

# DEVELOPMENT OF PUBLIC SPORTS AND OPTIMIZATION OF SPORTS MODE UNDER THE INFLUENCE OF COVID-19 EPIDEMIC



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DESENVOLVIMENTO DE ESPORTES PÚBLICOS E OTIMIZAÇÃO DO MODO ESPORTIVO SOB INFLUÊNCIA DA EPIDEMIA DE COVID-19

EL DESARROLLO DEL DEPORTE PÚBLICO Y LA OPTIMIZACIÓN DEL MODELO DEPORTIVO BAJO LA INFLUENCIA DE LA EPIDEMIA DE COVID - 19

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## ABSTRACT

**Introduction:** The sports psychology of athletes and public service policies in various places have been adjusted under the influence of the epidemic of COVID-19. However, team sports also need adjustments, and the paucity of evidence prevents safe decision-making. **Objective:** Research the current model to outline optimizations to team sports public service during the epidemic of COVID-19. **Methods:** The mechanism of athletes' satisfaction was investigated, mainly involving organizing activities in sports venues, including geographical distribution, technical guidance, health services, etc. **Results:** According to the survey, the first concern was "organization of activities," with a score of 3.783; followed by "number of places," with a score of 3.252; and "health service," with a score of 3.142. In the athletes' satisfaction score relative to supply and demand, the first concern highlighted was "distribution of seats," with a score of 3.682; followed by "number of seats," with a score of 3.484; and "organization of activities," with a score of 3.112. **Conclusion:** In optimizing the public team sports service model, the actual needs of the facilities should be fully considered to achieve scientific optimization of supply and demand. **Level of evidence II; Therapeutic studies - investigation of treatment outcomes.**

**Keywords:** COVID-19; Communicable Disease Control; Team Sports.

## RESUMO

**Introdução:** Tanto a psicologia esportiva dos atletas quanto as políticas de serviço público em vários lugares foram ajustadas sob a influência da epidemia da COVID-19. Os esportes em equipe também necessitam de adaptações e a escassez de evidências impede tomadas de decisões seguras neste aspecto. **Objetivo:** Pesquisar o modelo atual para traçar otimizações ao serviço público esportivo de equipe durante a epidemia da COVID-19. **Métodos:** O mecanismo de satisfação dos atletas foi investigado, envolvendo principalmente a organização de atividades em locais esportivos, incluindo distribuição geográfica, orientação técnica, serviços de saúde, etc. **Resultados:** De acordo com a pesquisa levantada, a primeira preocupação foi "organização de atividades", com pontuação de 3,783; seguido de "número de vagas", com pontuação de 3,252; e "serviço de saúde", com pontuação de 3,142. Na pontuação de satisfação das atletas relativa à oferta e demanda, a primeira preocupação destacada foi "distribuição de lugares", com pontuação de 3,682; seguida de "número de lugares", com pontuação de 3,484; e "organização de atividades", com pontuação de 3,112. **Conclusão:** No processo de otimização do modelo de serviço público esportivo de equipes, as necessidades reais das instalações devem ser plenamente consideradas, a fim de alcançar a otimização científica da oferta e da demanda. **Nível de evidência II; Estudos terapêuticos - investigação dos resultados do tratamento.**

**Descritores:** COVID-19; Controle de Doenças Transmissíveis; Esportes de Equipe.

## RESUMEN

**Introducción:** Tanto la psicología deportiva de los atletas como las políticas de servicios públicos en diversos lugares se han ajustado bajo la influencia de la epidemia de COVID-19. Los deportes de equipo también necesitan ajustes y la escasez de pruebas impide tomar decisiones seguras al respecto. **Objetivo:** Investigar el modelo actual para delinear optimizaciones al servicio público de los deportes de equipo durante la epidemia de COVID-19. **Métodos:** Se investigó el mecanismo de satisfacción de los atletas, que involucra principalmente la organización de actividades en las instalaciones deportivas, incluyendo la distribución geográfica, la orientación técnica, los servicios de salud, etc. **Resultados:** Según la encuesta realizada, la primera preocupación era la "organización de las actividades", con una puntuación de 3,783; seguida del "número de plazas", con una puntuación de 3,252; y del "servicio sanitario", con una puntuación de 3,142. En la puntuación de satisfacción de los atletas en relación con la oferta y la demanda, la primera preocupación destacada fue la "distribución de los lugares", con una puntuación de 3,682; seguida del "número de lugares", con una puntuación de 3,484; y de la "organización de las actividades", con una puntuación de 3,112. **Conclusión:** En el proceso de optimización del modelo de servicio público de deportes de equipo, deben tenerse plenamente en cuenta las necesidades reales de las instalaciones para lograr una optimización científica de la oferta y la demanda. **Nivel de evidencia II; Estudios terapéuticos - investigación de los resultados del tratamiento.**

**Descriptores:** COVID-19; Control de Enfermedades Transmisibles; Deportes de Equipo.



## INTRODUCTION

Under the restriction of epidemic prevention policy, the development of Chinese stadiums and gymnasiums was seriously affected during the epidemic. In February 2020, the China sports venues Association conducted an online questionnaire survey in major provinces in China to better understand the impact of covid-19 pneumonia on the sports venues industry. The survey results show that due to the interruption and delay of venue activities and frequent closure of venues, the epidemic has a significant impact on venue operations: compared with the same period last year, 83.78% of the operating revenue of units in the first quarter is expected to decline significantly; 11.58% of the total unit income is expected to decline slightly; The flat unit is expected to remain at 4.25%. In view of the impact of the epidemic on operating costs in the first quarter, compared with the same period last year, 60.23% of the units believed that the cost expenditure would be specifically reduced. Among them, 39.91% of the units decreased slightly compared with the same period last year; 24.32% of the units decreased significantly compared with the same period last year; The flat units are expected to account for 22.01% of the total. Another 17.76% of the units believed that the cost expenditure would increase. Affected by covid-19 pneumonia, stadiums and gymnasiums around the world have to be transformed or closed, resulting in an unprecedented special period for the sports industry.<sup>1</sup> As China has never experienced a similar situation of National City closure, there is a lack of relevant policies for venue operation and management for reference, and there is a lack of systematic guidance on how to operate and manage sports venues under special circumstances. On April 27, 2020, China's national development and Reform Commission revised and approved the implementation plan for improving the public health emergency material support system and the opinions on strengthening the construction of national fitness venues and facilities and developing mass sports approved by the State Council on October 10 of the same year, which clearly emphasized the need to give stadiums and gymnasiums development space through construction and repair, which can be used as disaster relief and emergency shelters at the same time, so as to promote the development of stadiums and gymnasiums. Under the influence of covid-19 epidemic, the changes of local epidemic prevention policies, the actual situation of stadiums and gymnasiums, people's sports psychology and so on have put forward new requirements for the current sports public service model.<sup>2</sup> Therefore, the sports public service model must be adjusted according to the normalization of covid-19 epidemic prevention and control, so as to ensure that people's safety conforms to people's sports psychology, Provide sports services for the people as well as possible, so as to promote national physical quality, enhance resistance, and make a certain contribution to the prevention and control of the epidemic.<sup>3</sup>

## METHOD

In this paper, two questionnaires are designed by combining online and offline. The objects of delivery are different. The first one is for sports lovers to deliver to the general public. The problems include their age, consumption intention, demand for sports items and satisfaction with the current supply and demand of sports public services, so as to analyze the provision of sports public services in the current research area, In this paper, 2345 questionnaires were obtained by online delivery. After excluding 14 invalid questionnaires, 2231 questionnaires were obtained, including 1321 men and 910 women. The second questionnaire is aimed at the managers and operators of sports public service places in the current research area. It arranges and puts 466 large and small sports

public service places in the research area by means of offline delivery, and collects the current difficulties, so as to have more understanding of sports public service providers and combine the two, Make the demand for the optimization of the current sports public service model clearer. The study and all the participants were reviewed and approved by Ethics committee of Jiangxi University of traditional Chinese medicine (JXUTCMD-201PY).

This paper uses Excel software to input and sort out the obtained data, and adopts the chart drawing mode of Excel for some data, which makes the research results clearer and convenient for subsequent analysis.

## RESULTS

### Basic information of the research object

As shown in Figure 1, among the athletes surveyed, 312 were under the age of 20, accounting for 13.98%; 315 people aged 20-35, accounting for 14.12%; 525 people aged 35-50, accounting for 23.53%; The number of people aged 50-60 is 420, accounting for 18.83%; The number of people aged over 60 was 659, accounting for 29.54%. It can be seen that the age structure of the middle-aged and the elderly accounts for a large proportion in the current audience of sports public services. Due to the pressure of work and life, the proportion of young people participating in sports is not high.

As shown in Figure 2, among the investigated athletes, 224 people with consumption intention of 0 yuan, accounting for 10.04%; 1046 people (46.88%) were willing to spend less than 100 yuan; The number of people willing to spend 100-500 yuan is 572, accounting for 25.64%; The number of people willing to spend 500-1000 yuan was 286, accounting for 12.82%; The number of people willing to spend more than 1000 yuan was 103, accounting for 4.62%. As can be seen from the figure, in terms of consumption intention, the vast majority of athletes can accept sports expenditure within 500 yuan, and they are less willing to pay for some higher sports expenditure. Therefore, in the process of optimizing the supply of sports public services, consumers' consumption intention should also be fully considered.

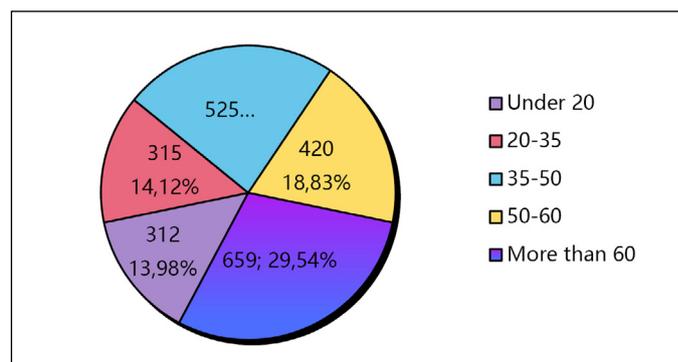


Figure 1. Age structure of subjects.

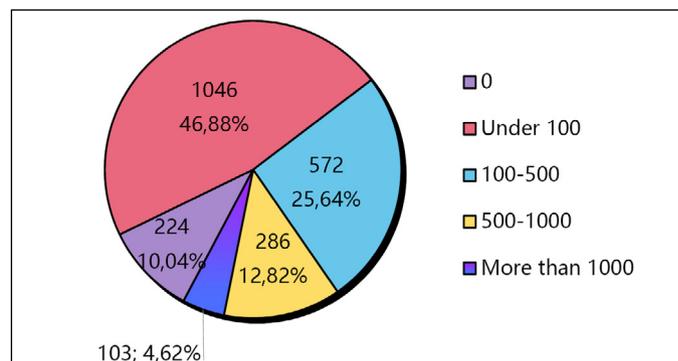


Figure 2. Consumption intention of the research object.

## Analysis on the satisfaction of sports public service supply and demand under the influence of covid-19

As shown in Table 1, among the male subjects, the number of people with basketball needs is 1002, accounting for 75.852%. The number of people in need of football is 1269, accounting for 96.064%; The number of people with badminton demand is 708, accounting for 53.596%; The number of people in need of table tennis is 625, accounting for 47.313%; The number of people with long-distance running needs was 658, accounting for 49.811%; The number of people who need to race walking is 633, accounting for 47.918%; The number of people in need of square dance was 98, accounting for 7.419%. Among the female subjects, the number of people with basketball needs was 240, accounting for 26.374%; The number of people with football demand is 55, accounting for 6.064%; The number of people with badminton demand was 421, accounting for 46.291%; The number of people in need of table tennis is 4788, accounting for 52.623%; The number of people with long-distance running needs was 436, accounting for 47.928%; The number of people who need to walk is 495, accounting for 54.484%; The number of people in need of square dance was 733, accounting for 80.597%. Comparing the needs of male and female research objects, it can be seen that the needs of athletes of different genders for sports are also different. Among them, the items with greater overlap are badminton, table tennis, long-distance running, walking and so on. Therefore, the supply of sports public services should fully consider the needs of all parties and set up different places.

As shown in Table 2, in the score of supply and demand satisfaction of male athletes, the first place is "activity organization", with a score of 3.783; The second place is "number of places", with a score of 3.252; The third is "health service", with a score of 3.142; The fourth is "technical guidance", with a score of 3.126; Finally, it is "place distribution", with a score of 2.536. In the score of supply and demand satisfaction of female athletes, the first place is "place distribution", with a score of 3.682; The second place is "number of places", with a score of 3.484; The third is "activity organization", with a score of 3.112; The fourth is "health service", with a score of 2.741; The last is "technical guidance", with a score of 2.511. A comprehensive analysis of the supply and demand satisfaction of the two shows that at present, the satisfaction of athletes is high in the number of places and activity organization, while the scores in the technical guidance of place distribution and health services are low. Therefore, in the design of sports public service supply, it is necessary to fully comprehensively distribute the types and number of venues, and provide effective service

**Table 1.** Sports demand.

Sports project demand	Number of men	Proportion	Number of women	Proportion
Basketball	1002	75.852%	240	26.374%
Football	1269	96.064%	55	6.064%
Badminton	708	53.596%	421	46.291%
Pingpong	625	47.313%	4788	52.623%
Long run	658	49.811%	436	47.928%
Race	633	47.918%	495	54.484%
Square dance	98	7.419%	733	80.597%

**Table 2.** Sports public service supply and demand satisfaction score.

Satisfaction	Male	Female
Spot quantity	3.252	3.484
Venue distribution	2.536	3.682
Activity organization	3.783	3.112
Technical support	3.126	2.511
Health service	3.142	2.741

guidance and health service monitoring and promotion, It is not only consistent with the actual situation of the current covid-19 epidemic, but also can provide better sports services for athletes.

## Composition and difficulty of sports public service model

Table 3 shows the composition of sports public service places in the study area. Among them, the largest number is the fitness equipment area, with a total of 259 research areas; Secondly, there are 88 squares in the study area; The third is the community fitness center, with a total of 27 research areas. The smallest number is large stadiums and gymnasiums, with a total of 5 in the study area. Combined with the demand, it can be seen that the number and distribution of places are relatively scientific and can basically meet the demand.

As shown in Table 4, through the investigation of the managers of sports public service places, it can be seen that there are 292 sports public service places with "insufficient funds", accounting for 62.66%; There are 186 sports public service venues with the problem of "insufficient venues", accounting for 39.91%; There are 216 public sports service centers with the problem of "insufficient manpower", accounting for 46.35%; There are 342 public sports service centers with the problem of "lack of information", accounting for 73.39%. It can be seen that under the influence of covid-19 epidemic, there are many problems in various sports public service places. In the process of optimizing the sports public service mode, we should fully consider the actual needs of venues, so as to achieve the combination of supply and demand and scientific optimization.

## DISCUSSION

The certainty of the purpose of policy-making is the strong implementation of the policy. During the epidemic period, the implementation of venue policies, especially those related to venue opening and epidemic prevention, reflected the characteristics of compulsory implementation of the policies, which made a significant contribution to China's fight against the epidemic. Only by correctly understanding the policy content can we accurately implement the policy objectives.<sup>4</sup> The purpose of stadiums and gymnasiums to deal with the epidemic is to prevent and reduce the losses of stadiums and gymnasiums. As the front end of the law enforcement system, sports departments at all levels should fully understand the contents of various policies when implementing relevant policies, ensure that there are no weak links in the process of

**Table 3.** Study on the resource composition of regional sports public service places.

Venue name	Quantity (PCs.)
Large sports venue	5
Sports Park	12
Square	88
Multifunctional sports field	17
Indoor fitness center	22
Community fitness center	27
Township activity	14
Leisure trail	22
Fitness equipment area	259

**Table 4.** Difficulties in the optimization of sports public service model.

Supply	Spot quantity	Proportion
Deficiency	292	62.66%
Space is insufficient	186	39.91%
Human hand is insufficient	216	46.35%
Information lack	342	73.39%

policy implementation, provide corresponding policy guidance for sports venues, support stadiums and gymnasiums to implement policies and reduce the impact of epidemic. Managers must also cultivate their sense of responsibility. In the process of implementation, all executing agencies should always maintain a good state of service to ensure the high-quality and efficient implementation of policies; Stadiums and gymnasiums are the end of the implementation system. Managers need to start from themselves, keep a sense of crisis at all times, be familiar with the contents of the policy, regularly inspect the safety facilities and equipment under their jurisdiction according to the policy requirements, and improve the internal ability of the system through training to deal with risks. Through the concerted efforts of the front and end parts of the policy implementation, the policy can fully play its role. A good policy-making mechanism for emergency management of stadiums and gymnasiums is the prelude to the formulation of emergency response policies for stadiums and gymnasiums and an important guarantee for doing a good job in emergency response. The perfect mechanism will reduce the working pressure of key government departments and improve the initiative of stadiums to deal with events; So that sports venues can respond quickly to events, such as identifying event categories and taking emergency actions in cooperation with existing emergency management departments; A good mechanism will also help to establish a comprehensive platform for emergency management of stadiums and gymnasiums, and strengthen the links between sports venues and between sports venues and government departments.<sup>5</sup>

Establish a real-time monitoring mechanism through the platform, analyze, record and integrate the information needs of residents by using advanced technologies and methods such as statistical analysis, data

modeling and big data analysis, classify and process the evaluation of sports information, establish a positive interactive relationship between the platform and residents, fully meet the social sports needs, stimulate residents' interest, remove the obstacles for residents to obtain online sports information, and broaden information acquisition channels, Create a more effective and orderly channel for information exchange environment. Government sports authorities should establish a target management responsibility system for sports activities, including the establishment of a public sports information service platform for the purpose of annual assessment, and earnestly strengthen the standardized management of online sports information services. The market order will promote the healthy and orderly development of the sports industry.

## CONCLUSION

From the research results, it can be seen that the current covid-19 epidemic has had a certain impact on the sports public service model. Although the existing sports public service model can still provide good services for athletes to a certain extent, with the change of athletes' psychology, there are still some deficiencies in health knowledge promotion, epidemic prevention and control, site safety and so on, which need to be effectively optimized. Therefore, relevant departments and place managers should effectively adjust the sports public service mode according to the current actual situation of supply and demand and the regional epidemic prevention and control strategy, so as to promote its supply diversification and management informatization, so as to provide better services for athletes.

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All authors declare no potential conflict of interest related to this article

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**AUTHORS' CONTRIBUTIONS:** The author has completed the writing of the article or the critical review of its knowledge content. This paper can be used as the final draft of the manuscript. Every author has made an important contribution to this manuscript. Yue Gu and Zhiliang Yuan: writing and execution. Weibo Zhou: data analysis. Wei Xu: article reviews.

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