

## OPTIMIZATION STRATEGIES FOR QUALITY MANAGEMENT IN SPORTS VENUES

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### ABSTRACT

In the context of the booming global sports industry, sports venues play a crucial role in hosting sporting events, promoting public fitness, and enhancing urban image. The quality of their management directly impacts the sustainable development of the sports industry and the improvement of public health and well-being. China, as one of the world's major sports nations, has made significant achievements in sports infrastructure development in recent years. A large number of modern, multifunctional sports venues have emerged rapidly, providing a solid foundation for hosting high-level domestic and international sports events and greatly enriching the public's sports and cultural life. However, with the rapid growth in the number of sports venues and the increasing diversity of usage demands, effectively optimizing the management quality of sports venues to ensure their efficient, safe, and sustainable operation has become an urgent issue to address. This survey aims to understand public satisfaction with sports venue management quality and gather suggestions for improvement. Through a questionnaire, data was collected on aspects such as frequency of use, facility satisfaction, opening hours, maintenance of facilities and equipment, sports guidance services, safety measures, convenience of reservation systems, frequency of events, and hygiene conditions. The results show that most respondents rated facility satisfaction and opening hours as moderate but were generally dissatisfied with the provision of sports guidance services. Additionally, while safety measures and reservation systems received some level of recognition, hygiene conditions emerged as a prominent issue. Respondents generally believe there is room for improvement in facility updates and maintenance, sports guidance services, and hygiene conditions, and have provided specific suggestions. The survey results offer valuable feedback for sports venue managers, assisting them in optimizing services and improving facilities based on user needs.

**Keywords:** Sports Venues; Management Quality; Sports Management

## INTRODUCTION

In contemporary society, the sports industry acts as a powerful force, deeply embedded in and shaping daily life, highlighting its critical importance. As a cornerstone for enhancing public health, strengthening national cohesion, and advancing social harmony, the robust development of the sports sector not only reflects the elevation of national comprehensive strength but also signifies the public's aspiration for and pursuit of a better quality of life. With the deepened implementation of the national fitness strategy and the widespread dissemination of the "Healthy China" concept, an unprecedented wave of public engagement in physical exercise has emerged. Concurrently, the frequent hosting of major sports events has not only ignited national enthusiasm for sports but also facilitated the exchange and dissemination of sports culture, further amplifying the social impact of the sports industry. In this context, sports venues, as crucial physical spaces for various sports activities and the embodiment of sports aspirations, have become increasingly prominent. These venues are not only stages where athletes demonstrate their prowess but also essential locations for the public to engage in fitness activities and enjoy sports.

The significance of sports venue management quality is self-evident, as it directly affects operational efficiency, user experience, social benefits, and the overall healthy development of the sports industry. As integral components of urban cultural and sports life, sports venues serve not only as key sites for hosting sports events and promoting public fitness but also as vital windows for showcasing urban image and driving the transformation and upgrading of the sports industry. The quality of management in sports venues, which host a range of large-scale events such as sports competitions, cultural performances, and exhibitions, is directly related to the successful execution of these events. Efficient and orderly management ensures the smooth operation of various aspects such as venue setup, equipment calibration, and safety assurance, providing a secure, comfortable, and convenient environment for participants (Ho, 2014). High-quality management significantly enhances the user experience within the venue. From the moment of entry, users can perceive the venue's cleanliness, orderliness, and professionalism. Whether it is ticketing, entry, viewing, or fitness activities, every detail reflects the management team's diligence and expertise. Such a high-quality experience not only attracts more users but also increases user loyalty and word-of-mouth reputation.

The operation and management of sports venues involve numerous resources, including space, equipment, personnel, and funding. Effective management ensures the scientific and reasonable allocation and use of these resources, preventing waste and idleness. Additionally, refined management can further enhance resource utilization efficiency and economic benefits, providing strong support for the sustainable development of sports venues. Traditional management models often suffer from rigid systems and mechanisms, leading to inefficiencies and a slow response to market changes and user demands (Lin, 2024). In the fast-paced modern society, evolving fitness needs and preferences place higher demands on venue opening hours, facility types, and service quality. Traditional management models, lacking flexibility and innovation, often fail to meet these demands promptly, thus impacting user experience and satisfaction (Wang, 2018). Moreover, uneven resource distribution and delayed facility maintenance are also pressing issues within traditional management models (Fu, 2017). Due to historical reasons and systemic constraints, some sports venues face inequities in resource allocation, leading to outdated and inadequate facilities that fail to meet modern fitness needs. Simultaneously, delayed maintenance exacerbates this issue, compromising facility safety and reliability, and further affecting user experience and trust. More critically, these issues may negatively impact the functionality and development of sports venues. As a crucial component of the sports industry, the full utilization of

sports venues' functions is essential for advancing the industry. However, limitations of traditional management models have hindered some sports venues from fully realizing their functions, such as hosting sports events, providing sports training, and offering fitness guidance, thus restricting the diversified development of the sports industry. Therefore, optimizing the quality of sports venue management has become an urgent issue in the current development of the sports sector. This is not only a severe test for sports venue managers but also a key to driving the transformation and achieving high-quality development of sports venues. By thoroughly researching the current state of sports venue management, identifying and addressing pain points and challenges in the management process, and actively learning from advanced domestic and international management practices and technological innovations, it is possible to explore a set of scientific, rational, and feasible strategies for optimizing management quality. These strategies aim to enhance venue operational efficiency and service levels, optimize resource allocation and facility maintenance, thereby providing a safer, more convenient, and comfortable fitness environment for the public, and injecting new vitality into the prosperous development of the sports industry.

## REVIEW OF RELATED LITERATURE

The operation and management of sports venues is a complex and multifaceted issue directly related to the development of national sports, the improvement of public health, and the optimization of social resource allocation. In the context of rapid economic development and increasing awareness of public fitness, the management of sports venues has become particularly crucial. Management, by definition, involves the planning, organization, implementation, and control of operational processes, encompassing all aspects of product production and service creation, as well as related management tasks. For sports venues, management quality pertains to how effectively their service systems are designed, operated, evaluated, and improved to ensure the efficient utilization and sustainable development of venue facilities (Zeng, 2017).

With the implementation and advancement of modern sports venue management, various problems have emerged during the operational process, prompting numerous scholars to propose corresponding countermeasures. Peng (2014) notes that many sports venues in China suffer from a lack of maintenance and management funds, with some even unable to operate normally. Issues such as heavy investment in construction but insufficient management, and a lack of coordination between local governments and sports venues, have led to resource allocation inefficiencies and wasted resources, impacting the rational use of venues by the public. Liao (2018) and He (2020) highlight that, despite significant investment in sports venues, there are still unreasonable aspects in their layout, such as construction in poorly accessible or sparsely populated areas. Furthermore, due to low revenues, venues often operate on a self-sustaining basis. Regular maintenance, repair, and payment of management staff salaries, along with increasing costs over time, place a significant financial burden on venues. Cui (2018) points out that many regions in China lack sufficient sports venues and qualified social sports instructors, failing to meet public fitness needs adequately. In summary, while many sports venues in China have substantial investments, there are notable issues in management and utilization.

Under the traditional full-budget management model, the operational and maintenance costs of sports venues rely entirely on government funding. Although this model ensures the public welfare aspect of venues, it limits their autonomy and flexibility to some extent. With the deepening of market economy development, various operational models such as differential budget management, corporate governance, enterprise management, star-hotel management, and entrusted management have emerged, offering more options and possibilities for sports venue

management. Liu (2012) and other scholars note that these different management models each have their advantages and disadvantages and should be selected flexibly based on the venue's actual conditions and local economic and social development levels. For example, while the full-budget management model provides stable funding, it may result in low management efficiency; the differential budget model increases venue autonomy but still requires government support; corporate governance and enterprise management models emphasize market operations and economic benefits but may weaken the public welfare aspect of venues. Therefore, when choosing an operational management model, it is essential to consider various factors to balance public welfare and economic efficiency.

However, regardless of the chosen management model, there are common challenges. Yang (2018) mentions that during China's transition from a planned to a market economy, sports venues have experienced a coexistence of service-oriented and enterprise-oriented management models, leading to issues such as irrational industrial structure, incomplete relevant systems, and lack of safeguards. To address these issues, government departments need to fully utilize existing laws and regulations, innovate management concepts, and enhance tax management, fee management, and evaluation management of sports venues to achieve sustainable development. Chen (2018) further notes that direct government management of sports venues often results in inefficiencies and slow updates of sports equipment. With the continuous construction of large sports venues and the shortage of operational funds, the government is increasingly unable to assume all management responsibilities. Consequently, Yang (2018) proposes four operational management models which includes full-budget management, differential budget management, contracting and leasing, and transforming sports venues into modern sports enterprises to improve management efficiency and economic benefits. Huang (2019) emphasises the importance of key elements such as human resource management, material management, property management, financial management, and safety management in sports venue operations. He argues that with the diversification of sports venue projects, a comprehensive management system must be established to ensure normal operation. This perspective provides specific guidance for sports venue management.

From a broader perspective, Ma (2018) and Zou (2018) analyze the challenges and opportunities facing sports venue management. They argue that with ongoing sports reforms and the increasing diversity of sports facilities, existing management models can no longer meet the demands of modern societal development and growing public fitness needs. Therefore, exploring new management approaches to adapt to new circumstances is imperative. They also highlight that research on sports venue operations is still in the exploratory stage and call for increased research and policy support to promote market-oriented development and sports consumption. Wang and Chen (2020) propose innovative ideas for a chain operation model. They suggest that a chain operation model can achieve goals such as resource sharing, reducing operational costs, increasing venue utilization, and enhancing competitiveness. This model aligns with current market economic trends and national policies on sports industry development.

Furthermore, the specific practices of sports venue operation and system reform vary significantly across countries due to differences in economic development levels, social and cultural backgrounds, and policy environments, yet all reflect an unrelenting pursuit of efficiency, effectiveness, and sustainability. Luca (2008) notes that the Public-Private Partnership (PPP) model has been widely applied and recognized internationally as an important path for reforming large sports venues. This model, by involving private sector funding, technology, and management experience in collaboration with the government, effectively alleviates fiscal pressure on the government while enhancing venue operation efficiency and service quality. The PPP model not

only optimizes resource allocation but also strengthens the project's risk resistance, laying a solid foundation for the long-term sustainable development of sports venues. Pelissero (2010) suggests that the United States should widely adopt the public-private partnership funding model for the construction and renovation of large sports venues. This model breaks the limitations of single government investment by attracting social capital, broadening financing channels, and providing ample funding support for sports venue construction and upgrades. Additionally, private sector participation introduces market competition, driving innovation and improvement in venue construction and operation.

## RESEARCH QUESTIONS

With the widespread adoption and development of sports activities, sports venues, as essential locations for hosting various sports events and public fitness activities, are crucial to the quality of sports management, which directly impacts the sports experience, event effectiveness, and the healthy development of the sports industry. However, common issues in current sports venue management include facility deterioration, inadequate service, and low operational efficiency, which severely constrain the full utilization of venue functions and the enhancement of user experience. Therefore, researching optimization strategies for sports venue management quality is of significant importance for improving operational efficiency, enhancing user experience, and advancing the sports industry. This study aims to explore optimization strategies for sports venue management quality in depth, focusing on the following specific research questions:

1. What are the main issues currently present in sports venue management?
2. How can Internet of Things (IoT) and big data analysis technologies be utilised to optimise sports venue management quality?
3. How can a scientifically sound performance evaluation system be developed to ensure the effective implementation of management optimization measures?

## METHODOLOGY

The questionnaire survey method, as a core methodology in social science research, is particularly prominent in educational research and other social science fields. This method involves the construction of systematic and structured questionnaire tools to collect, organize, and analyze data and information from various respondents, with the aim of quantitatively analyzing complex and dynamic social phenomena and their underlying mechanisms. Rooted in the positivist research paradigm, this approach emphasizes in-depth exploration and scientific validation of objective phenomena, asserting that social sciences share methodological commonalities with natural sciences. Both can reveal causal relationships behind phenomena through systematic observation, experimentation, and statistical methods. Within this theoretical framework, the questionnaire survey method employs quantitative research techniques to process and analyze questionnaire data, striving for objectivity, accuracy, and reproducibility of research results.

Specifically, the questionnaire survey method demonstrates high scientific rigor and precision at the design stage. Researchers must carefully construct the content of the questionnaire based on research objectives and hypotheses, including aspects such as question types (e.g., closed-ended, open-ended, scales), question order, and wording, to ensure that the questionnaire comprehensively and accurately reflects the characteristics and conditions of the research subjects. Additionally, a sound sampling strategy is crucial for ensuring sample representativeness and generalizability. Researchers can use methods such as random sampling and stratified sampling to collect data samples with broad significance. Upon completion of data collection, the questionnaire

survey method relies on advanced statistical software and quantitative analysis techniques for systematic processing and analysis of the collected data. This process includes data cleaning, coding, descriptive statistics, and inferential statistics, aiming to reveal distribution patterns, relationships, and causal mechanisms within the data. Through quantitative analysis, researchers can derive scientific and objective conclusions, providing strong theoretical support for policy-making, educational reform, and other practical fields. Furthermore, the questionnaire survey method is characterized by high flexibility and broad applicability. Researchers can adjust the content and format of the questionnaire according to different research purposes and subjects to meet varying research needs. Additionally, this method is suitable for collecting and analyzing data from large samples, enabling the acquisition of rich data resources in a relatively short time and providing robust support for in-depth research.

## **DATA ANALYSIS PROCEDURE**

In conducting research on the management quality of sports venues, a combined approach of snowball sampling and random sampling is employed to ensure sample diversity and representativeness while enhancing survey efficiency. The specific strategy is as follows: Initially, a small subset of users from all sports venues within the city is selected through random sampling. Contact information for this initial sample is obtained via directories, social media, and sports organization listings, and final respondents are determined using a random number generator or random sampling software. Subsequently, employing the snowball sampling technique, respondents from the initial sample are asked to recommend friends, colleagues, or family members who also meet the study criteria to participate. This method allows for a gradual expansion of the sample range while leveraging respondents' social networks to increase sample diversity and coverage.

Based on an extensive review of the literature and the focus of this study (management quality of sports venues), a detailed questionnaire is developed. The questionnaire addresses multiple aspects of sports venues, such as facility conditions, service quality, safety management, and user experience, utilizing various formats including multiple-choice and open-ended questions to collect data. The questionnaire is designed to be comprehensive, clear, and easily understandable. It is then uploaded to the Wenjuanxing platform, a specialized online survey tool that supports various question types, logical skips, and data analysis features. The Wenjuanxing sharing function is used to distribute the questionnaire link or QR code to the initially randomly selected respondents. Additionally, respondents are encouraged to share the questionnaire with their recommended contacts through social media, email, and other channels. Wenjuanxing automatically collects the completed responses and generates detailed statistical reports. Once a sufficient sample size is achieved, the data is cleaned, organized, and analyzed. Statistical software (SPSS, Excel, etc.) is utilized for descriptive statistics, correlation analysis, regression analysis, and other procedures to identify key factors and issues affecting the management quality of sports venues. A total of 430 questionnaires were distributed, with 410 valid responses, resulting in a validity rate of 95.3%.

## **RESULTS AND DISCUSSION**

The research project utilized a comprehensive approach, incorporating both digital and traditional methodologies to gather data. Specifically, a series of questionnaires were disseminated among faculty members and students at various universities located in Chengdu. This strategic distribution method allowed the research team to collect a diverse range of perspectives, ultimately

yielding a substantial dataset comprising 410 valid and usable responses. When delving into the demographic breakdown of these responses, the survey revealed an intriguing gender distribution. The proportion of male respondents to female respondents was found to be closely balanced, with males constituting 51.22% of the total and females making up 48.78%. This near-equal split underscores the importance of considering gender inclusivity in the context of sports facilities. As these facilities are categorized as public service amenities, it is crucial that they cater to the needs of both male and female users. Therefore, it is imperative for the management of these facilities to ensure that the infrastructure, services provided, and operational hours are designed to be equally accessible and accommodating to individuals of all genders. By doing so, sports facilities can foster an environment where everyone has the opportunity to engage in physical activities, promoting overall well-being and inclusivity within the community.

When examining the age distribution among the respondents, it becomes evident that a significant portion of them fall within the younger age brackets. Specifically, 43.90% of those surveyed are in the age range of 18 to 22 years old, and an additional 29.27% are aged between 23 and 27 years. This data underscores the fact that the primary user demographic of sports facilities is predominantly composed of young individuals. Furthermore, the statistics regarding the frequency of exercise among these respondents reveal some interesting trends. A substantial 36.59% of the participants reported engaging in physical activity 2 to 3 times a week, indicating a consistent level of engagement with sports facilities. Additionally, 21.95% of the respondents stated that they exercise more than 5 times a week, which highlights a high level of commitment and regular use of these facilities. Taken together, these figures suggest that all participants in the survey have some experience using sports facilities, with a clear majority being young people who utilize these resources on a regular basis.

Table 1: Basic Information of Respondents

Question	Option	Number	Percentage
Gender	Male	210	51.22%
	Female	200	48.78%
Age Group	18-22	180	43.90%
	23-27	120	29.27%
	28-32	60	14.63%
	33 and above	50	12.20%
Weekly Exercise Frequency	Once	50	12.20%
	2-3 times	150	36.59%
	4-5 times	120	29.27%
	More than 5 times	90	21.95%

Upon analyzing the data regarding the frequency with which individuals utilize sports venues, it becomes evident that there is a considerable disparity among different user groups. A significant segment of the population, constituting 36.83% of the users, frequents these facilities several times a week. This high percentage underscores the fact that a substantial number of people have integrated regular exercise into their weekly routines, thereby highlighting the crucial role that sports venues play in their daily lives. These individuals have evidently recognized the importance of maintaining an active lifestyle and have chosen sports venues as their preferred setting for physical activity.

Conversely, there exists a notable portion of the population whose engagement with sports venues is less frequent. Specifically, 19.27% of individuals report rarely using these facilities, while an additional 7.32% indicate that they never utilize them. This data points to a potential issue with the current utilization rates of sports venues, suggesting that there is room for improvement in terms of attracting and retaining a broader user base. It appears that certain barriers or lack of incentives may be preventing these individuals from taking full advantage of the available resources.

To tackle the issue of varying levels of interest and to bolster the overall attractiveness of sports venues, it would be prudent to delve into a variety of strategies designed to elevate the enthusiasm of potential visitors. This comprehensive approach could encompass a range of initiatives, such as enhancing the quality and diversifying the array of services available to patrons. For instance, ensuring that the facilities are not only well-maintained but also equipped with state-of-the-art amenities can significantly contribute to a more enjoyable and satisfying user experience. Additionally, introducing innovative programs that cater to a broader spectrum of interests and fitness levels can help in engaging a more diverse audience. These programs might include specialized classes, family-friendly events, or even competitive leagues that appeal to different segments of the population. By making these sports venues more inclusive and appealing, the aim is to not only boost the frequency of visits among existing patrons but also to draw in those individuals who have previously shown little inclination to utilize these facilities. The ultimate objective is to maximize the utilization rates of sports venues, thereby promoting a more dynamic and health-oriented community where individuals are encouraged to lead more active lifestyles.

When it comes to the satisfaction levels associated with the facilities of sports venues, the data that has been collected and analyzed presents a clear picture of a divided opinion among the users. On one side of the spectrum, we find that the “Average” option has garnered the highest percentage of responses, with a notable 43.41% of users selecting this category. This suggests that a substantial majority of individuals hold a relatively neutral stance towards the sports venue facilities, indicating that they are neither particularly pleased nor displeased with what is offered. Their feelings seem to fall into a middle ground, where the facilities meet basic expectations without standing out as exceptional or inadequate. When we look at the other end of the spectrum, we observe a significant concern. The cumulative percentage of users who have expressed dissatisfaction, choosing either the “Dissatisfied” or “Very Dissatisfied” options, amounts to 29.27%. This figure is notably high and points towards a considerable number of individuals who have encountered issues or deficiencies within the facilities that have negatively impacted their experience. The fact that 12.20% of users have chosen the “Very Dissatisfied” option is particularly alarming, as it represents a substantial portion of the user base who have faced serious problems or shortcomings in the facilities. This data serves as a clear indication that the management of these sports venues needs to take immediate and serious action to address the concerns raised by these dissatisfied users. It is crucial for venue managers to prioritize the maintenance and potential upgrades of the facilities in order to rectify the existing issues. By doing so, they can work towards enhancing the overall satisfaction levels of their users, which is essential for the reputation and success of the venue. Ensuring that the facilities meet the needs and expectations of users not only improves their experience but also encourages repeat visits and positive word-of-mouth, which are vital for the long-term viability of any sports venue.

When it comes to the operating hours of facilities, the feedback from users appears to be quite varied, with no single viewpoint standing out as the majority. In fact, while the cumulative percentage of users who believe the hours are either “Very Adequate” or “Adequate” is just over



the halfway mark at 51.46%, there is also a considerable segment of users, representing 24.15%, who feel that the hours are either “Not Very Adequate” or “Completely Inadequate”. This distribution of opinions highlights the need for more adaptable and user-oriented scheduling to cater to the diverse needs of different user groups. On the other hand, the convenience of the booking system has been highly praised, with more than 80% of users rating it as “Very Convenient” or simply “Convenient”. This underscores the significant strides made in the realm of digital management within sports venues. However, it is worth noting that approximately 7.32% of users still encounter difficulties with the booking system, suggesting that ongoing enhancements are essential to further refine and improve the overall user experience.

When examining the data related to sports guidance and coaching services, a rather alarming pattern emerges. It has been observed that more than half of the individuals utilizing these services, precisely 59.51%, have never been provided with the appropriate level of guidance that they deserve. This statistic is particularly troubling when contrasted with the mere 2.44% of users who have reported receiving adequate coaching. This significant disparity underscores a profound lack in the provision of professional guidance services within sports venues, indicating that these establishments are falling short in delivering the personalized and specialized instruction that users require and expect.

Considering the pivotal role that proper guidance plays in enhancing the effectiveness of exercise routines and simultaneously minimizing the risk of injuries, it is imperative for venue managers to take immediate and decisive action. They should focus on bolstering their coaching teams by hiring more qualified and experienced professionals. Additionally, it would be highly beneficial for these venues to invest in and integrate more advanced and professional coaching resources. By doing so, they can ensure that their clients receive the high-quality guidance services necessary to not only improve their athletic performance but also to exercise safely and effectively. This strategic enhancement of coaching services will not only meet the current needs of users but also has the potential to attract a broader clientele, thereby contributing to the overall success and reputation of the sports venues.

When it comes to safety measures, the feedback from users exhibits a starkly divided pattern. A segment of users, representing 24.39%, express satisfaction or even a high level of satisfaction with the safety measures implemented at sports venues. However, a significantly larger group, constituting 49.51%, fall into the categories of being either neutral or dissatisfied with these measures. The substantial percentage of users who are “Very Dissatisfied,” amounting to 20.73%, highlights the glaring inadequacies present in the safety management systems of these venues. This polarization in user opinions underscores the urgent need for improvements in safety protocols to ensure the well-being of visitors.

In a similar vein, hygiene standards at these sports venues are met with overall low approval from users. The cumulative percentage of users who are “Dissatisfied” and “Very Dissatisfied” with the hygiene measures amounts to a concerning 54.39%. This figure points to serious shortcomings in the hygiene management practices that require prompt attention. Ensuring that these issues are addressed promptly is crucial for maintaining the health and safety of users, as well as for upholding the reputation and integrity of the sports venues.

Table 2 Survey Results on Sports Venue Management Quality

Question	Option	Number	Percentage
How often do you use the sports venue?	Daily	49	11.95%
	A few times a week	151	36.83%

	A few times a month	101	24.63%
	Rarely	79	19.27%
	Never	30	7.32%
How satisfied are you with the sports venue facilities?	Very Satisfied	52	12.68%
	Satisfied	60	14.63%
	Neutral	178	43.41%
	Unsatisfied	70	17.07%
	Very Unsatisfied	50	12.20%
Do you think the opening hours of the sports venue are adequate?	Very Adequate	111	27.07%
	Adequate	100	24.39%
	Neutral	59	14.39%
	Not Very Adequate	69	16.83%
	Completely Inadequate	71	17.32%
How is the maintenance of the facilities and equipment in the sports venue?	Very Good	50	12.20%
	Good	177	43.17%
	Neutral	163	39.76%
	Poor	16	3.90%
	Very Poor	4	0.98%
Does the sports venue provide adequate sports guidance or coaching services?	Yes	10	2.44%
	Occasionally	50	12.20%
	Rarely	106	25.85%
	Never	244	59.51%
How satisfied are you with the safety measures at the sports venue?	Very Satisfied	35	8.54%
	Satisfied	65	15.85%
	Neutral	107	26.10%
	Unsatisfied	118	28.78%
	Very Unsatisfied	85	20.73%
Do you find the reservation system of the sports venue convenient and easy to use?	Very Convenient	180	43.90%
	Convenient	150	36.59%
	Neutral	50	12.20%
	Inconvenient	20	4.88%
	Very Inconvenient	10	2.44%
Does the sports venue frequently hold sports events or activities?	Frequently	212	51.71%

How satisfied are you with the cleanliness of the sports venue?	Occasionally	137	33.41%
	Rarely	20	4.88%
	Never	31	7.56%
	Very Satisfied	50	12.20%
	Satisfied	16	3.90%
	Neutral	121	29.51%
	Unsatisfied	85	20.73%
	Very Unsatisfied	138	33.66%

In the analysis of the 15 surveyed sports venues, a notable characteristic emerged regarding their access models: the majority of venues (93%) adopt a partially paid access approach. This means that certain services or facilities require users to pay a fee, while others may be offered at a lower cost or free of charge. This flexible and diverse pricing model potentially attracts various user groups, catering to those willing to pay for specific services while also accommodating users who are sensitive to pricing. Notably, no venue opted for an entirely paid or entirely free access model, reflecting the managers' considerations of balancing economic benefits with social value. It is also worth noting that no venue selected the "Other" option, indicating that these venues predominantly follow traditional and widely accepted pricing structures. This finding may serve as an insight for sports venue managers, suggesting that when formulating access strategies, it is crucial to consider the diversity of user needs and employ a flexible pricing model to enhance the venue's appeal and utilization.

Table 3: Access Models of Sports Venues (N=15)

	Full compensation	Partial compensation	All without compensation
frequency	0	14	1
percent	0	93	7

## CONCLUSION

Differences in personal habits and motivations among user groups are significant factors contributing to variations in sports venue usage frequency. Users who visit sports venues several times a week often possess a strong health consciousness and motivation for self-improvement, considering physical exercise an indispensable part of their lives. This perspective enables them to maintain a high frequency of usage (Cui, 2018). Such users typically experience the physical and mental benefits of exercise, leading to the development of stable workout habits. Conversely, users who visit sports venues infrequently or never may be hindered by factors such as busy work schedules, high levels of life stress, or a lack of interest or motivation for exercise, which prevents them from integrating physical activity into their daily lives. Additionally, the attractiveness and quality of service provided by sports venues are crucial factors affecting user frequency. For users who have established regular exercise habits, a venue that meets their needs in terms of facilities, environment, and services is likely to enhance their willingness to use the venue and their loyalty. However, if a venue has deficiencies in facility maintenance, environmental quality, or service content, it can decrease user satisfaction and their likelihood of returning (Chen, 2019). Problems such as aging facilities, poor cleanliness, or inadequate service attitudes can lead to reduced usage

frequency. Moreover, insufficient promotional efforts can also be a significant factor in low venue utilization rates. In an era of information overload, users are faced with a multitude of choices, making it essential for venues to stand out and become the preferred option. Thus, sports venue managers need to consider how to effectively promote their facilities to attract and retain users.

The polarization in facility satisfaction ratings largely reflects issues related to facility aging and inadequate maintenance. Over time, the facilities in sports venues gradually wear out and age. Without timely maintenance and updates, this can severely impact the user experience. For example, damaged tracks, outdated fitness equipment, and dirty changing rooms can lead to dissatisfaction with the facilities. Additionally, differences in facility satisfaction ratings can arise from a mismatch between outdated facilities and evolving user needs (Fang, 2020). When planning and designing sports venues, it is essential to consider the diverse needs of various user groups and allocate facilities accordingly. However, in practice, some venues may focus too much on generality rather than addressing personalized needs. For instance, female users might have higher expectations for privacy and convenience in changing rooms. If a venue fails to meet these needs, user satisfaction may decline.

The dispersion in user evaluations regarding the adequacy of sports venue opening hours highlights multiple reasons and demand differences. Firstly, this dispersion reflects the diversity and personalized needs of user groups. Due to factors such as work, study, and lifestyle habits, different users have varying expectations for the opening hours of sports venues (Chen, 2018). For instance, working individuals might prefer using the venue during evening or weekend hours, while students might require access after school hours. Consequently, although the current opening hours arrangement meets the basic needs of some users, it clearly does not fully accommodate all users' time preferences (He, 2020). To address this issue, sports venue managers should implement more flexible and user-oriented opening hour strategies. This could include, but is not limited to: extending opening hours during peak times, such as adding early and late evening slots; adjusting opening hours based on seasonal changes and user demand, such as extending nighttime hours in summer to cater to users seeking exercise during cooler times; and exploring 24-hour self-service models to provide convenience for users exercising late at night or early in the morning. Additionally, managers can gather user feedback through surveys, social media, and other channels to understand the time preferences of different user groups, thereby developing more precise opening hour plans. On the other hand, the convenience of the reservation system has been highly recognized by users, reflecting the positive impact of digital management in sports venues. The introduction of a reservation system not only alleviates the pressure of peak-time crowds but also enhances user efficiency and satisfaction. However, some users still report issues with the reservation system's convenience, potentially due to complex system operations, unfriendly interfaces, or slow response times. To address these concerns, managers should continuously optimize the reservation system's functionality and user experience. Specifically, improvements can include enhancing system usability, simplifying operational processes to accommodate users of different ages and technological proficiency; optimizing the system interface to improve visual effects and interaction experience; and strengthening system stability and response speed to avoid lag or delays during use. Moreover, managers can refine the system based on user feedback, such as adding online payment, automatic reminders, and feedback modules, to further enhance the reservation experience and user satisfaction.

In the operation of sports venues, the severe shortage of sports guidance or coaching services has become an urgent issue. Sports venues often allocate more resources to tangible costs such as facility maintenance and venue rental, while neglecting the development of the coaching team,

which is a critical soft asset. The scarcity of coaching resources directly results in users not receiving adequate guidance services (Pourhassan, 2022). Even if a venue employs a certain number of coaches, the professional qualifications, teaching experience, and instructional methods of these coaches can vary significantly (Lee, 2015). Some coaches may lack systematic training and certification, making it challenging to provide high-quality, personalized guidance. Sports venues often fail to fully understand and identify users' true needs when delivering services. Different user groups have varying goals, skill levels, and interests, which require targeted guidance plans. However, the current service models may be too uniform to meet the diverse needs of users. Some sports venue managers might lack a user-centered service philosophy and fail to recognize high-quality coaching services as a crucial means of enhancing user satisfaction and loyalty. Additionally, the internal culture of the venue may lack a focus on innovation and pursuit of excellence, leading to a lack of motivation and creativity within the coaching team.

To address the shortcomings in safety and hygiene management of sports venues, the primary focus should be on improving investment and management efforts. In terms of safety management, due to budget constraints or managerial neglect, venues often fail to adequately invest in the maintenance and updating of safety facilities, professional training of safety personnel, and strict implementation of safety management systems. This requires managers to prioritize safety management, increase relevant budgets, ensure that safety facilities are complete and in good condition, enhance safety training, improve employees' emergency response capabilities, and eliminate potential safety hazards through regular safety drills and inspections. In terms of hygiene management, lax daily management is the main reason for poor hygiene conditions. Given the high foot traffic and frequent use, venues must establish and strictly enforce effective hygiene management systems, including increasing cleaning frequency, using efficient cleaning and disinfection technologies, and improving waste disposal processes. Additionally, establishing supervision mechanisms and reward-punishment measures is essential to ensure the continuous and effective execution of hygiene tasks. Moreover, a user feedback mechanism should be implemented to promptly obtain and respond to hygiene issues, continuously optimizing hygiene management measures. On the other hand, differences in users' awareness of safety and hygiene are also important factors affecting evaluations. Although these differences exist objectively, sports venues, as service providers, have the responsibility and obligation to provide all users with a consistent high standard of safety and hygiene environment. By strengthening public education, raising users' awareness of the importance of safety and hygiene, setting up prominent safety notices and hygiene guidelines, and guiding users to maintain a good exercise environment together, venues can better meet diverse user needs and improve overall satisfaction.

To ensure the quality of sports venue management and sustain its operation, a reasonable pricing strategy is crucial. The following section outlines recommendations for pricing strategies aimed at balancing operational costs, service quality enhancement, and public affordability: In the management of sports venues, pricing strategies are not only essential for financial equilibrium but also serve as effective tools for facilitating facility upgrades, improving service quality, and enhancing user satisfaction. Firstly, a foundational pricing standard should be established based on cost analysis to ensure that basic expenses such as daily operations, facility maintenance, personnel salaries, and safety measures are covered. This requires venue managers to meticulously calculate various costs, including but not limited to rent, utilities, equipment depreciation, maintenance, and staff training, to set a benchmark price that aligns with market norms while ensuring service quality. Secondly, a differentiated pricing strategy should be implemented to meet the needs of diverse user groups. For professional athletes, sports teams, or clubs that use the venue

frequently, membership systems or long-term cooperation agreements could be introduced, offering discounted rates or exclusive services such as priority booking and personalized training plans. This approach enhances user retention and fosters long-term partnerships. Concurrently, for general public and student groups, time-based discounts, group offers, or free open days could be established to attract more potential users and enhance the venue's social impact. Additionally, innovative pricing models should be explored to diversify revenue streams by incorporating value-added services. Sports venues can leverage their space and facilities to host various activities such as sports events, fitness classes, training seminars, and commercial exhibitions, generating non-ticket revenue through ticket sales, sponsorships, and advertising. High-quality ancillary services, such as changing rooms, showers, dining areas, and rest zones, should also be offered at reasonable charges to improve user experience and increase revenue. Transparency and fairness are crucial in the development of pricing strategies. Venue managers should publicly disclose pricing standards, rationale, and expense utilization, and be open to social oversight to ensure lawful and compliant pricing practices. Additionally, establishing a user feedback mechanism to promptly gather and address concerns and suggestions related to pricing will help continuously refine pricing strategies and service quality. In summary, to ensure the quality of sports venue management and sustain its operations, a reasonable pricing strategy should be based on cost analysis to set foundational pricing standards, implement differentiated pricing to cater to various user groups, explore innovative pricing models to expand revenue sources, and maintain transparency and fairness. These measures will effectively balance operational costs, service quality improvements, and public affordability, promoting the healthy development of sports venue management.

The present survey may be limited by the constraints of sample selection, potentially failing to comprehensively represent citizens across different age groups, professions, income levels, and regions, which may introduce certain biases in the research results. Future studies should aim to expand the sample scope and employ more scientifically rigorous sampling methods to enhance the generalizability and accuracy of the findings. Although the questionnaire addressed several key aspects, it lacked sufficient depth in certain areas, such as the specific processes of facility maintenance and personalized needs for sports guidance services, making it challenging to explore the deeper needs and underlying issues of citizens. Future research could incorporate open-ended questions or in-depth interviews to obtain more comprehensive information. This survey is a cross-sectional study, reflecting only the situation at a single point in time and not capturing the trend of changes in sports venue management quality over time. Future studies could establish long-term tracking mechanisms and regularly collect data to analyze the long-term effects of management improvement measures. As the application of intelligent and digital technologies in sports venue management becomes increasingly prevalent, this survey did not adequately address technological factors, such as compatibility with smart wearable devices and user experience of digital booking systems. Future research should strengthen the exploration of these emerging technological areas to better align with industry development trends.

Future research should develop a comprehensive management quality optimization system that encompasses planning design, construction, and operational management. Through scientific planning, rational layout, meticulous construction, and efficient operation, the overall management quality of sports venues can be significantly enhanced. It is essential to actively explore the application of new technologies such as the Internet of Things, big data, and artificial intelligence in sports venue management to drive innovation in management models. By utilizing intelligent monitoring and data analysis, a refined management approach can be achieved, thereby improving operational efficiency and service quality.

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