Discussion on the Current Status and Development Path of Primary-Level Traditional Chinese Medicine Services in China: Postprint

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Abstract

Background: China's attention to primary-level Chinese medicine health services has been continuously increasing. However, the current primary-level Chinese medicine health service system still faces problems that constrain the development of Chinese medicine in China. Objective: To analyze the current status of China's primary-level Chinese medicine health service system and explore strategies for continuously improving primary-level Chinese medicine service capacity. Methods: In December 2022, data were retrieved from the China Health Statistics Yearbook, National Traditional Chinese Medicine Statistics Abstract, and the official websites of the National Disease Control and Prevention Administration and the National Center for Cardiovascular Disease. An indicator system was constructed from three dimensions: health input, service output, and health need. The Rank Sum Ratio method combined with the WHO Health System Performance Module Framework was used to conduct a comprehensive evaluation of the current status of primary-level Chinese medicine services. Results: In terms of health input: From 2017 to 2021, the number of primary-level medical and health institutions capable of providing Chinese medicine services increased except for township health centers; the number of beds in Chinese medicine clinical departments in community health service centers (stations), township health centers, and outpatient departments showed an upward trend, but the proportion of beds in Chinese medicine clinical departments to total beds in outpatient departments decreased; the proportion of licensed (assistant) physicians in Chinese medicine in community health service centers (stations), township health centers, and clinics increased significantly, while the proportion in village clinics remained stable and that in outpatient departments decreased year by year; over the past five years, the absolute value of financial investment in primary-level medical and health institutions increased steadily, while fiscal appropriations for Chinese medicine institutions fluctuated

and decreased. In terms of service output: Although the proportion of Chinese medicine patient visits to total patient visits in various institutions grew steadily with a certain increase (except for Chinese medicine outpatient departments), only village clinics maintained a proportion of Chinese medicine patient visits above 30.0%; except for township health centers, the average annual Chinese medicine patient visits per licensed (assistant) physician in other primary-level medical and health institutions showed a general downward trend. According to the comprehensive evaluation results, resource allocation was in an appropriate status in 2017, 2018, and 2021, while it was in an unbalanced status in 2019 and 2020. Conclusion: Currently, the construction of China's primary-level Chinese medicine health service system has been effectively implemented, but some deficiencies exist in the process of orderly advancement. Issues such as insufficient primary-level Chinese medicine resources, imbalanced service provision and utilization, failure to fully realize the advantages of Chinese medicine, imperfect talent cultivation mechanisms, and insufficient financial investment constrain the development of Chinese medicine. To promote the continuous improvement of Chinese medicine health service capacity in primary-level medical and health institutions, it is necessary to strengthen government functions, further promote Chinese medicine culture, establish incentive mechanisms to optimize talent training models, strengthen the close integration of Chinese medicine services with medical insurance policies, and construct Chinese medicine medical consortia supported by "information integration."

Full Text

Original Article: Discussion on the Current Situation and Development Path of Primary Traditional Chinese Medicine Health Services in China

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Abstract

Background Primary traditional Chinese medicine (TCM) health services have attracted continuously increasing attention in China. However, the primary

TCM health service system still faces problems that constrain the development of TCM in China. **Objective** To analyze the current status of the primary TCM health service system in China and explore strategies for continuously improving primary TCM service capacity. **Methods** In December 2022, data were retrieved from the *China Health Statistics Yearbook*, *National Statistics of Traditional Chinese Medicine*, and the official websites of the National Bureau of Disease Control and Prevention and the National Center for Cardiovascular Diseases. An index system was constructed from three dimensions: health input, service output, and health needs. The Rank-Sum Ratio (RSR) method combined with the WHO health system performance module framework was used to comprehensively evaluate the current status of primary TCM services. **Results** Regarding health input: From 2017 to 2021, the number of primary healthcare institutions providing TCM services increased across all institution types except township health centers. The number of beds in TCM clinical departments in community health service centers (stations), township health centers, and outpatient clinics showed an upward trend, though the proportion of TCM beds in outpatient clinics declined relative to total beds. The proportion of TCM practicing (assistant) physicians in community health service centers (stations), township health centers, and clinics increased significantly, while remaining stable in village clinics and decreasing annually in outpatient clinics. Over the past five years, the absolute value of financial investment in primary healthcare institutions increased steadily, while fiscal allocations for TCM institutions fluctuated and decreased. Regarding service output: From 2017 to 2021, the proportion of TCM consultations to total consultations in various institutions grew steadily (except in TCM outpatient clinics), with only village clinics consistently maintaining above 30.0%. Except for township health centers, the per capita annual TCM consultation burden for TCM practicing (assistant) physicians in other primary healthcare institutions generally declined. The comprehensive evaluation revealed that resource allocation was appropriate in 2017, 2018, and 2021, but unbalanced in 2019 and 2020. **Conclusion** The construction of China's primary TCM health service system has been effectively implemented, but deficiencies persist. Issues such as insufficient primary TCM resources, unbalanced service provision and utilization, inadequate exploitation of TCM advantages, imperfect personnel training mechanisms, and low financial investment constrain TCM development. To promote continuous improvement in primary TCM service capacity, it is necessary to consolidate government functions, further promote TCM culture, establish incentive mechanisms to optimize talent training models, strengthen integration between TCM services and health insurance policies, and build TCM medical consortia supported by "information integration."

Keywords Traditional Chinese medicine; Primary health; National health service; Service capacity-building; Development status; Development path

Introduction

On February 23, 2023, the General Office of the Communist Party of China Central Committee and the General Office of the State Council issued the *Opinions on Further Deepening Reform to Promote the Healthy Development of the Rural Medical and Health System*, emphasizing the important role of primary medical and health services in safeguarding people's health and identifying "further leveraging the characteristic advantages of TCM" as a key development goal. This underscores that continuously improving primary TCM service capacity, establishing a comprehensive primary TCM health service system, and promoting high-quality TCM development remain priorities for future TCM development efforts. With its unique health and economic value, TCM has played an irreplaceable role in primary health services and responses to public health emergencies such as Severe Acute Respiratory Syndrome (SARS) and COVID-19. On February 23, 2016, the State Council issued the *Outline of the Strategic Plan for the Development of Traditional Chinese Medicine (2016-2030)*, proposing to "continuously implement the primary TCM service capacity improvement project and enhance primary TCM health management levels." In the same year, the State Council issued the *"Healthy China 2030" Planning Outline*, advocating for a strategy focusing on primary-level care and equal emphasis on Chinese and Western medicine to achieve universal health. In March 2022, the *"14th Five-Year Plan" for TCM Development* was issued, establishing "continuous improvement of primary TCM service capacity" as a development goal. TCM participation in primary medical services can significantly improve patients' quality of life and its leading role in primary diagnosis and preventive treatment can substantially reduce residents' medical burden, alleviating problems such as "difficulty and high cost of accessing medical care" and "poverty due to illness" to some extent. In summary, strengthening primary TCM health service capacity plays a crucial role in safeguarding people's health and building a more comprehensive TCM medical service system.

However, China's primary TCM health service system still needs further improvement. Investigating the current status of primary TCM health services and analyzing pathways for improvement can help further enhance primary TCM service capacity. Existing studies have primarily used questionnaires and other methods to analyze and evaluate the status and service efficiency of primary TCM services in specific regions, while some have employed qualitative research to summarize the national status of primary TCM services and propose optimization recommendations. Few studies have quantitatively analyzed the national status of primary TCM services through constructing evaluation index systems. This study constructed an evaluation index system for China's primary TCM health services and conducted a comprehensive evaluation of the current status by combining the Rank-Sum Ratio method with the WHO health system performance module framework, aiming to identify existing problems in China's primary TCM service system and explore strategies to improve TCM service capacity in primary healthcare institutions, thereby accelerating the high-quality

development of TCM in China.

1. Materials and Methods

1.1 Construction of the Evaluation Index System Considering indicator continuity and availability, and referencing existing literature, we constructed an index system from three dimensions: health input, service output, and health needs. The final system included 3 first-level indicators, 7 second-level indicators, and 8 third-level indicators (Table 1).

1.2 Data Sources In December 2022, we retrieved data from the *China Health Statistics Yearbook* (2018-2022 editions) and *National Statistics of Traditional Chinese Medicine* (2017-2021 editions) from the National Health Commission website (http://www.nhc.gov.cn/mohwsbwstjxxzx/tjzxtjsj/tjsj_{list}.shtml) and the National Administration of Traditional Chinese Medicine website (http://www.natcm.gov.cn/2021tjzb/全国中医药统计摘编/others/main-left.htm). Data included institution numbers, bed numbers, TCM practicing (assistant) physician counts, total fiscal investment in primary TCM institutions, and consultation numbers. The ratio of consultations to TCM practicing (assistant) physicians was used as the per capita annual TCM consultation burden. Infectious disease incidence data were obtained from the National Bureau of Disease Control and Prevention (http://www.nhc.gov.cn/jkj), and cardiovascular disease prevalence data from the National Center for Cardiovascular Diseases (https://www.nccd.org.cn/). The statistical scope of this study was as follows: (1) Primary healthcare institutions included community health service centers (stations), township (street) health centers, village clinics, outpatient clinics, and clinics (infirmaries); (2) All national statistical data excluded Hong Kong Special Administrative Region, Macao Special Administrative Region, and Taiwan Province.

1.3 Evaluation Methods The Rank-Sum Ratio (RSR) method, proposed by Tian Fengtiao in 1988, has been widely applied in health management. The WHO health system performance module framework is an input-output model that evaluates overall health system performance by comprehensively measuring changes in health input, service output, and health needs indicators. This study used the RSR method to rank primary TCM health service levels across different years, using the average Probit value of health input, service output, and health needs indicators as the standard for dividing high and low levels, and conducted comprehensive evaluations according to the WHO health system performance module framework (Table 2).

1.4 Statistical Methods Retrieved data were entered into Excel 2016 and analyzed using SPSS PRO, with $P<0.05$ considered statistically significant. Statistical descriptions were performed on included indicators, with count data

expressed as relative numbers. Growth rate was calculated using the formula: growth rate = (an/a) - 1, where a represents the starting year institution number and an represents the ending year institution number, to calculate the growth rate of primary TCM health service institutions from 2017 to 2021.

2. Results

2.1 Health Input Analysis

2.1.1 Institution Scale Analysis In absolute terms, among all primary healthcare institutions providing TCM services, village clinics were the most numerous, followed by clinics, township health centers, outpatient clinics, community health service stations, and community health service centers. Overall, from 2017 to 2021, the numbers of village clinics and township health centers decreased, with a corresponding decline in the number of township health centers providing TCM services, while other primary healthcare institutions providing TCM services showed an upward trend.

In relative terms, except for outpatient clinics, the proportion of primary healthcare institutions providing TCM services increased year by year. By 2021, 99.56% (7,480/7,513) of community health service centers, 92.96% (11,509/12,381) of community health service stations, 99.14% (33,470/33,760) of township health centers, and 79.90% (447,455/559,992) of village clinics could provide TCM services. However, only 10.72% (3,840/33,760) of outpatient clinics and 24.99% (67,743/271,056) of clinics could provide TCM services. The growth rates of TCM outpatient clinics and TCM clinics consistently ranked highest, with TCM outpatient clinics reaching a peak growth rate of 26.40% in 2017 and TCM clinics reaching 11.83% in 2018. Compared with other institutions, township health centers providing TCM services had the smallest growth rate, which showed a declining trend (Table 3).

2.1.2 Clinical Department Beds Analysis In 2021, community health service centers (stations) had 18,756 TCM clinical department beds, accounting for 7.45% of total beds in these institutions—an increase of 8,492 beds and 2.75 percentage points compared with 2017. Township health centers had 111,512 TCM clinical department beds, accounting for 7.87% of total beds—an increase of 3.26 percentage points compared with 2017. The number of TCM clinical department beds in outpatient clinics remained stable from 2017 to 2020, increasing to 947 in 2021, but the proportion of TCM beds to total beds showed a downward trend. Although the proportion of TCM clinical department beds in community health service centers (stations) and township health centers increased, it never exceeded 8.0% (Figure 1 [Figure 1: see original paper]).

2.1.3 TCM Personnel in Primary Healthcare Institutions Overall, institutions ranked by TCM physician proportion from highest to lowest were:

community health service stations, clinics, community health service centers, outpatient clinics, village clinics, and township health centers. From 2017 to 2021, except for village clinics where the proportion of TCM practicing (assistant) physicians remained stable and outpatient clinics where it decreased annually, other institutions showed an upward trend in TCM physician proportion (Table 4).

2.1.4 Financial Investment in Primary TCM Institutions In 2021, the health department's total fiscal allocation to primary healthcare institutions was 175.326 billion yuan, accounting for 18.43% of all health project fiscal investment, of which TCM institutions received only 339 million yuan—just 0.19% of primary healthcare institution allocations. Over the past five years, while the absolute value of fiscal investment in primary healthcare institutions increased steadily, fiscal allocations for TCM institutions fluctuated and decreased, with their proportion dropping from 0.31% in 2017 to 0.19% in 2021.

To further analyze regional emphasis on primary TCM services, we used the average fiscal allocation for primary TCM health institutions across provinces from 2017 to 2021, divided regions by allocation levels, and created a distribution map of fiscal allocations for primary TCM institutions (Figure 2 [Figure 2: see original paper]). The map shows that darker colors indicate higher fiscal investment in primary TCM services, with regions such as Inner Mongolia Autonomous Region, Zhejiang Province, and Guangdong Province providing stronger support, while less developed central inland and western remote areas showed insufficient investment.

2.2 Service Output Analysis

2.2.1 Service Volume Analysis From 2017 to 2021, although the proportion of TCM consultations to total consultations in various institutions grew steadily (except in TCM outpatient clinics), only village clinics consistently maintained above 30.0%. Even though the *Primary TCM Service Capacity Improvement Project "13th Five-Year Plan" Action Plan* proposed that "by 2020, the proportion of TCM consultations in primary healthcare institutions should strive to reach 30%," by 2021, none of the other four types of primary healthcare institutions had achieved this target. Additionally, despite over 90.0% of community health service centers (stations) and township health centers providing TCM services, the proportion of TCM consultations remained below 10.0% (Table 5).

2.2.2 Analysis of Per Capita Annual Consultations by TCM Practicing (Assistant) Physicians Except for township health centers, the per capita annual consultation burden for TCM practicing (assistant) physicians in other primary healthcare institutions generally declined. In township health centers, this metric increased from 9,308,600 consultations in 2017 to 10,189,200

in 2021, representing the lightest workload among physicians. In village clinics, the per capita annual consultation burden for TCM practicing (assistant) physicians decreased from 24,836,010 consultations in 2017 to 13,069,170 in 2021, yet remained far heavier than in other institutions (Table 5).

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3. Comprehensive Evaluation Using RSR and WHO Health System Performance Module

RSR analysis results showed that as years progressed, health input in primary healthcare institutions providing TCM services gradually increased. In terms of service output, 2019 and 2021 showed relatively high levels. Regarding health needs, 2019 and 2021 were at high-need levels (Table 6).

WHO health system performance module evaluation results indicated: 2017 and 2018 were in a state of appropriate resource allocation with low health needs, insufficient health input, and low service output; 2019 was in a state of high resource utilization efficiency with high health needs, low health input, but high service output; 2020 was in a state of over-investment with low health needs, high health input, but low service output; 2021 was in a state of appropriate resource allocation with high health needs, high health input, and high service output (Table 7).

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4. Discussion

4.1 Imperfect Resource Allocation and Unbalanced Service Provision and Utilization Since the implementation of the "13th Five-Year Plan," various regions have actively implemented primary TCM health service system construction, significantly improving coverage of primary TCM health service institutions. However, the allocation proportions of TCM clinical department beds and TCM practicing (assistant) physicians in some institutions have not yet met standards, with obvious mismatches between bed numbers, physician numbers, and TCM health service institution numbers. Disparities exist among health needs, health input, and service output, and the problem of insufficient and unbalanced development of primary TCM health services urgently needs resolution. Research by Xiao Mengxiong et al. [14] found that in 2013, primary TCM resources and services were severely mismatched. Currently, despite high coverage of TCM primary healthcare institutions, TCM consultation rates remain significantly lower than institution coverage, with unbalanced phenomena between service provision and resource utilization on both supply and demand sides.

4.2 Limited Acceptance of TCM and Inadequate Exploitation of Its Advantages In recent years, TCM consultation volumes have not matched

the number of TCM primary healthcare institutions, indicating that TCM services have not yet gained patient recognition. Possible reasons include: information asymmetry between doctors and patients, with patients focusing more on efficacy and cost; the slow effect and high cost of Chinese patent medicines increasingly making patients feel that "TCM treatment is unreliable." Currently, primary TCM healthcare institutions have basically completed standardized construction of hospital environments and TCM behavior norm systems [22]. However, influenced by the cultural quality of doctors in primary TCM institutions, the distinctive advantages of TCM itself have gradually weakened during medical service processes. Appropriate TCM technologies are difficult to implement and promote in primary TCM institutions, with Chinese patent medicine prescriptions being used far more frequently than traditional treatments like acupuncture and massage [23]. Additionally, the advantageous role of TCM in treating common and chronic diseases at the primary level has not been demonstrated, further reinforcing the public perception that "TCM treatment is just drinking herbal medicine."

4.3 Heavy Workload for TCM Personnel and Imperfect Talent Training Mechanisms Currently, the workload of TCM personnel in some primary TCM institutions has become increasingly heavy. Under such high-intensity work conditions, increasing the number of TCM practicing (assistant) physicians and accelerating TCM talent training is urgent. However, China's current TCM physician workforce faces issues of relatively old average age, insufficient talent reserves, and broken talent chains [24]. The traditional apprenticeship training model is time-consuming, small-scale, and inefficient, unable to meet the "quantity" demands for TCM talent. Consequently, primary healthcare institutions, which offer lower salaries and social recognition than TCM hospitals, have even fewer TCM talents. Moreover, primary healthcare institutions lack promotion and training opportunities, leaving staff unable to meet their daily living needs or achieve self-actualization.

4.4 Large Growth Potential for Financial Investment and Insufficient Attention to Primary TCM Services In recent years, to further improve primary health service capacity and quality, the state has gradually shifted high-quality resources to the primary level, steadily increasing fiscal investment in primary healthcare institutions. However, investment in TCM institutions has not increased correspondingly, with the proportion of TCM institution investment in primary health service institutions actually decreasing. In 2021, fiscal investment in TCM institutions accounted for only 0.19% of primary healthcare institution investment, indicating substantial room for growth in primary TCM service investment. Furthermore, due to regional openness levels affecting local TCM development, disparities in TCM health investment across regions are significant [25], with some regions showing slowing investment momentum in recent years and insufficient follow-up momentum, seriously constraining TCM development.

5. Recommendations

5.1 Consolidate Government Coordination Functions and Increase Investment in Primary TCM As health service providers, resource investors, industry regulators, and policy makers, the government should implement a "people-centered" health service concept to effectively promote primary TCM health service development and safeguard people's health [26]. (1) To prevent patient diversion from primary care and combat illegal medical practice, it is necessary to introduce relevant policies defining access principles and business scopes for TCM health care institutions, regularly reviewing institution and practitioner qualifications to create a sound health service regulatory environment. (2) The government should increase fiscal support for economically underdeveloped regions, improve medical equipment construction in primary TCM institutions, perfect social security mechanisms for medical personnel, and promote standardized construction of primary TCM institutions to ensure coordinated regional TCM development and further improve service quality. (3) Promote the construction of primary TCM health management centers and other TCM health service institutions to provide residents with TCM-characteristic preventive care, health consultation, and clinical diagnosis and treatment services that meet patient demands.

5.2 Vigorously Promote Traditional Chinese Medicine Culture and Leverage TCM Diagnostic and Treatment Characteristics TCM has unique advantages in "preventive treatment," gynecological diseases, allergic diseases, and chronic disease management. The key to communication is helping residents correctly understand TCM culture and its efficacy. (1) Primary TCM health service institutions should leverage their concentrated patient populations by establishing 宣讲站 (promotion stations) within institutions to popularize TCM knowledge and commonly used massage acupoints in daily life. (2) Achieve deep integration of the internet with TCM culture, innovate TCM culture communication models, and fully utilize mobile technologies like WeChat public accounts and applications to expand communication effects. (3) Improve follow-up work after publicity efforts by dynamically monitoring residents' recognition of and satisfaction with TCM to guide future communication method adjustments. (4) Enhance international academic exchanges between Chinese and Western medicine and encourage TCM enterprises to expand into international markets to increase TCM's global influence.

5.3 Gradually Improve Talent Incentive Mechanisms and Promote TCM Talent Training Increasing human resource investment is an important measure for promoting primary health development. (1) Conduct systematic TCM theoretical knowledge and professional skills training for existing TCM physicians in primary TCM institutions, and training in commonly used TCM techniques for Western medicine physicians to improve the professional

quality of primary TCM health service talent. (2) Deepen reforms of existing TCM university training models, strengthen TCM basic theory learning, and use primary TCM institutions as practice bases to combine theoretical foundations with practical application. (3) Perfect incentive mechanisms by guiding TCM talent to primary-level employment through measures such as salary, children's benefits, and professional title review, and provide exchange and training opportunities for primary TCM talent to help them achieve personal value, thereby motivating more TCM talent to actively participate in primary health services and promote high-level TCM service development.

5.4 Strengthen Close Integration with Health Insurance Policies and Accelerate Support for Primary TCM Health Services Differentiating medical insurance reimbursement ratios across different-level medical institutions helps guide patients to seek appropriate care and reconstruct an orderly medical treatment system [25]. (1) Reasonably expand the reimbursement scope of TCM service items, appropriately increase reimbursement ratios for primary TCM services to guide patients to primary TCM institutions, such as including herbal decoctions for TCM-advantaged diseases in medical insurance coverage to promote health equity. (2) Actively promote single-disease payment systems for TCM-advantaged diseases, reduce disease payment prices for primary TCM medical and health institutions, and promote the development and implementation of the "tiered diagnosis and treatment" system. (3) Expand the scope of medical insurance support for TCM services in primary healthcare institutions by including more eligible primary healthcare institutions, elderly care institutions, and hospice care centers that provide TCM services in the reimbursement scope. (4) While encouraging primary TCM health service development, strengthen supervision of TCM services, regulate market behavior of TCM services, and ensure fair, open, and standardized operation of the medical insurance industry.

5.5 Focus on Building an "Information Integration" Model to Effectively Support TCM Medical Consortia Primary healthcare institutions lag in informatization construction, lack unified information system deployment and professional information management personnel, and generally suffer from low work efficiency, inconsistent statistical standards, and poor data quality [26]. The inability to achieve system linkage and information sharing among medical institutions at all levels has led to problems such as low health management rates for chronic disease patients at the primary level. Therefore, building TCM medical consortia supported by "information integration" is urgent. (1) Establish a national TCM informatization standard system to gradually achieve informatization of primary TCM health services. (2) Improve information technology skills among practicing personnel in primary healthcare institutions providing TCM services to ensure they can proficiently apply health information systems. (3) Encourage multi-type exchanges and cooperation among TCM hospitals, primary TCM institutions, and TCM outpatient clinics (offices), leveraging the

technical guidance role of informatization top-level design to achieve vertical interconnectivity among TCM medical institutions.

This study used the RSR method for ranking, but the evaluation grades are relative as the method does not consider absolute values. Additionally, limited by data sources, the three-level indicators across dimensions of the index system were not comprehensive, making WHO health system performance module evaluation results somewhat limited. The development of TCM in primary healthcare institutions requires government leadership in building a TCM-characteristic health service system, improving TCM talent training models, increasing medical insurance support for TCM development, and integrating information technology to realize TCM medical consortia, thereby providing broader development pathways for TCM inheritance in the new era.

Author Contributions

YANG Shuang conceptualized the study, designed the research protocol, and was responsible for writing and revising the manuscript. XIAO Zhihong, LI Ruifeng, and WANG Hongyun participated in manuscript revision. HUANG Youliang conceptualized the study, designed the research protocol, participated in manuscript revision, controlled article quality, and took overall responsibility for the article.

This article has no conflicts of interest.

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Note: Figure translations are in progress. See original paper for figures.