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A Review of Research on Regional Medical Consortia

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Abstract: *China's healthcare resources have long suffered from an imbalance between regional allocations, and there are obvious differences in the provision of healthcare services between urban and rural areas, and between the east and west. In order to promote the continuous improvement and reform of the medical system and to explore the construction of a medical and health system suitable for the current situation in China, in the context of regional medical integration, the medical consortium model has attracted much attention and become a hot spot for research in the academic field. The main situation of the existing research results is as follows: there is a lack of systematic theoretical foundation research at home and abroad, and the pilot case studies of regional medical consortia are the main ones in China, while there is a lack of overall high-level research in the country, compared with domestic and foreign countries, the quantity of research on regional medical consortia is far less than the relevant research in foreign countries, and the overall quality of research is not high, and it is at a fledgling stage. Therefore, in future research, we should pursue diversification in methodology, cross-application of multiple disciplines, condensation of theoretical studies on the basis of case studies, in-depth research on research content and strengthening of localization of foreign experience.*

Keywords: *regional medical consortium; medical association; regional medical integration*

1. Introduction

Since the new round of medical system reform, China has been putting people's health at the centre, with breakthroughs in medical and health care, the upgrading of services in primary medical and health care services, the achievement of high coverage in medical insurance, the enhancement of the public welfare and fairness of basic medical services, and the gradual improvement of the long-standing problem of weak primary medical and health care services. However, for a long time, it has been difficult for the people of China to see a doctor. To solve the problem of difficulty in seeing a doctor, it is necessary to plan the overall health care system and integrate resources in order to establish a new style of health care services. However, with the rapid economic development of each region, there is still an overall shortage of healthcare resources, an uneven distribution of regional healthcare resources and an unreasonable structure of resources. In the health care reform, there are many difficulties and hardships, and many obstacles to reform have not been removed, especially the strengthening of the grassroots. Therefore, in order to solve the problems of unbalanced allocation of medical resources between urban and rural areas and regional areas, and the weak service capacity of grassroots medical institutions, and to open up the circulation channels of medical resources and strengthen the grassroots, the Opinions on Deepening the Reform of the Medical and Health System states that, from a national perspective, we should take a comprehensive approach, co-ordinate the development of urban and rural areas and regional medical undertakings, and strengthen the regional health care system. The "Opinions on Deepening the Reform of the Medical and Health System" states that, from a national perspective, it is necessary to take a holistic approach, co-ordinate the development of urban and rural areas and regional medical care, strengthen regional health planning and achieve the integration of urban and rural areas. The Thirteenth Five-Year Plan for Health and Wellness (issued by the State Council [2016] No. 77) states that medical institutions within medical clusters should be strengthened to recognise the validity of basic examination reports done within the clusters and avoid duplication of examinations. The construction of an integrated medical and health service body system, the preparation and planning of regional health resources, the promotion of the coordinated development of medical and health care in Beijing, Tianjin and Hebei, the enhancement of the efficiency of the use of medical and health resources, the resolution of the problem of redundancy of medical and health institutions, making the limited medical resources in the supply to poor areas, leveling out the gap between urban and rural areas, filling the hole in the shortage. The Guidance on Promoting the Construction and Development of Medical Consortia states that it is important to focus on positioning the different operations of

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medical institutions clearly, enhancing the provision of public health at the grassroots level and standardising the unified process of two-way referrals, continuously upgrading the organisational and management methods of regional medical consortia, improving reasonable operation and incentive mechanisms, and allowing medical subjects at different levels to divide and collaborate as a means of promoting the construction of a hierarchical diagnosis and treatment system.

The publication of the annual trend "Regional Medical Consortium" was first proposed by Peng Ye in 1985, and the term "Regional Medical Consortium" first appeared in a paper published by Guang Jun in 2009. Subsequently, academic research in this field gradually increased, especially after the new medical reform in 2009, with a blowout development. The author searched the "Taylor&Francis" journal website using the keywords "Regional Medical Group", "Regional Medical Association", and "Regional Medical Consortium". As of March 27, 2023, he received 176595, 169564, and 9193 papers respectively. In addition, by March 27, 2023, China Knowledge Network academic journals were searched with the subject words "Regional Medical Consortium", "Medical Consortium", "Regional Medical", and "Medical Consortium". As of March 27, 2023, 271, 1875, 9312, and 34757 journal articles were retrieved. At the same time, in order to better understand the development trend of research results of domestic regional medical consortiums, a related search was conducted on CNKI using the topic "Regional Medical Consortium". The search was arranged in chronological order according to the publication time, and the background function of the website was used to obtain Figure 1, "Curve Chart of the Number of Documents Issued by Regional Medical consortiums in China from 1985 to 2023."

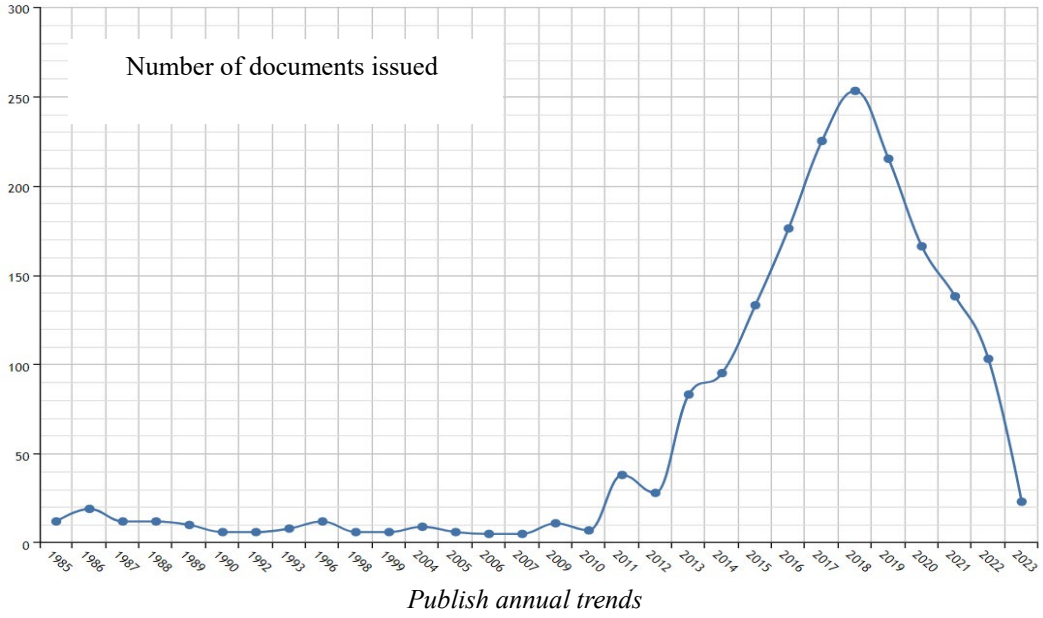

Figure 1: Curve Chart of the Number of Documents Issued by Regional Medical consortiums in China from 1985 to 2023

2. Current status of research on regional medical consortia

2.1. Research on the tiered medical care system

The graded diagnosis and treatment system can integrate the medical service system, so that the originally fragmented medical services in the region can be integrated under this system to meet the people's needs for basic health prevention and to seek medical treatment close to them according to their disease conditions. Since the reform of the economic system, intentionally or unintentionally, the hierarchical diagnosis and treatment system has lost its institutional guarantee, and disorderly competition has emerged among kilometre medical institutions. Under regional medical integration, the construction of vertical medical associations at various levels and the emergence of a hierarchical diagnosis and treatment system in conjunction with it can enable medical service providers to integrate, both in terms of specialisation and in terms of functional positioning regulation. In terms of the various subjects, graded treatment is of great significance to patients. Urban community health hospitals and rural health care institutions enable residents and villagers to receive more timely and reliable diagnosis

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and treatment, prevent the deterioration of chronic diseases and detect illnesses in a timely manner in order to improve the quality of one's health. This allows patients to not only save time and energy, but also effectively reduce the cost of medical visits, reducing the financial burden on patients and allowing the phenomenon of poverty due to illness to be alleviated. Graded care has increased specialisation for hospitals and doctors who provide public health services, and hospitals at all levels have become more clearly positioned. Tertiary hospitals, as large hospitals, will receive patients with major and critical illnesses, allowing them to improve their medical standards and specialise in the treatment of major diseases, reducing or eliminating the burden of outpatient clinics and allowing doctors in tertiary hospitals to have enough energy to study medicine and not be burdened by trivial matters such as outpatient clinics. As a top-down medical institution in the hierarchy of treatment, the second-tier hospitals are responsible for the referral of major diseases and the transfer of recovering patients to them, and the second-tier hospitals have more say than before and the work of doctors is more specialised.

After more than ten years of efforts, the graded diagnosis and treatment system has changed from an unfamiliar term to a policy localized to China's national conditions, but the implementation of China's pre-reform graded diagnosis and treatment system is still difficult[1] and the following problems exist. Firstly, the implementation of the primary care system in primary hospitals is ineffective and there is a problem of duplication of visits. At present, all levels of medical institutions have outpatient clinics, which makes people less inclined to visit primary care institutions, and they go to large hospitals for both major and minor illnesses. The choice to seek care on their own has been given to patients, and the lack of trust in primary health care and the blind admiration for higher levels of care has led to resistance to primary care at the grassroots level [2]. Patients return to the primary care level after a second visit to a higher level hospital for psychological comfort, as the reimbursement rate of health insurance is higher at the primary level.

Secondly, it is difficult to make two-way referrals between medical institutions at different levels in the hierarchical treatment, and it is difficult to make downward referrals. After the positioning and functions of medical institutions at all levels are clarified, the most important step in graded treatment is to enable referrals to be made, not only upwards but also downwards, which is crucial. This is an important part of the hierarchical diagnosis and treatment system, and it is also a key element in addressing the convenience and affordability of access to healthcare for the public. In practice, however, there is a serious reluctance to refer patients down to primary care. In Shanghai, for example, the number of referrals from higher-level hospitals to rehabilitation centres in Songjiang District in 2015 was only 123, while only 21 referrals were made from rehabilitation centres to primary care institutions, i.e. community service centres.

Thirdly, the hierarchy of medical treatment is highly constrained by the current Chinese medical insurance system. If medical institutions at all levels are unable to reimburse patients for their medical expenses in a timely manner, this will have a substantial impact on the settlement of medical insurance reimbursements for patient referrals, and patients will be less inclined to make two-way referrals, choosing to seek treatment directly from medical institutions that can reimburse them. In addition, the list of reimbursable drugs at different levels of medical institutions is different, and medical institutions within a medical consortium may be managed by different administrative entities, making coordination procedures complicated[3].

Regional medical consortia can solve the above problems of hierarchical diagnosis and treatment, explore how to achieve the implementation of a hierarchical diagnosis and treatment system under the guidance of the government in the context of regional integration, and build a system of hierarchical diagnosis and treatment among medical institutions at all levels, so regional medical consortia are crucial to the construction of China's health care system.

2.2. Research on regional medical consortia abroad

Hospital consortia have existed in foreign countries as early as 50 to 60 years ago[4]. At that time, health care in the United States was market-oriented, and some hospitals acquired, merged and collaborated with smaller hospitals with similar functions in a market-oriented way, so as to seek a larger market share, occupy market share as soon as possible, and reflect obvious advantages among hospitals of the same type. In the 1990s, the "IDSs", or Integrated Health Service Systems, were introduced, with family doctors being the first point of contact for treatment by specialists, and the family doctor having to write the bill[5].

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In the 1980s and 1990s, hospitals in Singapore and the UK also saw the consolidation of health resources, combining different levels, functional types and sizes of health care institutions to improve efficiency and standards of care.

The introduction of universal health coverage and ICNs in the UK has led to the introduction of a two-way referral system, following increased integration within hospitals in the UK and collaboration between public hospitals and other tiers of care, among others[6]. Initial care in the UK was regionally based medical consortia, with mainly general practitioners to provide primary health care services, as well as being responsible for referrals to specialist doctors, etc [7].

The Singapore Group Health Consortium has been in existence since 1985 and is divided geographically into two main health service groups, East and West, with the introduction of a corporate approach where the two groups are in competition with each other but with two-way referrals between them, with an internal board of directors and a commissioned market approach to drug procurement. The financial expenditure on total health care costs is controlled and a differentiated subsidy policy is in place to strengthen the cost consciousness of hospitals[8]. Singapore has focused on building information, using developments in technology and information technology to provide the possibility of achieving two-way referrals, as well as laying the foundations of technology for the implementation of long-term care in the community [9].

2.3. Research on regional medical consortia in China

The emergence of regional medical consortia in China and their connotations follow the reform of the medical system, and it is generally agreed in the academic community that there are three development processes of medical consortia: firstly, from the 1980s to the 1990s, the more loose urban-rural medical collaboration consortia. The Shenyang Seventh People's Hospital created the first urban-rural medical consortium by uniting various primary care units [10]. This loose medical consortium was based on the principle of voluntarism, with no changes to the original organisational structure and only medical technology as the connecting link. The second stage was from the 1990s to 2005, when the reform of China's healthcare system took a market-oriented path and public hospitals became responsible for their own profitability, and the reduction in public expenditure weakened the public nature of public hospitals and public welfare, requiring public healthcare institutions to take on the pressure of operating [11]. At this time, medical consortia were established in the form of "hospital groups" and "hospital alliances" [3], and the healthcare services provided by profit-oriented hospital groups under market competition deviated from the characteristics of healthcare services as a public good. The third stage is the new round of medical services in the new century. The third stage is the new round of medical system reform in the new century, which has since begun to be rolled out on a pilot basis in various places, with the continuous development of regional medical consortia making their cooperation more refined[7]. National regional medical centres have been established in accordance with the classification criteria of clinical specialties, and from 2019 onwards, national cardiovascular, psychiatric, respiratory, paediatric, infectious disease and regional centres have been established one after another, as a way to promote the development of a healthy China in health care and to improve the level of medical care and health in China.

A study on the pilot regional medical consortium. Shenyang in the 1980s already proposed a medical collaboration consortium, which to some extent diluted the compartmentalised model and laid the first practical roots for the integration of medical resources towards an intensive medical group and towards a multifunctional consortium for rescue, prevention, health care and rehabilitation as one [12]. Beijing has formed an integrated regional medical community for equipment and information sharing, with an independent management department consisting of the heads of each institution, mainly by administrative means [13] and with technology and management as a link [14], with the participation of multiple entities (public and private) in Beijing, such as the medical consortium in the northern part of Chaoyang District. The eight districts of the city combine prevention and treatment and propose a new model of knowledgeable health management, in which people with chronic diseases such as hypertension and diabetes are asked to change their lifestyles in order to prevent deterioration in this way and make it less costly for people with chronic diseases. Shanghai, like Beijing, has set up a board of directors to take overall responsibility for the consortium, and medical staff can move horizontally and vertically within the organisation. The regional medical consortium has set up a unified procurement platform for medicines and equipment, allowing for the sharing of information, two-way referrals, and the establishment of a regional supporting testing centre and ancillary facilities. Shanghai has implemented a family doctor system and joint co-ordinated management, which pays for services provided by hospital doctors in addition to the overall control of medical costs, making out policy

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adjustments for the realisation of graded treatment [15]. People who see a doctor in a medical consortium are able to achieve two-way referrals, have access to specialist numbers in the community, and have information about medical tests interchangeable without the need for more duplicate tests [16]. Wuhan has implemented a "direct management" type of medical consortium based on technology and management [17][18], in which the grassroots can still operate independently, but all the resources of the grassroots are given to the higher levels, and the community health service centres are given unified funding planning, coordination of expenditure and bidding for facilities. Although no separate management department has been set up in the medical association in Wuhan, the higher hospitals are directly involved in the day-to-day management affairs of the community health service centres [17] and a system of weekly hospital meetings is set up, once every fortnight [19]. Large hospitals have no affiliation to the basic hospitals, but only counterpart support. Large hospitals send their professional backbone directly down to the community health service centres, which has a good effect of transferring and helping. Wuxi, in response to its own actual situation, only one tertiary hospital, through the hierarchical medical body agreement decided to implement a trustee model of medical consortium [19], setting up a collaborative leadership group to be responsible for liaising with the community health service centres, with the organisation and technology as the linkage, the responsibility to the person in charge and the corresponding departments to help the lower community medical centres one-to-one, which can be more targeted, better to strengthen the construction of features, more Together with the opening of referral channels, special windows, and the establishment of specialist consultation rooms in the community to achieve two-way referrals. Zhenjiang, Jiangsu Province, has adopted a formation approach with technology, management and assets as ties, a total budget for fee control, a flexible settlement in the year-end settlement, and a multifaceted compound medical insurance cost payment approach with outpatient billing on a capitation basis and inpatient payment on a service unit basis[20]. Not only is the payment method innovative, but in terms of personnel allocation, the job appointment system is used, and the performance appraisal system for medical consortia and medical personnel is improved, and financial subsidies are given to doctors who go to the grassroots level, which not only respects and safeguards the interests of medical institutions, but also effectively reflects the benefits to the people and protects people's lives and health [21]. The "medical group model" used in Hubei is a group management model for the construction of medical consortia, which are managed by a board of directors [22].

A study on the concept of regional medical consortia. Medical collaboration consortium is the use of limited resources by different medical related subjects to enhance the level of medical supply, in the field of medical treatment, prevention, rehabilitation, health care and other areas, according to the subjects complement each other, win-win basis, combined to form a horizontal joint organization [23]. A hospital group refers to an urban hospital group, which is a market-oriented group of three or more hospitals with independent legal personality, and is a hospital consortium with affiliation that does not have independent legal personality after management negotiation, and each member of this group coordinates resources and things within the group [24]. Li Hongbing thought that this previous definition was too narrow and no longer applicable, so he proposed a new definition: a hospital group with a few or one hospital as the core and leading, an organisational consortium linked in various ways, for example, by means of technology, funding, contractual agreements, keeping openness among members and accommodating different functions such as pharmacies and medical examination centres to join them [4]. A hospital alliance is an organisation in which two or more hospitals form a medical consortium by merging or signing a contract, etc. In terms of hospital type distinction, a hospital alliance can be considered to mean a core hospital (general hospital, specialist hospital) and a community hospital (health centre, primary hospital) formed through a contract, which is a direct mode of cooperation for health care entities with heterogeneous resources, enabling hospitals to reduce operating costs, improve core competencies, and can even develop into strategic partnerships, an extremely transcendent way for hospitals to be able to win the race to victory in homogeneous competition [25]. Medical consortia are mainly designed to solve the problems of unreasonable and unbalanced allocation of medical resources, non-targeted provision of medical services, and discontinuity between hospitals at different levels. The idea of resource integration, horizontal as well as vertical resource integration, is inseparable from the proposal of medical consortia, and therefore, medical consortia can be divided into the following two definitions according to the type of subject and the same or different functions: First, medical consortia are a way of resource A way of vertical integration, which emphasizes the union of medical institutions of different levels and functional types to integrate resources vertically. For example, Jin Yan [26] argues that in a defined region, a medical consortium is a way of uniting medical subjects of different levels to form a unified medical community, as a way of optimising the allocation of medical resources, increasing the efficiency of resource utilisation and allowing resources to be shared between members within the consortium.

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Secondly, a medical consortium is a community of interest formed by a central medical institution and other medical institutions in the region, with no emphasis on vertical integration, using horizontal or vertical integration of resources as a way to do so. For example, Lin Juanjuan[27] defines a medical consortium as a community of interest in which a primary medical institution is the main body and the main force, and joins with other lower-level medical entities, such as medical clinics and community health hospitals, within a defined area, to form a community of interest through horizontal or vertical integration of resources, so that resources can be used more efficiently. Xiong Mei [28] discusses the new concept of health consortia, i.e. health management consortia and medical consortia, on the basis of medical consortia. He compares the background, similarities and differences between health consortia and medical consortia, as well as the bottlenecks and dilemmas that arise in the construction of medical consortia, and how health consortia can complement and solve their problems. The county medical community is a derivative of the regional medical consortium and is a development of the health care consortium, which is a closer and more integrated community of interest than the health care consortium, and the medical community allows hospitals to truly become a community, with you in me and me in you. Yin Hongyan proposes that the medical community is a rural experiment and exploration for medical consortia, integrating the resources of counties and villages to form a new regional medical and health service model with shared responsibility for medical and defence integration, common development, benefit sharing, unified services and management [29].

A study on the types of regional medical consortia. The policy proposes four different forms of regional medical consortia depending on the region of the medical institution, its functional division, size and field conditions; medical groups, medical communities, specialist alliances and, in poor and remote rural areas, remote cooperation. The models of medical consortia can be divided into: close consortia, semi-close consortia, and loose consortia, depending on the way they are formed and how closely they are united[7]. Medical consortia are classified according to the form in which they are joined together: trustee model, joint stock model, integration model, and joint model. Foreign regional medical consortia are categorised as the US model, the Singapore model and the UK model. The medical consortium can be divided into horizontal and vertical according to the main body of the consortium [31], horizontal is to unite hospitals with the same authority and business content with certain similarity to form a hospital group; while vertical refers to a cross-subjects a union with pharmaceutical-related industries, research units and hospitals, such as pharmaceutical companies, medical equipment manufacturers and hospitals to unite, and he believes that horizontal back to a vertical shift. The level at which resource integration occurs [28] is divided into integration at the level of population groups, integration of specific patient groups, and integration of personal health resources, with examples and corresponding models from abroad: Kaiser Permanente, ACOs; PACE, CCM; PCMH, respectively.

A study on the real-life dilemmas of regional health care consortia. During the practice of regional medical consortia, problems arise in terms of public values, and the needs of the people are not considered from their perspective, which means that when the government formulates the policies of regional medical consortia, it does not start from satisfying the health care needs of the people, but takes itself more as the starting point for policy formulation, thus regional medical consortia lack a salient point. There is no unified standard or thought process for the understanding of the medical consortium among this body, and the execution is lacking [32]. There is a lack of scientific performance assessment of individual members within the regional medical consortium to carry out input and output analysis, thus failing to provide performance incentives for members within the regional medical consortium to release their vitality and motivation [33]. In China, medical consortiums are limited by administrative divisions, hierarchical management, and other systems [15]. For example, lower-level health departments do not have much management authority over the tertiary hospitals under their jurisdiction, and cross-administrative consortia are even more problematic, with localities having no financial or administrative authority over medical institutions in other locations, which can therefore involve problems such as settlement of medical insurance in different locations and an increase in the total control of medical insurance [32]. This leads to the problem that supporting policies have not kept up, and health insurance financing and payment methods have not been adjusted accordingly, making it impossible for medical associations to achieve hierarchical diagnosis and treatment, and making the deployment of resources inefficient and inherently unmotivated, and making the medical association only become a loose medical association, unstable and formalistic, with poor controllability[7]. The failure of medical institutions at all levels to reimburse patients for their medical expenses in a timely manner can have a substantial impact on the settlement of medical insurance reimbursements in patient referrals, discouraging patients from making two-way referrals and directly choosing medical institutions that can reimburse them. This is closely related to the coordination of health insurance

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contributions, and if the level of health insurance coordination is not increased, it is difficult to achieve regional medical integration, further limiting the practice of graded diagnosis and treatment. In addition to medical insurance issues, there are also problems in achieving the goal of hierarchical diagnosis and treatment in the medical federation, such as the lack of unified and clear standards for two-way referral within the medical federation, the dissatisfaction, mistrust, lack of understanding and recognition of patients with grassroots medical and health institutions, the reluctance of the public to go to basic community health institutions for initial diagnosis, and the lack of downward momentum in large hospitals, as the hospitals are responsible for operating losses themselves, due to profit and loss considerations, the difficulty of downward transfer in two-way referral is that hospitals will not sell their own interests, and the channels for hierarchical diagnosis and treatment two-way referral are difficult to ensure. Grassroots medical and health institutions are relatively lacking in hardware, especially talent, and are unable to bear the pressure of downward transfer [15]. At the initial stage of the construction of medical consortia, the workload of grassroots institutions will increase, and their enthusiasm will be lacking. Grassroots hospitals hope to obtain assistance from large hospitals [33]. In addition, thanks to the establishment of medical consortiums, two-way referral will increase doctors' responsibilities and obligations, affecting their income, and thereby reduce doctors' enthusiasm for cooperation with medical consortiums. In addition, regional health network information is not integrated, and information standards are not unified[32], and they are separate and complementary and compatible, without sharing patient information within the regional medical consortium. Only when electronic health records and medical records are updated, shared and finely managed in real time within the medical consortium can the integration of resources be truly achieved.

Research on countermeasures to improve regional medical consortia. In terms of policy, focus on the top-level design of regional medical consortia policies [34]. As a cross-regional organisation, medical consortia need to be planned by the government in general, and some assessment indicators and referral standards should be clarified in a unified manner; improve supporting policies, change the supporting policies of medical insurance, including medical insurance financing mechanisms, medical insurance payment methods, and unified drug reimbursement catalogues within medical insurance of different medical institutions [30], to avoid excessive medical treatment, and suggesting the implementation of a combination of overall amount budgeting, payment by different types of illness, and capitation payment for health insurance. To balance the level of health insurance payments and medical reimbursements for residents in the region, and to raise the level of co-ordination of health insurance so that health insurance between regions has unity in terms of management [35]. In terms of the system, establish external evaluation and external supervision mechanisms within the medical association, improve the operation mechanism of graded diagnosis and treatment, and clarify the process and standards of referral [7], improve the system of self-management and self-governance within the medical association, so that large hospitals can help low-level hospitals to improve themselves, not only the medical level of medical institutions, but also the elevation of service levels, conduct appraisal and salary distribution mechanisms for their related work. Develop a scientific way of distributing earnings and a mechanism to disperse multiple possible risks, increase the salary level of primary medical service personnel, so that the city's human and material resources and other abundant surplus resources can be given to the lack of grassroots, so that urban and rural areas can integrate their resources, and in terms of talents, strengthen the construction of the talent system of the medical association, and primary medical institutions should train professional and technical and management talents [30], build medical technology centres, and improve the We should also explore the mechanism of transferring doctors to the medical association, and guide doctors to be willing to sit in community hospitals at the grassroots level, so as to improve the service capacity of the grassroots and enhance their business level. Let residents have stronger trust in the medical association [36]. In terms of funding, open the door to sources of health care funding. On the information side, promote regional information sharing[7][30] and build a residents' health card starting from the grassroots level, including basic health information and records of visits to various places, as a way to build a regional information sharing network platform, radiating all medical institutions in the region, unifying and eliminating information barriers within the regional medical consortium, and opening up direct information channels for all subjects within the medical consortium, allowing for timely updates of patient health information to be uploaded to the platform to achieve interoperability [37]. In addition, the public should be actively promoted through multiple channels and angles to introduce the graded diagnosis and treatment work and the relevant content, preferential policies and convenience of the medical consortium [30], so as to enhance the public's recognition of and trust in the lower-level medical institutions.

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3. Conclusions

While foreign research results are abundant and practice is earlier than that in China, domestic research on regional medical consortia is still at the stage of crossing the river by groping for stones, researching the results and problems that emerged in various places during the exploration period, making general recommendations based on the current situation, lacking research on the service level of regional medical consortia and the characteristics of regional medical consortia in terms of spatial and temporal changes, with most qualitative research and less quantitative research. In addition, a review of existing research on regional medical consortia reveals that there are still three problems in the current research on regional medical consortia: first, in terms of the number of studies, compared with foreign studies, the number of research results on regional medical consortia in China is still small. As of January 2021, I searched the China Knowledge Network for the term "regional medical consortia" and found a total of 232 academic journal papers, and only one paper was a doctoral dissertation. Therefore, on the whole, the number of research results on regional medical consortia in China is not as high as it should be, and from the side, we can see that the quality of research is also not high, and this piece of content belongs to the blue ocean of research, to be developed and deepened by scholars and researchers. Secondly, domestic research is mainly cut from existing local pilots and explorations, for the scope of research is also local area research mainly, mostly describing the current situation of the implementation of medical consortia in each region and path research, few few are analysis and research on medical consortia between provinces and provinces, and lack of in-depth theoretical research, conclusions and thesis are more general inferences, few analysis and research on the integration concept, for The theoretical basis for the promotion of regional medical consortia across the country is not convincing. Finally, regional medical consortia involve a variety of subjects, including medical institutions at all levels, patients, government units, pharmaceutical factories, medical device manufacturers, drug company agents and many other subjects. The use of theories such as conflict of interest balance and stakeholder, etc., lacks systematic evaluation and generalisation for the experiences of different regional medical consortia.

Therefore, there are several aspects of research related to regional medical consortia that can be expanded.

Firstly, a breakthrough in research methodology and an appropriate increase in the diversity and scientific nature of the methods used could make the research more readable and valuable. The research methods used in the existing studies are relatively single, mostly case studies and comparative studies. In the future, more quantitative analysis methods such as factor analysis, structural equation modelling, multiple linear regression modelling, spatial clustering and system dynamics can be combined to improve the evaluation and tracking indicators of regional healthcare consortia, and the dynamic study of conflict of interest can be analysed in depth to improve the research scientificity and credibility.

Secondly, the research perspective is explored to join the use of multidisciplinary, focusing on the research of the future development trend of multidisciplinary medical resources integration on China's medical consortia and the changes in the direct relationship between the subjects within the medical consortia. According to foreign research experience, in the development and upgrading process of regional medical consortia, in addition to the reasonable planning and integration of the current limited medical and health resources, other subjects related to preventive, rehabilitation and other complex functions of medical consortia will be integrated, and a single discipline can no longer meet the requirements. Based on the reference to foreign research, more theoretical foundations from other related disciplines should be used in future research, so as to expand the threshold of research perspectives, make up for the lack of theoretical research on medical consortia, enrich the basic theories and models of medical consortia research, and improve the research on the integration of resources of multiple subjects in regional medical consortia.Learning from foreign integrated medical organizations, integrated medical system practices, and various integrated theoretical models, we will accelerate the pace of establishing national medical centers and national regional medical centers through the reform of medical insurance payment models in the future, strengthen the role of primary health care in integrated medical care, pay attention to the combination of horizontal and vertical integration of regional medical and health systems, and improve the quality of regional medical care, Achieve the sharing of high-quality health resources among regions, thereby improving the accessibility of medical services and people's satisfaction with medical security within the region.

Finally, the content of the study should be expanded in terms of the object of the study, the study of pilot cases should be made more in-depth, and the localisation of foreign experience should be strengthened. In addition to studying the organisational structure, policy content, implementation

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effects and proposed measures of regional medical consortia, studies can also be conducted on the evaluation of regional medical service levels with a focus on China's local conditions and the Chinese medical system, which currently lacks a reasonable and comprehensive evaluation system. In addition, it is also possible to explore and analyse the characteristics of regional medical consortia in terms of spatial and temporal changes, carry out long-term tracking and evaluation studies of medical consortia, etc., draw on the research results already available abroad, and carry out dynamic research on the results of the implementation of medical consortia to provide a scientific paradigm and experience for the further improvement and development of regional medical consortia in the future.

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