ORIGINAL

RESEARCH ON PUBLIC SATISFACTION EVALUATION OF LEISURE SPORTS SERVICE

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ABSTRACT

Along with our country economy level of ascension, the national in the premise of meet the basic needs of life, concern for personal health improved significantly, the leisure sports service as an important indicator of present social civilization, the public satisfaction through ascension leisure sports service can not only reflect the government service level, can also accelerate the process of modernization and social development. However the leisure sports service in most regions due to the lack of service facilities and service quality cause the overall service level is not high. This paper for the analysis of leisure sports public service satisfaction, the fuzzy evaluation method is adopted in the construction of leisure sports service satisfaction evaluation indexes: environment, games, facilities experience, social value, on the basis of experience, the health of body and mind experience, constructs the comprehensive rating system of leisure sports service satisfaction, to determine the weights of every index. Then combined with the analytic hierarchy process (ahp), based on the leisure sports service satisfaction evaluation model, for the leisure sports service public satisfaction evaluation, through the example analysis of xx city, comprehensive evaluation of leisure sports service and more effective optimization scheme is put forward.

KEYWORDS: Fuzzy comprehensive evaluation; Leisure sports service; Public satisfaction

1. INTRODUCTION

Planning of China central committee and the State Council "difference", puts forward new requirements on the national fitness standards across the

country, the government, universities, enterprises also have called for, in rich health infrastructure at the same time, a variety of fitness activities, in this environment, the residents' health consciousness obviously improve (H. Y. Wang & Zhai, 2015). The diversity of residents' health consciousness drives fitness activities, if still use the traditional fitness facilities obviously and the residents of new leisure sports demand gap, have security, professional fitness sites attract the attention of urban residents and (Guo, 2013)."National fitness plan (2021-2025)," ("Sports administration about seriously implement the "national fitness plan 2021-2025,") of the issued under the State Council also represents a significantly enhance to the attention of the leisure sports activities, "the plan" made it clear that to improve and optimize the national fitness in infrastructure, 15 minutes to build urban community exercise circles, especially in the construction of small and medium-sized sports venues, meet the residents' demand for the convenience of sports activities. In today's society rapid development in terms of comprehensive strength, through understanding the physical and mental health status of the national situation, not only can analyze the development of the country will also be able to find the city leisure sports activities to promote degree, is the inevitable trend of the construction of the regional government to promote healthy city.Economy led to the development of the urbanization progress, the development of leisure sports activities in the city received favourable premise, it is not only embodied in the rise of regional fitness industry in China, leisure sports activities within the city limits space almost everywhere, such as activities in the square, square area. To build scientific and reasonable, the leisure sports activities need to focus on the public satisfaction of leisure sports activities. Leisure sports service satisfaction evaluation can directly reflect the local related to leisure sports service level, is also the process of construction, the judge health indicators.

2. Leisure Sports Service Satisfaction Related Research

Service industry market competition as the change of people consumption idea, more people hope that through leisure activities to enhance their comprehensive quality. By collecting and organizing information, study of sports fitness and leisure industry more from the aspects of sports fitness, sports venues marketing is analyzed, the content of the research through to the satisfaction of the physical exercise group, influencing factors and the degree of satisfaction evaluation way, so much colour, Shang Xuetao (2014) in jiangsu province as an example, through the sports fitness club of customer satisfaction Degree analysis to explore the level of service. For fitness club membership in the form of questionnaire research, and build the customer satisfaction index model analysis respondents think the main factors influencing the service level, according to the model analysis structure puts forward some Suggestions of improve service quality fitness club in (Xu & Shang, 2014). Jager (2013) to the college students on the study of leisure sports service satisfaction as the research object, think that the main factors affecting college students to

participate in leisure sports service is the student to participate, in other ways, college students with the increase of age more willing to participate in leisure sports activities, and women participate in leisure sports activities desire than boys (de Jager & Gbadamosi, 2013).To sum up, scholars at home and abroad have been studied for the leisure sports service satisfaction, But by fuzzy comprehensive evaluation of leisure sports service public satisfaction evaluation research is relatively small, therefore, this article is based on fuzzy comprehensive evaluation model, the analysis of leisure sports service satisfaction, in building a satisfaction evaluation index on the basis of understanding from the perspective of experience, the construction of leisure sports service. In the combination of qualitative and quantitative way to explore the leisure sports service satisfaction, is not only optimize the environment of resident's leisure sports, improve the public service satisfaction, also is the important content of promoting the construction of healthy city.

3. The Establishment of the Leisure Sports Service Public Satisfaction Evaluation Index

3.1 The Initial Selection of Evaluation Indicators

At present, in the academic study of leisure demand satisfaction results, most of the research is based on Beard and Ragheb (1980) to build leisure satisfaction scale (leisure satisfaction scale LSS) (Beard & Ragheb, 1980) as the foundation, through the light of the specific conditions of the research object, through the research result shows that through the leisure satisfaction scale of satisfaction index analysis of the results, with strong accuracy. Leisure satisfaction index includes six dimensions; its content is as follows in figure 1.
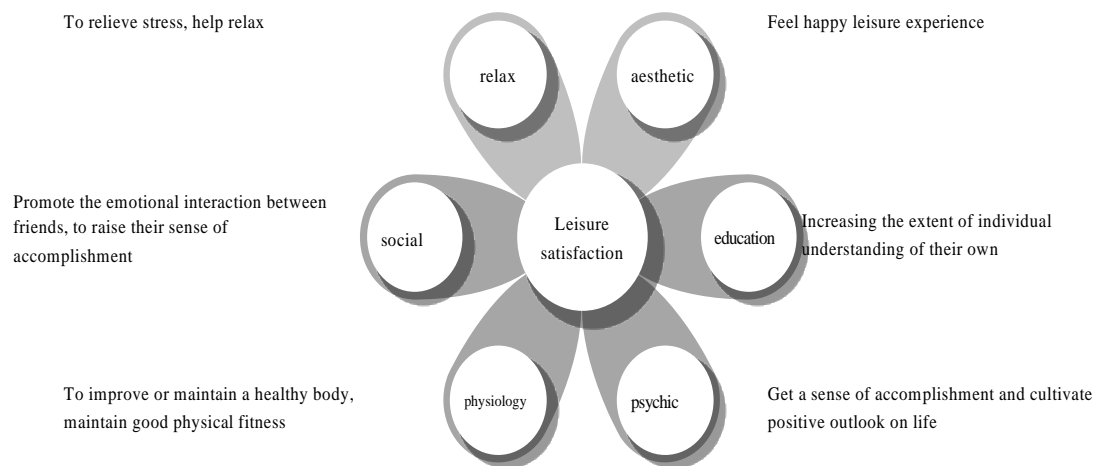

Figure 1: leisure satisfaction index

SERVQUAL theory is in the late 1980 s by the American marketing home para Hugh Raman (Amy polumbo arasuraman) based on Total Quality Management (Total Quality Management, TQM) theory in the service industry

put forward a new kind of service Quality evaluation system. SERVQUAL model is a tool to measure the quality of service, its five dimensions for the tangibility, reliability, responsiveness, trust and empathy (Parasuraman, Zeithaml, & Berry, 1988). Based on the SERVQUAL model construction of leisure sports service quality evaluation model, evaluate the leisure sports service quality more accurately, the content of the concrete is shown in figure 2 below.
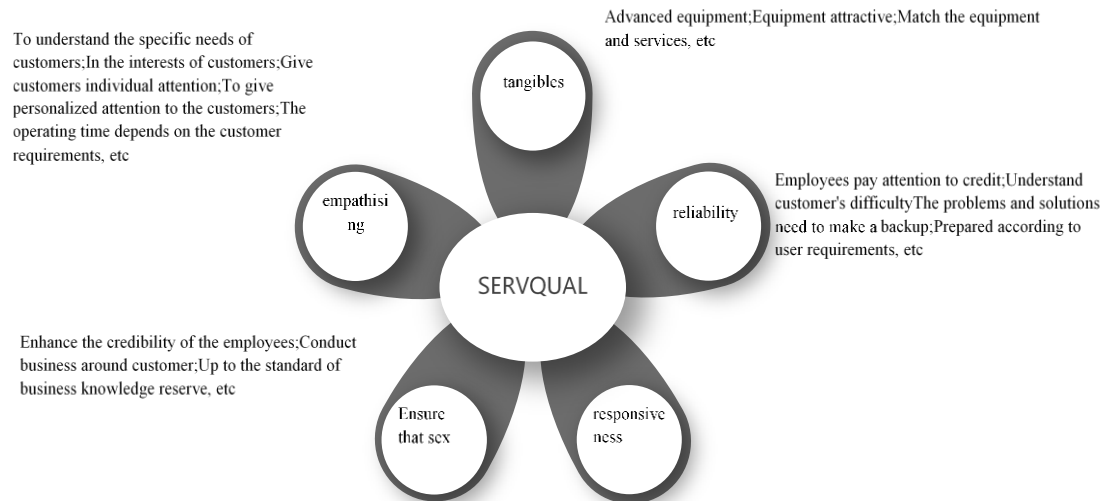

Figure 2: the SERVQUAL model

Based on leisure satisfaction scale, SERVQUAL model, collection of expert opinion P for the construction of leisure sports service satisfaction evaluation index is based on the 353 survey questionnaire, a questionnaire of the object as a domestic cities to participate in the leisure sports service people (in this paper, we study for the degree of satisfaction evaluation, so the information of the people do not detail), the main including Evaluation of five dimensions, leisure sports service environment experience, leisure sports service games, leisure sports facilities experience, leisure sports service social value experience physical and mental health, leisure sport service experience five dimensions (figure 3).
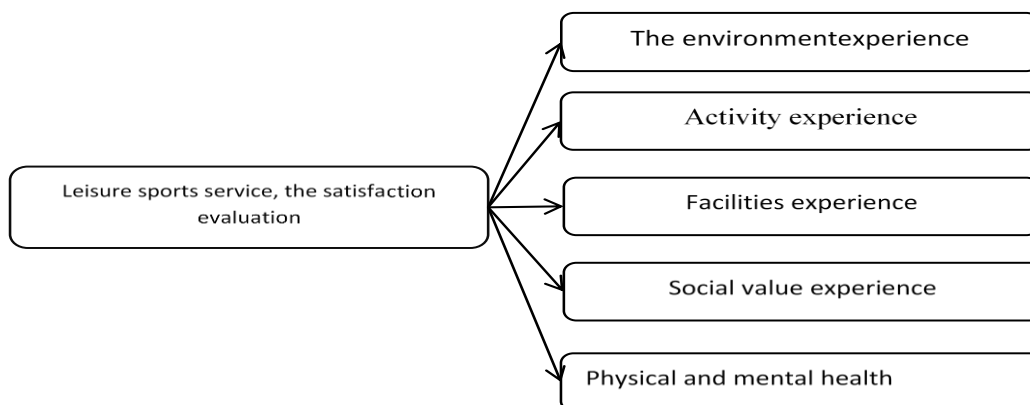

Figure 3: leisure sports service satisfaction degree evaluation system experience

3.2 The weight of evaluation index calculation based on the analytic hierarchy process (ahp)

Based on the analytic hierarchy process (ahp) to construct the evaluation index, through collecting and organizing information after determining the importance index, then the weight of building associated with this article and indicators (Zhao, 2013). The build process is shown below.

First of all, establish a hierarchy: In the comprehensive analysis of leisure sports service public satisfaction evaluation, on the basis of correlation between the indexes, determine the hierarchy, as shown in figure 3, second, from between the object and the evaluation index system and the satisfaction degree of the evaluation system (FRICKE, 2019; LoFaro, 2015).

Then determine the judgment matrix in the form of comparison between the measures, in view of the various elements within a indicators to determine the corresponding weights, in order to improve the accuracy of the results, with 1-9 scaling method to the assignment of each element, the element for the construction of a more intuitive judgment matrix quantitative way. In determining the evaluation indexes, to determine the evaluation indexes at all levels, in turn expressions:

$$X = \left(\left(x_{ij} \right)_{m \times m} \right) = \begin{bmatrix} x_{11} \dots x_{1m} \\ \dots \\ x_{m1} \dots x_{mm} \end{bmatrix} \qquad （1）$$

Matrix x, (I, j = 1, 2, 3,..., m), is x, x, the comparison of numerical results, x, said I elements than j elements of comparative importance. Usually, through the analytic hierarchy process (ahp) to solve the problem of index between the primary index number, will keep within nine, this is because the primary index too many cases, the weight to determine the difficulty will be improved significantly.

After determining weight value of the weight of each index value. Finally, based on the building of the leisure sports service public satisfaction evaluation index system to determine the hierarchy of evaluation index, the leisure sports service public satisfaction evaluation index to build in the following table 1-1

Matrix $x_{ij}(i,j = 1,2,3,\dots,m)$, x_i, x_j of the comparison results of numerical value, x_{ij} said I elements than j elements of comparative importance. Usually, through the analytic hierarchy process (ahp) to solve the problem of index between the primary index Numbers will remain within the nine.

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Table 1: the leisure sports service public satisfaction evaluation index

THE TARGET LAYER	RULE LAYER	INDEX LAYER
RECREATIONAL SPORTS CLOTHINGSERVICE THE PUBLIC SATISFACTION.THE DEGREE OF EVALUATION OF U	Leisure sports service environmentu_1	The traffic is convenientu_{11} Activity space is largeu_{12} Environmental healthu_{13}Quiet and comfortableu_{14}
	Leisure sports service experienceu_2	Type richu_{21} And reasonable timeu_{22}New fashionu_{23}Content of the scienceu_{24}
	Service facilities, recreational sports experienceu_3	And facilitiesu_{31} A wide varietyu_{32} Form a complete set of perfect u_{33} Facilities are oldu_{34}
	Social value, leisure sport service experienceu_4	Expand the network u_{41} Can be with his familyu_{42} Help to communicate to shareu_{43}Can help each otheru_{44}
	Leisure sports service experience the physical and mental healthu_5	Relax the pressure u_{51} Strong and handsome figureu_{52} To maintain the energy u_{53} Promote healthyu_{54}

Through the leisure sports service public satisfaction evaluation index in table 1 can be found in, Grid index according to the target layer, criterion layer and index layer. Rule layer judgment matrix are shown in table 2 below.

Table 2: rule layer judgment matrix

U	u_1	u_2	u_3	u_4	u_5	ω
u_1	1	2	3	1	2	0.28
u_2	1/2	1	2	2	2	0.24
u_3	1/3	1/2	1	1/4	1/2	0.101
u_4	1	1/2	4	1	3	0.257
u_5	1/2	1/2	2	1/3	1	0.122

After constructing rule layer judgment matrix, the leisure sports service public satisfaction evaluation index weight data in the following table 3Shown below:

Table 3: The leisure sports service the public satisfaction evaluation index weight

RULE LAYER	THE WEIGHT	INDEX LAYER INDEX	THE WEIGHT
u_1	0.28	The traffic is convenientu_{11}	0.113
		Activity space is largeu_{12}	0.115
		Environmental healthu_{13}	0.250
		Quiet and comfortableu_{14}	0.522
u_2	0.24	Type richu_{21}	0.414
		And reasonable timeu_{22}	0.294
		New fashionu_{23}	0.184
		Content of the scienceu_{24}	0.108
u_3	0.101	And facilitiesu_{31}	0.323
		A wide varietyu_{32}	0.281
		Form a complete set of perfectu_{33}	0.125
		Facilities are oldu_{34}	0.271
u_4	0.257	Expand the networku_{41}	0.145
		Can be with his familyu_{42}	0.381
		Help to communicate to shareu_{43}	0.093
		Can help each otheru_{44}	0.381
u_5	0.122	Relax the pressureu_{51}	0.314
		Strong and handsome figureu_{52}	0.267
		To maintain the energyu_{53}	0.187
		Promote healthyu_{54}	0.232

4. Based on the fuzzy evaluation method of leisure sports service public satisfaction evaluation

Above general public satisfaction of leisure sports service evaluation results, some indicators and no definite denotation and boundaries, because there is certain fuzziness index, which makes the accuracy of the results of the analysis deviation may occur. And by means of fuzzy comprehensive evaluation can further enhance the accuracy of the evaluation index, which is due to the fuzzy comprehensive evaluation is based on mathematical algorithms, and after will be quantitative evaluation index to determine the results of the analysis of (Qiu & Wang, 2021; J. Q. Wang, 2012).

4.1 Determine the evaluation factors and evaluation level

Through fuzzy comprehensive evaluation, the five grades of satisfaction evaluation are determined. First, the evaluation indexes of fuzzy

comprehensive evaluation objects are as follows:

$$U = \{U_1, U_2, U_3, U_4, U_5\} \qquad （2）$$

According to the method, divided into five levels of satisfaction evaluation of five levels. In order to more accurate comparison of leisure sports service public satisfaction index, the quantized treatment to the satisfaction rating, among the highest in the rating is very satisfied, the assignment for 90 points, evaluation of the lowest level for very dissatisfied, the assignment of 50 points, the specific assignment is shown in table 4 below.

Table 4: satisfaction rating assignment

RATING	VERY SATISFIED WITH	SATISFIED	GENERAL	LESS SATISFIED	VERY DISSATISFIED WITH
POINTS	90	80	70	60	50

4.2 Set up the fuzzy membership degree matrix and determine the weight vector

Constructing fuzzy membership degree matrix is presented in this paper, through the quantitative way to determine the object of evaluation, this can be concluded that fuzzy membership degree matrix (Zhu, 2017) :

$$R = \left(r_{ij}\right)_{m \times n} = \begin{Bmatrix} r_{11}, r_{12}, r_{13}, r_{14}, r_{15} \\ r_{21}, r_{22}, r_{23}, r_{24}, r_{25} \\ r_{31}, r_{32}, r_{33}, r_{34}, r_{35} \\ r_{41}, r_{42}, r_{43}, r_{44}, r_{45} \\ r_{51}, r_{52}, r_{53}, r_{54}, r_{55} \end{Bmatrix} \qquad （3）$$

Only through the membership degree matrix, it is difficult to accurately get the results, this situation is also the object uncertainty cause, need operation according to the following formula:

$$A = (a_1, a_2, \ldots, a_m) \qquad （4）$$

Through the operation of the above formula, through the way of the normalization of the relevant data to calculate, computation formula is as follows:

$$\sum_{i=1}^{m} a_i = 1 \qquad （5）$$

4.3 The leisure sports service satisfaction model is established in this paper

This paper builds the leisure sports service satisfaction model, complete the following steps:

First you need to get the primary fuzzy evaluation matrix:

$$B_i = A_i * R_i (i = 1,2,\ldots,m) \qquad （6）$$

$U = \{U_1, U_2, U_3, U_4, U_5\}$ Important degree between each element in the fuzzy subset, said A total evaluation matrix, such as:

$$R = \begin{bmatrix} B_1 \\ B_2 \\ \ldots \\ B_m \end{bmatrix} = \begin{Bmatrix} A_1 * R_1 \\ A_2 * R_2 \\ \ldots \\ A_m * R_m \end{Bmatrix} \qquad （7）$$

According to the above calculation after get $B = A * R$ secondary evaluation result, and according to the maximum membership degree in mathematical laws can get the final evaluation results. In order to more comprehensive and accurate information about the response matrix, according to the results of the reaction of various factors to determine, in turn, improve the accuracy of the evaluation result, may adopt the assignment to assignment of evaluation grades, to eventually get the assignment result of the evaluation results.

4.4 Analysis of actual application

In order to determine the accuracy and rationality of the research results, this paper based on the results of evaluation is presented in this paper, the introduction of XX city as the research sample, through the way of questionnaire survey to analyze the regional leisure sports public service satisfaction, in combination with the above research results, clear XX city leisure sports service public satisfaction evaluation results. This article XX city residents to participate in fitness as the research object, explore its public satisfaction of leisure sports venues and space, through the questionnaire survey way, set to issue a total of 1206 questionnaires, recycling of 1200, the number of valid questionnaires, the recovery rate of valid questionnaire is 99.5%. After sorting and analyzing the results of the survey, clear the content of fuzzy membership degree matrix, specific see table 5.

Table 5: leisure sports public service satisfaction survey statistics (part)

RATING	VERY SATISFIED WITH	SATISFIED	GENERAL	LESS SATISFIED	VERY DISSATISFIED WITH
u_{11}	340	800	700	600	500
u_{12}	320	560	240	60	20
u_{53}	180	460	420	140	0
u_{54}	340	500	280	80	0

Through the table 5 recreational sports public service satisfaction survey

data, fuzzy membership degree matrix that are listed as follows:

$$R_1 = \begin{bmatrix} 0.31 & 0.68 & 0.08 & 0.06 & 0.00 \\ 0.28 & 0.45 & 0.21 & 0.05 & 0.01 \\ 0.18 & 0.32 & 0.33 & 0.17 & 0.00 \\ 0.36 & 0.44 & 0.17 & 0.03 & 0.00 \end{bmatrix}$$

$$R_2 = \begin{bmatrix} 0.12 & 0.53 & 0.33 & 0.03 & 0.00 \\ 0.16 & 0.43 & 0.30 & 0.09 & 0.01 \\ 0.15 & 0.32 & 0.22 & 0.18 & 0.00 \\ 0.33 & 0.31 & 0.28 & 0.13 & 0.00 \end{bmatrix}$$

$$R_3 = \begin{bmatrix} 0.05 & 0.35 & 0.47 & 0.27 & 0.02 \\ 0.21 & 0.48 & 0.21 & 0.07 & 0.00 \\ 0.25 & 0.31 & 0.23 & 0.34 & 0.00 \\ 0.31 & 0.22 & 0.34 & 0.13 & 0.00 \end{bmatrix}$$

$$R_4 = \begin{bmatrix} 0.01 & 0.34 & 0.26 & 0.36 & 0.00 \\ 0.20 & 0.51 & 0.21 & 0.08 & 0.01 \\ 0.15 & 0.39 & 0.34 & 0.11 & 0.00 \\ 0.28 & 0.43 & 0.27 & 0.07 & 0.02 \end{bmatrix}$$

$$R_5 = \begin{bmatrix} 0.03 & 0.35 & 0.31 & 0.33 & 0.01 \\ 0.22 & 0.54 & 0.19 & 0.10 & 0.02 \\ 0.17 & 0.36 & 0.37 & 0.13 & 0.00 \\ 0.31 & 0.41 & 0.25 & 0.08 & 0.01 \end{bmatrix}$$

To sum up, can draw many factors under the combination of the secondary index comprehensive evaluation score, are shown in table 6 below:

Table 6: the leisure sports service public satisfaction evaluation results

LEISURE SPORTS SERVICE ENVIRONMENTu_1	**85.1**
LEISURE SPORTS SERVICE EXPERIENCEu_2	88.8
LEISURE SPORTS FACILITIES IN EXPERIENCEu_3	82.1
LEISURE SPORTS SERVICE SOCIAL VALUE EXPERIENCEu_4	77.2
LEISURE SPORTS SERVICE EXPERIENCE THE PHYSICAL AND MENTAL HEALTHu_5	82.3
THE SECONDARY FUZZY COMPREHENSIVE EVALUATION	83.1

According to the above-mentioned six leisure sports service public satisfaction evaluation results can be found that obtained by using fuzzy comprehensive evaluation model of XX city residents on their overall satisfaction score is 83.1. The fraction of phase in the middle of the "general" and "satisfactory", proved. That the city leisure sports public service for citizens' demand in the condition of basically met.

4.5 Improve the path of the leisure sports public service satisfaction

4.5.1 Rich leisure sports service content and quantity

During the specific planning urban leisure sports public service content and the number of several key factors affecting the quality of leisure sports service, provide content and amount of leisure sports service organization or part of the demand of the public, should be paid great attention to effective integration of resources related to leisure sports service, adding a borderline service project.

For example, you can build the leisure sports knowledge lecture, health testing activities, personalized movement scheme design activities, etc. In respect of leisure sports service quantity, still in the leisure sports service public needs as the core number of additional facilities, the leisure sports service content and the number of coordinates, and meet the requirements of all walks of leisure sports service.

4.5.2 Organization innovation of leisure sports activities

To enhance the government's guiding force. Leisure sports service activities in several cities in our country has already begun, therefore, can be by reference to other forms of regional leisure sports organization gradually perfect leisure sports activities in the region. Leisure sports activities, for example, can cooperate and surrounding schools, community, achieve the goal of resource sharing. The innovations in leisure sports activities, on the other hand, during the organizational form, can also be associated with the holiday in our country, combining the Mid-Autumn festival and the leisure sports activities, for example, organization related to leisure sports activities and family members. Through a variety of leisure sports service activities, improving the public satisfaction of leisure sports service.

5. Conclusion

The city leisure sports service system as a case, this paper probes into the public satisfaction of city leisure sports service system evaluation index system and analyzes the degree of satisfaction evaluation method. Built a two stage fuzzy comprehensive evaluation system for public satisfaction appraisal results, at the same time to evaluate the xx city leisure sports public service system, to collect, sort out the data by means of field investigation, after the analysis of the data information into the public satisfaction evaluation model, calculated the citizens of xx city leisure sports facilities in the public satisfaction with 83.1 points, the scores of phase between "general" and "satisfactory". Finally, this article from the rich leisure sports service content and quantity, innovation of leisure sports activities organization form two aspects promotes the path of the leisure sports public service satisfaction.

Acknowledgment

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