous escalation of traditional criticisms has forced government organizations to seek answers from the system of sports public service supply. The fact shows that the single supply mode of government departments cannot meet people's diverse needs for sports public services, nor can it meet people's personalized needs for fitness. An increasing number of facts indicate that only by transforming the government's "single" supply subject into a "diverse" supply subject, with the government leading and other social organizations collaborating, can the current problems faced by Chinese society be improved. However, it is an urgent issue to involve other social organizations in the supply organization and maximize the supply effect to meet the diverse and personalized needs of residents for sports. Therefore, research on the collaborative participation of multiple stakeholders in the supply of sports public services is urgent and necessary.

In order to study the scientific and efficient nature of diversified collaborative supply led by government departments, after reading a large number of research literature and books, researchers have proposed a collaborative supply model for sports public services led by government departments, with market profit organizations and social non-profit organizations participating together. Starting from the demand of residents for sports supply services, the quality of sports service supply, and the performance of jointly completing resident satisfaction, explore effective mechanisms for the collaboration of the three major service supply entities, in order to achieve maximum supply efficiency, high supply quality efficiency, and maximum supply performance. Therefore, researchers conducted research from the following three aspects:

RQ1. How do SPS, SVD, and SVQ interact with each other? What are the conditions under which the three factors affect SPP?

RQ2. How does service quality and service demand (SVQ and SVD) mediate and serialize the relationship between SPS and SPP?

RQ3. How does service quality and service requirements (SVQ and SVD) interact with SPS to affect SPP?

2. Theoretical Foundation, Literature and Hypotheses

Performance is an effective indicator of the quality of work completion, and the term performance originated from management studies in the 1950s. From the perspective of scientific management, performance management can be divided into individual performance and organizational performance. It is a management concept that refers to the integration of performance and effectiveness. It refers to the work behavior, methods, results, and their objective effects over a certain period of time (Zhu Yiran, 2014, pp. 290-295). There is significant controversy in the academic community regarding the literal meaning of "performance", but these controversies share significant similarities. Lu Chengxi and Li Chao (2020, p. 118) proposed from the perspective of organizational supply that organizational supply performance refers to various services generated under organizational control, with the central goal of providing measurable specific services to service recipients and assisting customers in achieving certain goals. Zhou Junfeng (2023) studied the evaluation of relevant indicators for the performance of sports public services, and proposed from the perspective of the overall evaluation that in order to evaluate the performance of sports public services, it is necessary to start from the unity of the evaluation indicators that constitute sports public services, and classify all evaluation indicators into a unified whole for evaluation. Guo Lian (2018, p.255) used demographic statistical methods and operations research theories to study the comprehensive evaluation mechanism from the perspectives of sports public service quality and public demand satisfaction. He believed that it is necessary to refine the evaluation indicators of public service quality and public satisfaction, and evaluate performance indicators on the same time series in order to objectively and accurately reflect the degree of achievement of sports public service performance.

The evaluation of the quality of public sports services should be based on the perspective of the service recipients. Only users who have participated in sports public services can express their feelings in more detail, and thus form quantifiable reference indicators. Lv Weixia (2010) used a quantitative method to collect customer

evaluation data on the quality of sports public services, and constructed a structural equation model of sports public service quality based on quality perception and organizational support. Supported by this model, Chen Chaobing (2017, p. 74; 2017, p. 63) evaluates service quality within the supply organization, defining the service capability and service level provided by the supply side as the highest order dimensions, and defining them as support quality. Xu Yuan and Zhang Qun (2007) conducted a questionnaire survey on 2109 sports enthusiasts in Australia who have participated in water sports. They found that the process indicator that affects user satisfaction is the quality of the service process, which is also the most important factor affecting user loyalty. The quality of service results and the cost of service are located below the service process. Zhang Ruixin (2014, p.8) conducted a study on the services provided by for-profit organizations and found that the most important factor affecting customer loyalty is service quality. The two factors closely related to service quality are sports facilities and coach level. The higher the service quality provided by for-profit organizations, the stronger the willingness of customers participating in sports public services to exercise. Li Zhengquan (2012, p. 52) further studied the influencing factors of service quality and proposed that only by making specific and detailed standards for service quality can service quality be fundamentally standardized and improved. Chen Zhenming (2016, p.58) also conducted a quantitative study on the service quality of swimming pools and proposed a significant linear positive correlation between service quality and customer satisfaction. He Jixin (2017, p. 79) proposed that the upper indicators of performance achievement and service quality evaluation are organizational resource elements, and the specific orientation of this element is the specific goal of service quality evaluation.

Liu Wei (2011, p.50) questioned the management approach of the traditional sports administrative management system, stating that government departments, as providers of sports public services, cannot serve as both providers of sports public products and managers of sports public service performance. The ultimate goal of performance evaluation for sports public service organizations is to enable various organizations in society to form healthy competition and improve service quality, while also enabling various supply organizations in society to meet the growing demand for various sports. The government department is the first department to ensure the smooth and coordinated operation of various organizations in society, and its main roles are organizers and managers. Wang Shaoli (2015, p.9), from the perspective of sports governance, elevates the improvement of the quality of sports public services provided by government organizations to the height of national sports governance. He believes that national sports governance is not a single action taken by government departments, but requires the unity and participation of all citizens in society. Non profit organizations and profit organizations represent different types of supply, and the specific services provided are also different. The scope and quality of services cannot be measured by the same standards. According to the type of management, it can be classified into three types: government participation in supervision, social spontaneous organizations, and government and society collaborative participation in management. Feng Qiming (2018, p.119) pointed out based on the time series of China's social development that since the initial proposal of the universal policy of sports public services, sports public services have been a product in the production process of government departments, and the government departments are the producers of this product. However, with the rapid development of the Chinese economy, the number of sports participants has been increasing year by year, and the public has put forward diverse and personalized demands for sports public services. The traditional government's single supply method cannot well meet the needs of citizens. In order to meet the growing demands of citizens, government departments have to distribute the burden of providing various services to society, thus forming a diversified supply organization led by government departments and coordinated by social non-profit organizations, market profit organizations, social volunteer groups, and other organizations. Ding Jinglong (2019, p.70) and Xu Ting (2020, p.31) conducted a study on the supply methods of sports public service supply organizations based on existing research. They proposed that the supply subject of sports public services is led by the government, including non-profit public welfare organizations such as local industry associations and associations, as well as local profit oriented organizations. Government departments use macroeconomic regulation to purchase services from some for-profit organizations, provide branch guidance for non-profit organizations, divide the responsibilities and rights of for-profit and non-profit organizations based on different functional positioning, allocate various forms of service channels and regulatory methods to provide services to various sports participants in society. Li Liang et al. (2023, p.75) conducted a study on the supply methods of sports public services in developed countries, pointing out that the main body of sports public service supply in developed countries is still led by the government, but more emphasis is placed on collaborative cooperation with other social organizations (third-party supply organizations). Utilizing the natural advantages of various sports organizations in society can not only reduce the burden on the government, but also mobilize the enthusiasm of social organizations.

Based on the research of the aforementioned scholars, the following hypotheses have been proposed (as shown

in Figure 1):

H1: The supply subject (SPS) has a positive predictive effect on supply performance (SPP).

H2: Service demand (SVD) plays a mediating role between supply entities (SPS) and supply performance (SPP).

H3: Service quality (SVQ) plays a mediating role between supply entities (SPS) and supply performance (SPP).

H4: Service Demand (SVD) and Service Quality (SVQ) serve as chain mediators between Supply Entities (SPS) and Supply Performance (SPP).

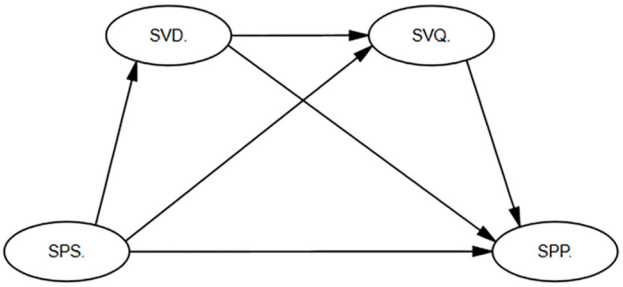

Figure 1. Conceptual model

3. Method

3.1 Sample

The researchers used quantitative research methods to conduct a questionnaire survey on sports enthusiasts participating in sports public services in Ganzi Prefecture. The main data of 790 sports public service volunteers were collected through a questionnaire survey using the Likert five points scale to examine. In the absence of a sampling framework for sports public service volunteers, use judgmental sampling to collect responses.

3.2 Demographic Profile of Respondents

The researchers conducted a stratified sampling survey on sports enthusiasts of different ages who participated in sports public services in Garzi Prefecture, and conducted a questionnaire survey on participants with different identities, in order to obtain detailed information about the development of sports public services in Garzi Prefecture from different perspectives. Respondents' demographic information related to age, gender and profession is shown in Table 1.

Table1. Basic Information of sample

Lists	Numbers	Percentage
Gender		
Male	383	48.5
Female	407	51.5
Age		
Less than 18years old	54	6.8
18-35years old	333	42.1
36-50 years old	210	26.6
51-60 years old	138	17.5
More than 61 years old	55	7
Profession		
Farmer	59	7.5
Civil servant	156	19.7
Freelancing	258	32.7
urban white-collar workers	212	26.8
Others	105	13.3

Source(s). All Tables created by Authors.

3.3 Measures

We operationalized the study's constructs: SPS, SVD, SVQ and SPP through adapted scales: SPS (14-items), SVD (27-items), SVQ (15-items) and SPP (9-items) from Yuan (2014). We contacted volunteers and asked qualifying questions to avoid bias. Non-response bias was not found by comparing the first and last 100 responses.

4. Analysis and Findings

4.1 Descriptive Statistics and Multicollinearity

As shown in Table 2, the correlation coefficients between the variables range from 0.3 to 0.523, which meets the criteria proposed by Montgomery et al (2021). The Variance inflation factor (VIF) ranges from 1.228 to 1.525, both of which are below the critical value of 5(Montgomery, 1990), indicating the absence of serious collinearity issues.

Table 2. Means, standard deviations and correlations among study variables (N=790)

Variable	SPP	SPS	SVQ	SVD	VIF	M	SD
SPP	1				1.228	3.320	0.738
SPS	.305**	1			1.325	3.389	0.736
SVQ	.354**	.425**	1		1.524	3.594	0.713
SVD	.367**	.415**	.523**	1	1.525	3.554	0.759

Notes. **, correlation is significant at the 0.01 level (2-tailed); SPP: (Supply Performance), SPS: (Supply Subject), SVQ: (Service Quality), SVD: (Service Demand); VIF: variance inflation factor.

Source(s). All Tables created by Authors.

4.2 Measurement Properties and Confirmatory Factor Analysis (CFA)

The researchers used SPSS 26.0 and AMOS 23.0 to analyze the scale data. Before conducting the analysis, they first evaluated the measurement model for each dimension. The standardized factor load is shown in table 3 and figure 2(0.700-0.828). Cronbach alpha (0.909-0.954) is higher than the critical value of 0.6, indicating good reliability (Hair, 2009). χ^2/df =1.403, RMSEA=0.023, SRMR=0.022, CFI=0.995, GFI=0.986, TLI=0.993, and NFI=0.982 are in limit showing good model fit.

Table 3. Measurement properties: standardized factor loading and Cronbach's alpha

construct	Standardized loading	Cronbach's alpha
SPP		
EQZ(4-item)	0.828	0.909
EFC(5-item)	0.735	
SPS		
NPO(5-item)	0.700	0.924
GMO(5-item)	0.734	
PMO(4-item)	0.744	
SVD		
SFT(7-item)	0.778	
GDA(6-item)	0.772	0.954
IFM(8-item)	0.786	
OGZ(6-item)	0.773	
SVQ		
QLS(4-item)	0.765	0.917
QLC(4-item)	0.770	
QLE(7-item)	0.750	

Note 2. All factor loadings were standardized and were significant at the 0.001 level Source(s): All Tables created by Authors.

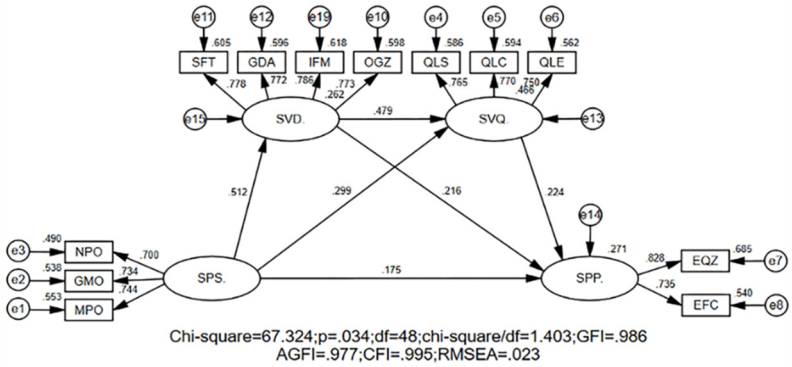

Figure 2. Structural equation model diagram

4.3 Convergent Validity, Discriminant Validity and Common Method Bias

Table4 shows validity issue as AVE (0.527–0.680), CR (0.759–0.859), and the square root of AVE (0.726–0.783) are above cut-off limit (Hair et al,2009). Herman's single-factor test explained (41.274%) of the fist factor, which is less than 50%, suggesting that CMV is not an issue (Podsakoff et al., 2003).

Table 4. Reliability and Validity of the model sample

Construct	AVE	CR	SPS	SVD	SVQ	SPP
SPS	0.527	0.770	*0.726*			
SVD	0.604	0.859	0.512	*0.777*		
SVQ	0.580	0.806	0.545	0.632	*0.762*	
SPP	0.613	0.759	0.408	0.448	0.456	*0.783*

Note 3. The square root of the AVE is indicated by the diagonal (discriminant validity). The information in the lower triangle is related to the factors. CR stands for composite reliability. Numbers in the diagonal are AVE: average variance extracted.

Source(s). All Tables created by Authors.

4.4 Hypothesis Testing

This study used Amos 23.0 software for mediation effect analysis and Bootstrap method for testing. The repeated sampling was set at 5000 times, and a 95% "bias corrected confidence interval" was calculated. If the 95% confidence interval (95% CI) does not include 0, it indicates that the mediation effect is significant. As shown in Table 5 assuming that the point estimation value of H1 is 0.174, the Z-value is 2.384(greater than 1.96), the 95% confidence interval of the Bias corrected percentile method is [0.034,0.325], not excluding 0. The 95% confidence interval of the percentile method is [0.030,0.322], not excluding 0, and the P-value is significant at the 0.05 level, indicating that the direct effect of the H1 pathway is significant. Assuming that the estimated point value of H2 is 0.110, the Z-value is 2.75 (greater than 1.96), the 95% confidence interval of the Bias corrected percentile method is [0.039,0.192], not excluding 0, and the P-value is significant at the 0.01 level. The 95% confidence interval of the percentile method is [0.038,0.191], not excluding 0, and the P-value is significant at the 0.01 level, indicating that the mediating effect of the H2 pathway is significant; Assuming that the estimated point value of H3 is 0.067, the Z-value is 2.481 (greater than 1.96), the 95% confidence interval of the Bias corrected percentile method is [0.022,0.130], not excluding 0, the P-value is significant at the 0.01 level, and the 95% confidence interval of the percentile method is [0.018,0.123], both of which do not include 0. The P-value is significant at the 0.05 level, indicating that the mediating effect of the H3 pathway is significant; Assuming that the estimated point value of H4 is 0.055, the Z-value is 2.75 (greater than 1.96), the 95% confidence interval of the Bias corrected percentile method is [0.022,0.130], not excluding 0, and the P-value is significant at the 0.01 level. The 95% confidence interval of the percentile method is [0.016,0.094], both of which do not include 0, and the P-value is significant at the 0.05 level, indicating that the mediating effect of the H4 pathway is significant.

Table 5. Test of direct and indirect hypothesis (H1 to H4)

Path	Estimate point	Boot SE	Z	Bias-corrected percentile method			Percentile method			Percentage of total effect	Percentage of indirect effect
				95% Boot LLC	95% Boot ULCI	*P*	95% Boot LLC	95% Boot ULCI	*P*		
Total effect	0.406	0.058	7.000	0.295	0.525	***	0.292	0.522	***	——	
Direct effect(H1)	0.174	0.073	2.384	0.034	0.325	*	0.030	0.322	*	42.86%	
Total indirect effect	0.231	0.044	5.250	0.153	0.329	***	0.150	0.323	***	56.90%	——
Path2:(H2)	0.110	0.040	2.750	0.039	0.192	**	0.038	0.191	**	27.09%	47.62%
Path3:(H3)	0.067	0.027	2.481	0.022	0.130	**	0.018	0.123	*	16.50%	29.00%
Path4:(H4)	0.055	0.020	2.750	0.018	0.097	**	0.016	0.094	*	13.55%	23.81%
(C1)	0.043	0.056	0.786	-0.064	0.156	0.441	-0.062	0.158	0.418		
(C2)	0.055	0.051	1.098	-0.042	0.158	0.259	-0.039	0.161	0.241		
(C3)	0.012	0.020	0.600	-0.020	0.061	0.409	-0.023	0.057	0.514		

Note 4. 5,000 bootstrap samples; C1 means H2-H3, C2 means H2-H4, C3 means H3-H4; * is significant at the 0.05 level (2-tailed), ** is significant at the 0.01 level (2-tailed), *** is significant at the 0.001 level (2-tailed).

Source(s). All Tables created by Authors.

5. Discussion

5.1 Theoretical Implications

The feasibility and necessity of introducing quality management theory into the field of public sports services in China have been clarified, and the theoretical system of quality management in public sports services has been enriched and improved. The existing research and practice only focus on the reform of individual management links in public sports services, neglecting the systematic and orderly quality management, and failing to find a comprehensive solution to improve the quality of sports public services, nor establishing a complete theoretical system guided by health promotion. In response to the aforementioned shortcomings and practical challenges, this study, while affirming the theoretical value and practical significance of quality management, grasps the universality and particularity of public sports services, explores their similarities and adaptability, and preliminarily establishes a theoretical framework for quality management of public sports services guided by health promotion, determining the direction and path for practical recommendations.

A theoretical model of factors affecting the quality of sports public services was constructed and validated, and the structure and mechanism of factors affecting the quality of sports public services were basically clarified. The existing theoretical research on the structure and mechanism of factors affecting the quality of public sports services is not clear, resulting in the practice not fully following the basic path of improving the conditions of influencing factors and thereby improving the quality of public sports services. This study used relevant tools and constructed a structural equation model to verify the theoretical hypothesis. The results showed that the supply subject can affect supply performance through service quality and service demand. Service demand and service quality can play both a separate mediating role and a chain mediating role between the supply subject and supply performance. The three mediating effects are clearly compared, it is possible to clarify the focus and entry points for improving the performance of sports public services.

5.2 Practical Implications

The researchers aim to explore the effects of (1) SPS, SVD, and SVQ on SPP; (2) The mediating role of SVD between SPS and SPP; (3) The mediating role of SVQ between SPS and SPP; (4) The chain mediated role of SVD and SVQ between SPS and SPP.

The validation results of H1 indicate that SPS has a direct and significant predictive effect on SPP, consistent with previous research findings (Zhu Yiran, 2014; Lu Chengxi&LI Chao, 2020; Zhou Junfeng, 2023; Guo Lian, 2018; Lv Wangang, 2020). Hypothesis 2, the research findings that SVD mediates the relationship between SPS and SPP are supported by evidence, indicating an indirect relationship between the supply performance of sports public service providers and the demand of participants, confirming previous research (Chen Chaobing, 2017; Xu Yuan&Zhang Qun, 2007; Zhang Ruixin, 2014; Li Zhengquan, 2012; Chen Zhenming, 2016). Assuming 3, the mediating effect of SVQ between SPS and SPP has also been confirmed, indicating that service quality also plays a mediating role between supply subjects and supply performance. H4 plays a chain mediating role

between service quality and service demand between the supply subject and supply performance, and the results show that the effect of this chain mediating role is the most significant.

The direct impact of the supply subjects in Garze Prefecture on the sports public services in Garze Prefecture is 0.47 (structural path coefficient), and the degree of impact can be evaluated as moderate. This indicates that the sports service supply organization in Garze Prefecture can have a significant direct impact on the sports public services in Garze Prefecture. The sports service supply organizations that cause impact include government organizations, non-profit organizations, and for-profit organizations. The factor loading coefficients of the three supply organizations on the entire supply subject are 0.62, 0.50, and 0.62, respectively. It can be seen that government organizations and for-profit organizations have the same degree of impact on the supply subject, and all of them are greater than the impact generated by non-profit organizations. In practice, government organizations play two roles: managers and suppliers. When evaluating performance, government departments evaluate based on the completion of national fitness tasks, the degree of improvement in resident happiness index, and the improvement of resident physical fitness. Therefore, the government of Garze Prefecture plays a leading role in planning among the supply subjects. Firstly, it needs to complete the relevant performance indicator tasks proposed by the state. Secondly, it also needs to supervise the market-oriented behavior of sports profit-making institutions, which may lead to distribution conflicts. Because the government department needs to provide more public sports facilities and venues to improve the overall physical fitness of residents, after providing more public sports facilities, it means that more people will choose free public venues and are no longer willing to spend money on sports services. Similarly, sports service profit organizations provide paid personalized services for sports, which can improve the quality of sports services among consumer groups, bring higher quality sports services, and have a positive impact on sports enthusiasts in society, forming a positive environment for sports consumption and driving sports enthusiasts around them to join the ranks of purchasing sports services. Therefore, the two have developed a contradictory relationship of both cooperation and competition.

Apart from government organizations and for-profit organizations, the influence of non-profit organizations, although relatively weak, is also an important coupling point that cannot be ignored. Non- profit organizations can play a bridging role in the actual supply of sports services, serving as a link between government organizations and for-profit organizations. Non-profit organizations are widely distributed, numerous, unrestricted in scale, and have strong arbitrariness, making them the preferred sports service organization for sports enthusiasts. Firstly, non-profit organizations can provide a relatively stable organizational structure in residential communities, and resident participation is not limited by conditions, which can lead to a rapid increase in the number of their organizational members. Secondly, non-profit organizations can also enhance the group awareness of residents participating in physical exercise, drive surrounding people to join the organization, and improve the overall physical fitness of the population, creating certain performance for government organizations. Furthermore, in non-profit organizations, as everyone's sports skills improve, there will be a demand for personalized sports services, which will drive surrounding people to join the ranks of purchasing sports services. The existence of non-profit organizations has a relatively significant positive impact on both government and non-profit organizations.

In summary, how to coordinate the supply methods of these three parties well, so that they can achieve dynamic balance of interests and maximize cooperation efficiency, is a key issue related to the long-term development of the entire supply organization.

5.3 Limitations

From the perspective of the continuity of time, this study has certain limitations, as the demand for sports public services by participants will fluctuate over time. Alternatively, there may be differences in the number of groups at different age groups, but there will not be significant fluctuations in the short term. This study measures the service efficiency and fairness of sports public services from two dimensions. From this perspective, there is a natural wealth gap between rural and urban areas where there is already a considerable economic gap. Therefore, while balancing supply efficiency, it is inevitable to sacrifice a certain degree of fairness. Similarly, while balancing fairness, supply efficiency will also be affected to a certain extent.

The improvement of public sports quality in our country is still in a scattered and exploratory stage in practice, and there are insufficient successful practice models. The research results of using quality management systems are even fewer, and there is a lack of reference experience. In terms of current situation analysis, existing literature research results and annual data from the white paper on public sports services were used, lacking comprehensive field research. In the process of qualitative research and model verification, the selection of

research objects and samples should meet the scientific research requirements as far as possible, but it is not comprehensive in terms of complex reality. Sports public service is a constantly evolving and expanding historical proposition, and the quality of sports public service is a complex theme. In the selection of influencing factors, based on the theoretical achievements of predecessors and the personal views of research subjects, this means that other potential influencing factors may be ignored, and there may also be subjective colors based on personal experiences. In other words, the factors affecting the performance of sports public services involved in this study cannot be fully included, and the influencing factors themselves cannot remain unchanged. Further thinking and improvement are needed.

6. Conclusions

The verification results of the parallel mediation effect model indicate that the performance of sports public services includes supply efficiency and fairness, which are both different and related. The supply subject can have an impact on supply efficiency and fairness through service quality and service demand. Service demand can more directly reflect the specific needs of citizens, which is a prerequisite for further improving service quality, only by identifying the specific needs of citizens can we be fully prepared for the next step of improving service quality. After identifying the needs of the public from all aspects through the supply subject, while improving the quality of supply, it is necessary to ensure the comprehensiveness of the use of most sports citizens, highlighting the fairness of supply performance. In addition to ensuring the accuracy of the existing base, it is also important to highlight the accuracy of exercise levels. This means that after accurately classifying exercise users, efficient protection should be provided for their movements, ensuring both the duration and intensity of exercise, while also considering the provision of personalized services.

The verification results of the chain mediation effect model indicate that the sports public services provided by the supply subject need to be further transformed into supply performance through the service demand and service quality of citizens. Supply performance is a further sublimation of service quality and precision service demand, which is a comprehensive and broad manifestation. By examining the four dimensions of service demand: sports information, sports guidance, sports organization, and venue facilities, it can be seen that sports venue facilities are the most important, followed by sports guidance. By grasping these two factors, the key factors that affect the demand for sports public services can be fundamentally identified. At the same time, by examining the three dimensions of service quality, we can also identify the three factors that affect service quality. In this way, while grasping the service needs of the public, we can identify the factors that improve service quality and achieve precise improvement in the performance of sports public services, thereby achieving the effect of improving the quality of sports public services.

Ethics approval

The Publication Ethics Committee of the Canadian Center of Science and Education.

The journal and publisher adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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