MEDS Public Health and Preventive Medicine (2026)
Clausius Scientific Press, Canada
DOI: 10.23977/phpm.2026.060118
ISSN 2616-1915 Vol. 6 Num. 1

Dilemmas and Countermeasures of Sports-Medicine Integration in Obesity Governance under the New Development Concept: An Exploratory Study Based on Grounded Theory

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Keywords: Obesity Governance; Sports-medicine Integration; Grounded Theory; New Development Concept; Healthy China

Abstract: Obesity is a major risk factor for chronic diseases, and the integration of sports and medicine is an effective pathway to curb obesity. Employing grounded theory and drawing on literature and interviews, this study finds that differences between sports and medicine at the macro-level of historical humanistic development and the meso-level of organizational and disciplinary structures have led to integration barriers in hardware resources (e.g., personnel and venues) and software resources (e.g., technology market and compliance). Accordingly, a strategy model for obesity governance through sports-medicine integration under the New Development Concept is constructed: innovation-driven development to establish a new disciplinary theoretical system; coordination-driven development to open up mutual recognition channels for talent; green development to foster a healthy body-weight perspective; openness-driven development to improve safeguard measures; and sharing-driven development to achieve full coverage of service networks. The model aims to provide theoretical and practical guidance for obesity governance and serve as a reference for maintaining health through sports-medicine integration.

1. Introduction

In recent years, chronic non-communicable diseases (hereinafter referred to as chronic diseases), including cardiovascular diseases, diabetes, and certain cancers, have accounted for nearly 90% of total deaths among Chinese residents, becoming a major public health problem in China and worldwide, with obesity being a primary risk factor for chronic diseases [1]. The 20th National Congress report states: "Safeguarding the people's health is a major task of Chinese modernization; we must give strategic priority to ensuring the people's health." The integration of sports and medicine is a booster for safeguarding people's health and building a Healthy China. How to effectively carry out obesity governance through sports-medicine integration has become an urgent issue requiring in-depth research and resolution in Chinese academia [2].

The New Development Concept, with “innovation, coordination, green development, openness,

and sharing" as its core connotations [3], represents a scientific analysis and profound summary of China's development experience since the reform and opening-up, as well as of domestic and international economic and social situations and the laws of historical development. It serves as the core guiding ideology for the Chinese government in promoting high-quality economic and social development. The New Development Concept has brought new thinking and new opportunities to the development of sports-medicine integration and provides strong support for its advancement [4]. Integrating and implementing the New Development Concept into the work of obesity governance through sports-medicine integration is of great significance for accelerating the promotion of sports-medicine integration in obesity prevention and control, and also brings new thinking and opportunities for the nationwide healthy body-weight initiative in China. Therefore, this study comprehensively collected and analyzed relevant literature on obesity governance and sports-medicine integration at home and abroad, combined with in-depth personal interviews, and employed grounded theory to construct strategies for obesity governance through sports-medicine integration, aiming to provide meaningful insights for effectively curbing the spread of obesity and offering useful references for preventing and controlling chronic diseases associated with obesity, including cardiovascular diseases, diabetes, and certain cancers.

2. Research Design, Category Extraction, and Model Construction

2.1. Research Method

Grounded theory is a qualitative research method proposed by American sociologists Glaser and Strauss in their book *The Discovery of Grounded Theory*. It emphasizes generating theory from data, holding that only through in-depth analysis of data can a theoretical framework be gradually formed [5]. The grounded theory research process is clear and explicit, with reasonable levels of analysis, and the conclusions drawn are scientific. As mentioned above, the obesity situation among Chinese residents is severe, existing theories can hardly meet current needs, and this research field is still at an exploratory stage. In imperfect fields, qualitative research is more forward-looking than quantitative research [6]. As an important guiding ideology for all aspects of society, the forward-looking, holistic, and commanding nature of the New Development Concept provides the key to the current development and practical advantages of sports-medicine integration in China, while also indicating development directions, providing implementation ideas, and converging development focal points [4]. Constructing strategies for obesity governance through sports-medicine integration under the New Development Concept can provide operable governance strategies for obesity prevention and control in China, promote societal participation, and facilitate the implementation of the Healthy China 2030 plan.

2.2. Data Collection

This study used CNKI and Google Scholar as the main sources of secondary literature, with Baidu Search and the Chinese Government Network (http://www.gov.cn/) as supplementary sources. English literature was searched through Google Scholar using the keywords "Obesity Governance in China," "Obesity prevention and control in China," and "Obesity prevention and treatment in China," yielding 34 papers; using "Combine exercise and medical treatment to prevent obesity" yielded 13 papers. Chinese literature was searched on CNKI using keywords such as "integration of sports and medicine", "integration of sports and health" , "combination of sports and medicine" , "combination of medicine and sports" , "obesity prevention and treatment strategies", "weight management", "obesity intervention", and "New Development Concept", yielding 73 papers. On the Chinese Government Network and Baidu Search, reports, policies, and interviews were screened,

yielding 19 documents. After deduplication, reading abstracts, browsing literature, removing weakly relevant literature, and merging literature with identical themes, 62 documents closely related to the research theme were finally retained.

Table 1: Respondent Statistics (N=20)

Demographic Attribute	Classification	Number of Interviewees	Proportion (%)
Gender	Male	11	55
	Female	9	45
Age	≤25 years old	3	15
	26–35 years old	3	15
	36–45 years old	8	40
	≥46 years old	6	30
Occupation	Sports technical staff	9	45
	Medical technical staff	5	25
	Sports administrative managers	2	10
	Hospital administrative managers	4	20
Professional Title	Primary	1	5
	Intermediate	5	25
	Associate Senior	9	45
	Full Senior	5	25
Administrative Rank	No management position	14	70
	Deputy Section Chief	0	0
	Section Chief	2	10
	Deputy Division Chief	2	10
	Division Chief	2	10
Educational Attainment	Bachelor’s Degree	6	30
	Master’s Degree	8	40
	Doctoral Degree	6	30
Cross-sector background	Cross-sector sports-medical practitioners	7	35

To obtain primary data, this study adopted semi-structured interviews. According to the requirements of grounded theory for selecting interview subjects, 20 respondents from the sports and medical industries were selected through purposive sampling, theoretical sampling, and snowball sampling for in-depth interviews. Each interview lasted approximately 40 minutes. With the respondents' consent, the interviews were recorded and archived, followed by transcription. This study randomly selected 50 documents and 15 interview records for coding analysis and model construction, while the remaining 12 documents and 5 interview records were reserved for theoretical saturation testing. Respondent statistics are shown in Table 1, and the interview outline is shown in Table 2. Secondary literature focused on analyzing strategies for obesity governance through sports-medicine integration, while primary data focused more on exploring dilemmas and strategies for obesity governance through sports-medicine integration.

Table 2: Interview Outline

Basic Information	Name, gender, age, occupation, title, position, education level, whether cross-domain between sports and medicine
Interview	1. Please share your understanding of sports-medicine integration in obesity

Questions	governance (necessity, goals, subjects, connotations, characteristics, etc.).
	2. What problems do you think currently exist in sports-medicine integration for obesity governance?
	3. What do you think are the main factors constraining sports-medicine integration in obesity governance? What aspects need breakthroughs?
	4. What support does your industry most need from the government? How do you think the relationship between sports/medicine and medicine/sports should be clarified?
	5. What are the unique characteristics of your industry? What impact do they have on sports-medicine integration in obesity governance?
	6. What strategies do you think should be constructed for obesity governance through sports-medicine integration? How specifically should they be constructed?
	7. What opinions, suggestions, or views do you have on effectively promoting sports-medicine integration in obesity governance in China?
	8. What foreign situations or methods of sports-medicine integration are you aware of? What are the differences between domestic and international approaches?

2.3. Category Extraction and Model Construction

2.3.1. Open Coding

Under the guidance of grounded theory, this study conducted coding on collected literature and interview records, performing data mining and content analysis. Through initial conceptualization of original statements, cross-cutting and overlapping concepts were sorted and summarized, ultimately extracting 41 concepts. Through continuous comparison, induction, and re-merging of concepts, and after sorting out the connotations and external evidence of these concepts, 14 initial categories were finally identified. The first nine initial categories pertain to integration dilemmas, namely: differences in historical evolution, differences in humanistic core development, differences in organizational structure, differences in disciplinary support, personnel integration barriers, technology integration barriers, market integration barriers, venue integration barriers, and compliance integration barriers. The latter five initial categories pertain to integration strategies, namely: establishing a new disciplinary theoretical system for sports-medicine integration driven by innovation, opening up mutual recognition channels for talent between sports and medicine industries driven by coordination, fostering a healthy body-weight perspective for sports-medicine integration driven by green development, implementing comprehensive safeguard measures for sports-medicine integration driven by openness, and achieving full coverage of sports-medicine integration service outlets driven by sharing. The concept extraction process has been compiled into a table; due to space limitations, it is not presented in detail in this manuscript, and interested readers may request it from the authors via email.

2.3.2. Axial Coding

Based on the interrelationships and logical sequences among different categories, four main categories were induced: new challenges encountered in obesity governance, sports-medicine integration as a new opportunity for obesity governance, practical challenges of sports-medicine integration in obesity governance, and strategies for sports-medicine integration in obesity governance under the New Development Concept. The axial coding process has been compiled into

a table; owing to space limitations, it is not presented in detail in the main text, and interested readers may request it from the authors via email.

2.3.3. Model Construction

Around selective coding, the "storyline" [5] can be summarized as: China faces a severe obesity problem. The practical challenges of sports-medicine integration in obesity governance are analyzed from macro, meso, and micro levels. Subsequently, from the research perspective of the New Development Concept "innovation, coordination, green, openness, and sharing," five-dimensional strategies for obesity governance through sports-medicine integration are constructed. This storyline organically connects scattered main categories, constructing a model of dilemmas and countermeasures of sports-medicine integration in obesity governance under the New Development Concept, as shown in Figure 1.

2.3.4. Theoretical Saturation Testing

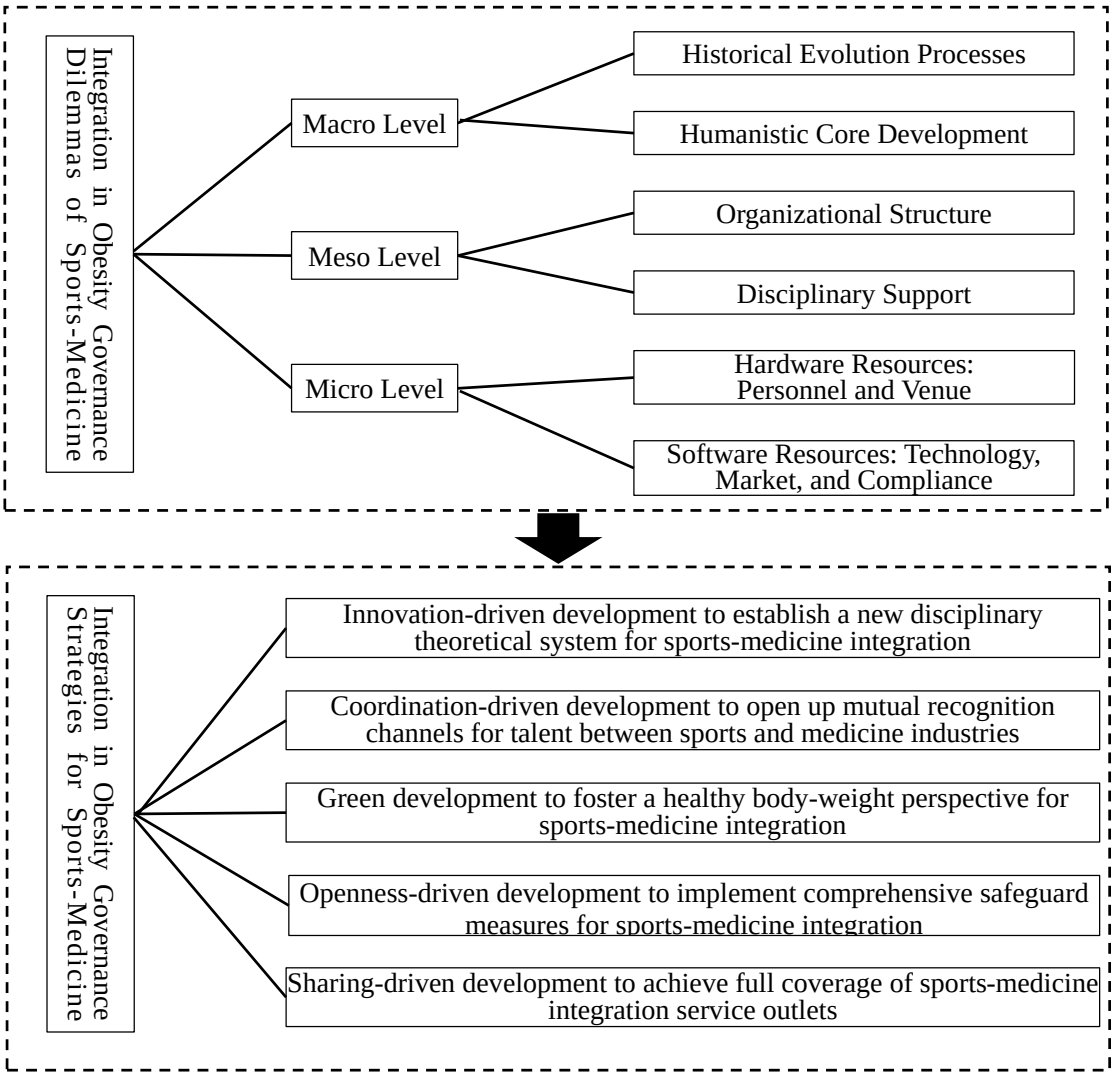

Figure 1: Model of Dilemmas and Countermeasures of Sports-Medicine Integration in Obesity Governance under the New Development Concept

To test the theoretical saturation of the strategies for obesity governance through sports-medicine

integration under the New Development Concept, the remaining 12 documents and 5 interview records were re-coded according to the previous steps of open coding, axial coding, and selective coding. After sorting and summarizing these materials, the analysis results were consistent with the previous relational attributes and conceptual dimensions. No new concepts beyond the initial categories emerged, no new main categories were found, and no new relationships were discovered among the main categories. Thus, it can be considered that the model shown has reached theoretical saturation.

3. Model Elaboration

The construction of the dilemma and countermeasure model for sports-medicine integration in obesity governance under the New Development Concept follows a problem analysis-problem solving logical approach. Part One: Dilemmas of Sports-Medicine Integration in Obesity Governance. This part explains the problems and causes that need to be confronted in the process of sports-medicine integration for obesity governance—this is problem analysis. Part Two: Strategies for Sports-Medicine Integration in Obesity Governance. This part discusses what should be done under the guidance of the new development philosophy—this is problem solving.

3.1. Dilemmas of Sports-Medicine Integration in Obesity Governance

The dilemmas of sports-medicine integration in obesity governance stem from the fact that the two subjects of sports and health departments are currently "operating in silos", making integrated governance difficult. To clearly diagnose what problems exist in sports-medicine integration for obesity governance, the following sections trace back to the roots and unravel the threads, clarifying the dilemmas of sports-medicine integration in obesity governance from macro, meso, and micro levels.

3.1.1. From the Macro-level Analysis

Sports and medicine differ in historical evolution and humanistic core development. First, differences in historical evolution. Sports originated from hunting and military activities; the term physical education was first used by Rousseau to discuss the educational process of the body [7]. Medicine originated from witchcraft; the earliest medical means were witchcraft rituals. Although their origins differ, with the recognition of the health value and function of sports, people have gradually experienced a cognitive process from "health-sports combination" to "sports-medicine combination" and then to "sports-medicine integration." Second, differences in humanistic core development. The core of sports humanities is the sports spirit, pursuing "higher, faster, stronger, more united." The core of medical humanities is people-oriented, with "saving lives and healing the wounded" as its professional goal. Although their concepts differ, as Zhong pointed out that the future goal of medicine is no longer mainly rescuing patients but more about prevention, rehabilitation, and early healthy living [8]. This is highly compatible with sports promoting health.

3.1.2. From the Meso-level Analysis

Sports and medicine differ in organizational structure and disciplinary support. First, differences in organizational structure. The sports organizational structure consists of the national system architecture for competitive sports, sports management agencies of other government departments, and community-based sports organizations. The health organizational structure (health organizational system) consists of health administrative organizations, health service organizations, and non-governmental health organizations. Although their organizational forms differ, with

increasing emphasis on comprehensive health, since 2017, at the National Inter-Ministerial Joint Conference on National Fitness led by the State Council, the General Administration of Sport of China and the National Health Commission have conducted discussions on health promotion through sports-medicine integration. In 2019, the Healthy China Action Promotion Committee and its office were established. "Through coordination, it achieves overall division of labor and cooperation, aiming to solve organizational problems" (Respondent 1). In 2021, the Jiangsu Provincial Sports Bureau and the Jiangsu Provincial Health Commission signed a strategic cooperation agreement on sports-medicine integration in Nanjing, effectively promoting the implementation of sports-medicine integration. Second, differences in disciplinary support. Sports-medicine integration refers to the organic combination of sports exercise methods and modern medical concepts and technical methods, scientifically integrating sports elements into all aspects of medical care [9]. Sports-medicine integration is a health service model that uses sports exercise methods in coordination with medical service plans to promote physical recovery, maintenance, and health promotion [10]. As the concept of sports-medicine integration indicates, sports and medicine have different disciplinary support, but this does not hinder the synergy and cooperation between the two subjects in the process of obesity governance.

3.1.3. From the Micro-level Analysis

There are integration barriers in hardware and software resources between sports and medicine. First, hardware resources refer to tangible, physical components, including personnel and venues. Personnel aspects are mainly manifested as academic atmosphere issues, motivation issues, certification issues, and employment and development issues; venue aspects are mainly manifested as technician distribution issues, regional distribution issues, and relevance to disease risk assessment and treatment. Second, software resources refer to intangible, non-physical components, including technology, market, and compliance. Technology aspects are mainly manifested as discipline construction issues, insufficient borrowing from foreign experience, and lack of innovation awareness; market aspects are mainly manifested as attribution issues and threshold issues; compliance aspects are mainly manifested as cost issues, concept issues, psychological issues, and exercise sustainability issues. Sorting out the dilemmas of sports-medicine integration at the micro-level is conducive to quickly identifying adjustment and subsequent optimization priorities and directions in practice, particularly conducive to finding specific problems and weak links in current obesity governance, thereby enhancing the pertinence and practical operability of countermeasures and providing ideas for solving the difficulties and dilemmas encountered in the integrated development of sports and medicine in obesity governance [11].

3.1.3.1. Personnel Aspects

Academic atmosphere issues are reflected in short-sighted disciplinary selection among reserve talents and the pursuit of short-term benefits in scientific research. "Some Chinese college students apply for economics majors; they cannot settle down to study basic disciplines, heading for money with short-sighted vision, regardless of people's health or national development" (Respondent 15). "Sports-medicine integration is merely a formality without solid foundational research. Some foreign longitudinal surveys often last decades, with sustained in-depth investigation and detailed data, which is worth learning from" (Respondent 15). Motivation issues include both the lack of motivation and insufficient drive for participating in sports-medicine integration attributable to doctors' insufficient understanding, lack of financial need, and insufficient energy—"this is the biggest practical problem" (Respondent 2)—and the failure to guarantee the social status, economic treatment, and career development of exercise rehabilitation therapists and rehabilitation therapists. The most urgent problem for talent integration is improving qualification and certification-related

policies, which has become a bottleneck restricting the implementation of sports-medicine integration, and consensus on certification is urgently needed. "If one cannot be employed in relevant positions, cannot receive corresponding treatment, and cannot obtain the most basic guarantees, it will ultimately lead to brain drain, and the impact on industry development is self-evident" (Respondent 5). Certification issues are reflected in the non-mutual recognition of certification qualifications between sports and medical/health categories. Although this is a legacy policy issue, it has built barriers between industries, preventing effective mutual recognition mechanisms for talent cultivation. Although rehabilitation therapy and exercise rehabilitation majors each have strengths and weaknesses, implementing mutual recognition certification policies, guided by vocational education policies, they can precisely complement each other's shortcomings and build a composite talent team. Employment and development issues are both the "effect" of certification issues and the "cause" of motivation issues. The narrow employment scope means that exercise rehabilitation and rehabilitation therapy employment is basically in hospital rehabilitation departments or exercise rehabilitation institutions. The exercise rehabilitation team finds it difficult to enter the medical system; coupled with their sports expertise, many seek opportunities to switch careers to sports-related professions, leading to massive brain drain. The rehabilitation therapy team, due to unsatisfactory treatment, has many members who cannot settle down in their jobs and wish to develop toward clinical physicians or pharmacists, leading to team instability.

3.1.3.2. Venue Aspects

This is reflected in the uneven distribution of professional technical talents, often clustering in certain institutions, which are mostly concentrated in large cities, especially higher-level institutions, while such institutions are scarce in other places. Although this may facilitate collaboration, it is prone to trigger internal vicious competition and causes considerable resource waste to a large extent. Additionally, "some national fitness benefit stations and national fitness guidance stations have failed to play their due role in obesity governance through sports-medicine integration intervention because they have not been well associated with disease risk assessment and treatment" (Respondent 2).

3.1.3.3. Technology Aspects

Currently, academia lacks an independent discipline specifically studying exercise health promotion; discipline construction issues need to address the theoretical system supporting sports-medicine integration. "Sports science has always faced athletes, forming a theoretical system in the process of serving athletes' training needs. Medicine has always faced patients, continuously developing a theoretical system in the process of serving patients. Sports aims to guide the acquisition of skills (skills emphasize rules); medicine's audience is patients. Now, a new theoretical system is needed—centered on health, on how to exercise, guiding healthy or chronically ill populations to obtain health through individualized exercise—Sports Medicine" (Respondent 1). Insufficient borrowing from foreign experience refers to the lack of holistic and global perspectives when applying "borrowism," believing that local functions can work and one-sidedly introducing that part while ignoring the overall operation of things, not knowing it is but a single mesh in the vast net, ultimately leading to foreign experience being ill-suited to local conditions. Therefore, "to do a good job in sports-medicine integration, one must comprehensively study how foreign countries operate, which is very helpful for China's next step in promoting sports-medicine integration" (Respondent 6). As an important participant in sports-medicine integration, physical therapists' innovation awareness is very important. "For example, proprioceptive neuromuscular facilitation, sling exercise therapy, McKenzie therapy, muscle energy techniques, instrument-assisted soft tissue mobilization, and dynamic neuromuscular stabilization

techniques—all treatment methods involving exercise—were proposed or invented by foreign physical therapists. Lack of innovation awareness refers to the fact that domestic sports-medicine integration professional talents rarely engage in bold pioneering research and practice, and the spirit of innovation is somewhat lacking, which is also a factor hindering the benign development of sports-medicine integration in China" (Respondent 7).

3.1.3.4. Market Aspects

Attribution issues involve clarifying the scope of practice to ensure benign competition and effective collaboration. At the functional department level, respective domains need to be delineated for the sports and medical industries. "For example: what fields should be engaged in, what fields should be mainly engaged in, what fields cannot be engaged in, what fields completely belong to sports, and what fields only belong to medicine—this needs specific subdivision, which can both avoid mutual encroachment and ensure each does its own job well" (Respondent 7). Industry standardization is the necessary path to achieve sports-medicine integration. Threshold issues refer to setting market access standards. The key to talent cultivation is marketization. "Currently in China, for a certain problem, because traditional Chinese medicine, Western medicine, and sports can all solve or partially solve it, and the business scope attribution to which industry is not clearly defined, competition among them is already fierce. Coupled with the lack of necessary access mechanisms, fitness coaches (including yoga and Pilates instructors), massage and tuina wellness centers, etc., also mix in. Furthermore, the public lacks the necessary common sense and basic cognition for selection and judgment, unable to distinguish between the genuine and the fake, leading to chaotic and disorderly markets" (Respondent 7). The government must first establish thresholds, then support a batch of enterprises with guiding capabilities, driven by interests and guided by the market, to get the entire market running, and then the whole industry can be driven up. Without substantial revenue, societal motivation will not be great, so social motivation should be actively tapped" (Respondent 6).

3.1.3.5. Compliance Aspects

Cost issues refer to excessively high charges that are unaffordable, preventing those in need from receiving effective treatment. "Unwillingness to spend money on rehabilitation-related treatment is extremely detrimental to disease progression and quality of life" (Respondent 5). "Delaying until severe cases either require surgery or lead to compensation-adaptation compensation pain-medication to relieve pain-and then continue delaying. When older, there will be various problems" (Respondent 7). Concept issues refer to the weak health awareness and sports intervention awareness among the public, and low awareness of healthy body weight. This is first reflected in mildly obese men often not believing that sports intervention is needed. Secondly, moderately to severely obese individuals or groups often choose to abandon sports intervention. "The most expensive room in the hospital is the ICU, showing how precious health is" (Respondent 15). Psychological issues. Obese populations may experience certain degrees of anxiety or depression, and psychological burdens limit the implementation of sports-medicine integration, reflected in erroneous cognition among obese individuals. Therefore, psychological intervention urgently needs strengthening; carrying out psychological counseling to help unload psychological burdens is crucial. Exercise sustainability issues are the biggest difficulty in achieving rehabilitation treatment effects of sports-medicine integration in obesity governance. This is reflected in patients lacking perseverance, not persisting in participating in exercise, and not fully cooperating with treatment. The key lies in increasing publicity efforts to achieve conceptual change.

In summary, despite high attention from governments at all levels and all sectors of society, governance means and methods are insufficiently innovative, governance efficiency is low, and

governance effects are poor, failing to achieve expected governance goals [12]. It is imperative to "break through ideological constraints, dismantle solidified interest barriers, and clear institutional and mechanism obstacles" [13].

3.2. Strategies for Sports-Medicine Integration in Obesity Governance

After sorting out, it is known that current sports-medicine integration in obesity governance faces numerous barriers in concepts, personnel, support, venues, and policies. To address these problems, this study employs the development concepts of innovation, coordination, green, openness, and sharing to respond to the differences and integration barriers between sports and medicine in obesity governance, focusing on solving the driving force, methods, direction, environment, and purpose of development for sports-medicine integration in obesity governance. Respectively, from innovation-driven development to establish a new disciplinary theoretical system for sports-medicine integration, coordination-driven development to open up mutual recognition channels for talent between sports and medicine industries, green development to foster a healthy body-weight perspective for sports-medicine integration, openness-driven development to implement comprehensive safeguard measures for sports-medicine integration, and sharing-driven development to achieve full coverage of sports-medicine integration service outlets, strategies for obesity governance through sports-medicine integration under the New Development Concept are constructed to provide theoretical guidance and practical compliance for sports-medicine integration in obesity governance.

3.2.1. Innovation-driven Development to Establish a New Disciplinary Theoretical System for Sports-medicine Integration

Social governance must follow the laws of development, and mastering sports-medicine integration obesity governance technology is the prerequisite and guarantee for playing the role of user manager. The main factor currently constraining sports-medicine integration governance is insufficient scientific rigor and the lack of a disciplinary theoretical system, especially the urgent need for innovation at the governance technology level. Focusing on establishing a health disciplinary system characterized by sports-medicine technology integration innovation is particularly necessary. Innovation-driven development focuses on the driving force of development, solving revolutionary issues in development, and serves as the driving engine for establishing a new disciplinary theoretical system for sports-medicine integration. First, there must be disciplinary support and theoretical innovation, and then top-level design can be carried out; without a theoretical system, top-level design cannot be conducted. Therefore, theoretically establishing an interdisciplinary theoretical system supporting sports-medicine integration is crucial. "A new discipline needs to be developed—'Sports Medicine,' which is the product of the integration of sports theory and medical theory. It is an interdisciplinary system formed by the integration of sports and medicine, centered on health, mainly focusing on how sports behaviors for health should be carried out, providing theoretical guidance for individualized exercise for all populations and the entire life cycle, and providing academic support for sports-medicine integration" (Respondent 1). The implementation path for strategies of obesity governance through sports-medicine integration should include four stages: "first establish 'Sports Medicine,' then carry out top-level design, then conduct pilot programs using multi-center cooperation in large hospitals, form experience before promoting downward, and finally have community hospitals implement according to the *Guidelines for Sports-Medicine Integration in Obesity Prevention and Management*" (Respondent 1). Therefore, strong support should be given to obesity-related basic and translational research, strengthening disciplinary theoretical integration research, and formulating sports-medicine

integration plans for specific situations, thereby laying a solid foundation for the subsequent industrialized operation of sports-medicine integration services.

3.2.2. Coordination-driven Development to Open up Mutual Recognition Channels for Talent between Sports and Medicine Industries

"Professionals implementing sports-medicine integration include three categories: the first is physical therapists (PT), who possess both medical professional knowledge and high sports skills, using modern rehabilitation techniques to provide obese individuals with fascia release, swelling and pain reduction, muscle strengthening, lymphatic drainage, and fat removal. The second is doctors, mainly engaged in the treatment or prevention of obesity complications. The third belongs to the sports sector, with a relatively complex composition, mainly consisting of social sports instructors, conducting aerobic training, strength training, and new-style exercises, playing roles in guiding scientific fitness, organizing mass activities, and maintaining sports venues" (Respondent 7). Business integration between the sports and medical industries is the core and key of sports-medicine integration, and talent integration is the support for sports-medicine integration; business integration is mainly achieved through talent integration [14]. Coordination-driven development focuses on the method of development, solving systematic issues in development, and reflects the effectiveness and rationality of human resource allocation for sports-medicine integration. The task of talent integration is to cultivate composite talents proficient in both sports and medicine. Opening up mutual recognition channels for talent between sports and medicine industries is crucial and is currently an important pathway for optimizing human resource allocation, requiring efforts from three aspects. First, build a professional association management system and form a sports-medicine integration family. Second, plan professional certification, seeking common ground while reserving differences. Third, clarify talent cultivation pathways and establish market access mechanisms. Under the concept of coordination-driven development, it is essential to deepen the reform of systems for cultivating and selecting sports-medicine integration professionals. This involves clarifying work scopes, disciplinary composition, management procedures, incentive and constraint mechanisms, entry requirements, qualification tiers, and certification validity periods. The cultivation approach should balance education, competency (assessed via quantified standards), and quality (including professional competence and ethics), thereby ensuring that selected professionals possess strong health promotion capabilities and practical skills. In this way, they can serve as pillars and key contributors to economic, industrial, business model, and technological development in China’s comprehensive health sector.

3.2.3. Green Development to Foster a Healthy Body-weight Perspective for Sports-medicine Integration

Obesity is not only a waste of food and biological resources but also, when accompanied by metabolic abnormalities or chronic diseases, causes a waste of medical resources. Fostering a healthy body-weight perspective for sports-medicine integration is very necessary. Green development focuses on the direction of development, solving sustainability issues in development, and ensures the sustainability of sports-medicine integration in obesity governance. "Healthy body weight" not only requires BMI within the range of 20.0 – 23.9 kg/m ^{2}but also focuses more on the body's tolerance to fat rather than obesity itself, emphasizing cardiopulmonary function, muscle strength, bone density, etc. fully reflecting the essential connotation of "health" through these new indicators. The primary problem currently existing is insufficient publicity, low public awareness, and insufficient active health awareness. Sports and health systems at all levels should actively popularize the concept that "exercise is medicine," improve the health literacy of the people,

establish awareness of maintaining healthy body weight, and actively guide the public to understand and master knowledge of scientific physical exercise programs, methods, and sports injury prevention and treatment, achieving the goal of educating the health demand side. For obese populations, specific exercise standards or sports-medicine integration weight-loss procedures and methods can be formulated to embody the green concept. Diverse media channels should be leveraged to strengthen public health communication, and social sports instructors, healthy lifestyle instructors, family doctors, and other professionals should be mobilized to deliver science-based health education. Green principles should also be integrated into daily routines—for example, by substituting walking, cycling, and stair climbing for driving. Meanwhile, the public should be encouraged to adopt an objective and critical perspective in examining the limitations of purely medical approaches to obesity management in embodying green concepts, thereby fostering greater acceptance of and identification with sports-medicine integration.

3.2.4. Openness-driven Development to Implement Comprehensive Safeguard Measures for Sports-medicine Integration

To ensure effective results and achievements in obesity governance, comprehensive safeguard measures for sports-medicine integration are indispensable. Openness-driven development focuses on the environment of development, solving linkage issues between internal and external development, and broadens international exchanges and cooperation on sports-medicine integration safeguard measures, achieving localization of international standards, processes, technologies, etc. Openness should start from society, market, international aspects, and investment entities, including openness to foreign exchanges, openness of sports to medicine, and openness of medicine to sports, promoting sports-medicine integration. Strengthening organizational leadership, improving policy guarantees, and broadening investment channels constitute powerful guarantees for obesity governance through sports-medicine integration under the New Development Concept.

To improve sports-medicine integration, policymakers should refine relevant policies, regulations, and institutional systems, and enhance supporting policies and standard norms at multiple levels. This includes securing dedicated funding, and gradually improving supporting measures regarding venues, activities, organizational structures, talent development, and financial resources. These efforts should also draw upon the strengths of foreign models by incorporating obesity into chronic disease management, gradually extending medical insurance coverage to lifestyle management for obese patients as well as pharmacological and surgical treatments, introducing commercial health insurance as a supplementary mechanism, scaling up multi-level investment to broaden support coverage, expanding government procurement of fitness and health services delivered through sports-medicine integration, and encouraging non-governmental stakeholders to participate in service provision. As Respondent 7 suggested, reducing the economic burden on obese patients requires learning from international experience: national-level preferential policies for sports-medicine integration governance, employer-level financial support as part of employee benefits, and diversified societal-level fund-raising channels to serve as necessary supplements. Currently, sports-medicine integration in China is still government-led, with insufficient market-level supply of sports-medicine integration health promotion services, mainly concentrated in some economically developed cities [15]. Learning and introducing advanced foreign concepts and practices has theoretical and practical significance for promoting the development of sports-medicine integration in China.

3.2.5. Sharing-driven Development to Achieve Full Coverage of Sports-medicine Integration Service Outlets

Establishing a sound four-level prevention and treatment system for obesity governance through sports-medicine integration at the municipal, county (city, district), township (street), and administrative village (community) levels, and constructing a diversified sports-medicine integration service network system, is self-evidently significant for resolving social contradictions and achieving social equity. Sharing-driven development focuses on the purpose of development, solving equity issues in development, and enhances the social benefits of sports-medicine integration services. In the medical system, community medical resources are the most accessible and carry a certain degree of public welfare. Choosing community medical institutions as locations for establishing sports-medicine integration clinics has the advantages of low investment costs and proximity to people's lives, and may be the best path to achieve sports-medicine integration. "Unlike profit-oriented rehabilitation institutions mostly distributed in Beijing, Shanghai, Guangzhou, and Shenzhen, this can both break through geographical distribution limitations of service outlets and avoid excessively high charges that ordinary people cannot afford" (Respondent 7). The system should transition from designated medical institutions to designated practicing physicians, promote the implementation of the family doctor contracted service system, and advance full coverage of Internet-based contracted services. In this framework, the role of family doctors should be expanded from health managers to patient advocates. As Respondent 2 suggested, primary-level doctors' motivation to participate in sports-medicine integration can be enhanced through measures such as performance-based compensation, guaranteed staffing allocations, and preferential policies for professional title promotion. Furthermore, an Internet-based sports fitness platform should be developed to advance online obesity exercise intervention models. Community hospitals or health service centers, sports professionals, and neighborhood committees should jointly establish community professional guidance committees to organize and deliver comprehensive healthy body-weight exercise rehabilitation services for residents, thereby facilitating the downward extension of family doctor contracted services in sports-medicine integration. Where policies permit, enterprises and individuals should be encouraged to participate in sports-medicine integration, and models such as government investment, public procurement, and service outsourcing should be explored. Through these measures, a top-down organizational management network for healthy body weight can be formed, supported by both software and hardware infrastructure. If each sports-medicine integration service outlet is regarded as any node enterprise in a modularized management network, then this network needs both loose coupling management relying on shared beliefs, norms, and institutionalized expectations, and tight connection of elements through component standardization, strong interdependence, and centralized management systems. This flexible and dynamic coupled network collaborative organizational management model is particularly suitable for application and promotion in sports-medicine integration practice.

4. Conclusions and Implications

4.1. Research Findings

This study employed grounded theory to conduct step-by-step coding and systematic analysis of relevant literature and interview records on sports-medicine integration governance of obesity in China, drawing the following specific conclusions:

4.1.1. Extracting Strategies for Sports-medicine Integration in Obesity Governance under the New Development Theory through Grounded Theory

The current situation of obesity prevention and control in China is severe, and sports-medicine integration provides new opportunities for solving the obesity problem. Under the guidance of the New Development Concept, strategies for obesity governance through sports-medicine integration are constructed: innovation-driven development to establish a new disciplinary theoretical system for sports-medicine integration; coordination-driven development to open up mutual recognition channels for talent between sports and medicine industries; green development to foster a healthy body-weight perspective for sports-medicine integration; openness-driven development to implement comprehensive safeguard measures for sports-medicine integration; and sharing-driven development to achieve full coverage of sports-medicine integration service outlets.

4.1.2. Clarifying the Dilemmas of Sports-Medicine Integration in Obesity Governance from Macro, Meso, and Micro Levels

The dilemmas stem from differences between sports and medicine. Specifically, there are four aspects of differences (historical evolution and humanistic core development at the macro-level; organizational structure and disciplinary support at the meso-level) and five aspects of integration barriers (personnel, venues, technology, market, and compliance at the micro-level). Personnel barriers are mainly manifested as academic atmosphere issues, motivation issues, certification issues, and employment and development issues; venue barriers involve the uneven distribution of technical personnel, regional distributional imbalances, and insufficient linkage to disease risk assessment and treatment; technology barriers encompass inadequate discipline construction, insufficient adaptation of foreign experience, and a lack of innovative awareness; market barriers include scope-of-practice ambiguities and market-access thresholds; and compliance barriers comprise cost barriers, conceptual obstacles, psychological factors, and poor exercise adherence.

4.2. Research Limitations and Prospects

The data sources of this study include relevant papers, reports, policies, and other literature, and personal in-depth interviews. Although the comprehensiveness and completeness of data were considered as much as possible during the process of collecting textual data for coding, and the principle of theoretical saturation was followed, the information published in the materials themselves may still have a certain degree of subjectivity and emphasis. Although subjectivity is a characteristic of qualitative research, in the future, the Delphi method can be used to further verify and improve the theoretical model of this study. Meanwhile, although this study conducted theoretical discussions on strategies for sports-medicine integration in obesity governance, relevant theoretical research still needs to be enriched and supplemented. As sports-medicine integration is an important pathway to achieving the Healthy China strategy , to ensure the continuous in-depth development of sports-medicine integration health services, more corresponding theoretical guidance still needs to be provided.

Acknowledgements

This study was supported by the Ministry of Education (MOE) of China Humanities and Social Sciences Research Project entitled "Construction and Application of a Quality Evaluation Index System for Sports-Medicine Integration from the Structure–Function Perspective" (Project No. 22YJAZH101).

The author thanks Professor Jianjun Guo of Capital University of Physical Education and Sports, Dr. Aiwen Wang of Tianjin University of Traditional Chinese Medicine, and all other respondents for their valuable contributions to this study.

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