

Research in the Training of Traditional Chinese Medicine Talents in the Whole Life Cycle Based on the Perspective of Needs

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Abstract: Purpose: To understand the current situation of demand for traditional Chinese medicine(TCM) talents throughout the entire life cycle in China, the training and supply models, and the talent team situation, analyze the gap between demand and supply of traditional Chinese medicine talents, and put forward some suggestions and ideas to make the supply and demand of TCM talents in the whole life cycle basically reach the balance of supply and demand. Methods: According to the statistical yearbook of Traditional Chinese Medicine and National Bureau of Statistics of the People's Republic of China using the methods of literature analysis to analyze the survey data. Results: The demand for Chinese medicine professionals will continue to increase for a long time to come, due to objective and subjective reasons such as national policies, industry development, population ageing and residents; personal preferences, at present, there are some shortcomings in the whole life-cycle training process of prevention, diagnosis, treatment, rehabilitation and health care for talents of Chinese medicine, and the existing system and mechanism in the Chinese medicine industry is unreasonable, lead to the whole life cycle of Chinese medicine talent supply and demand mismatch. Conclusion: Through the improvement and reform of Chinese medicine colleges, trades and society, the Chinese medicine talents can be developed comprehensively from prevention to health care and rehabilitation, secondly, the industry optimizes the employment and evaluation mechanism to make Chinese medicine talents play a role, and finally the social strata to change the concept of employment. To build a high-quality team of Chinese medicine talents, and to enable the institutions to train the talents to meet the needs of the community, the supply and demand of the dynamic equilibrium state.

Keywords: Traditional Chinese Medicine Talents; Supply; Demand; Talent Development

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1.Introduction

Under the background of building a Healthy China and the post-pandemic era, with the gradual improvement of residents' living standards, the demand for traditional Chinese medicine human resources in the entire life cycle service process, including prevention, diagnosis, treatment, rehabilitation and health care, has significantly increased. Improving the cultivation of traditional Chinese medicine human resources throughout the entire life cycle is a core link in providing excellent traditional Chinese medicine resource services. It plays a crucial role in reforming traditional Chinese medicine higher education, promoting the high-quality development of traditional Chinese medicine and related industries, improving

the medical and health system reform, and better safeguarding the health of the residents. Although the total number of the Chinese medicine professionals in our country is increasing, there are still problems such as insufficient supply, unbalanced structure and uneven distribution at present. Therefore, conducting a cross-analysis of the demand and supply of traditional Chinese medicine talents throughout the entire life cycle in our country is not only conducive to building a high-quality team of traditional Chinese medicine professionals, but also can, to a certain extent, achieve a dynamic balance between the supply and demand of traditional Chinese medicine human resources.

2. Analysis of Talent Demand

2.1 Government policy support

During the “13th Five-Year Plan” period, the first national plan for the development of traditional Chinese medicine talents formulated by the National Administration of Traditional Chinese Medicine has achieved notable results. However, in the process of rejuvenating the development of traditional Chinese medicine, there are still significant issues regarding the scale, structure and distribution of traditional Chinese medicine talents. The “14th Five-Year Plan for the Development of Traditional Chinese Medicine Talents” has better addressed the issues faced by the development of traditional Chinese medicine talents. Currently, the development mechanisms for traditional Chinese medicine talents that are in line with the characteristics of traditional Chinese medicine have become more complete, and efforts have been made to strengthen the construction of the talent cultivation system and mechanism for traditional Chinese medicine. The well-designed training and evaluation standards have effectively increased the talent pool, which is conducive to optimizing the talent structure and the growth environment, building a high-quality team of traditional Chinese medicine professionals, and providing strong human resources support for the revitalization and development of traditional Chinese medicine^[1]. The promulgation of policy documents such as “The 14th Five-Year Plan for the Development of Traditional Chinese Medicine” and “Opinions on Strengthening the Work of Traditional Chinese Medicine Talents in the New Era” has sent a signal to society to revitalize traditional Chinese medicine, and has stimulated the latent demand for traditional Chinese medicine talents.

2.2 The industry is developing rapidly

The scale of the Chinese traditional medicine manufacturing industry is gradually expanding. Overall, this indicates that the traditional medicine sector is in a growing upward trend. With the rapid development of the Internet and big data, “Internet +” healthcare has provided a broad development prospect for the optimization of traditional Chinese medicine health services. The continuous improvement of artificial intelligence has also enabled the traditional Chinese medicine industry to develop in a more diverse manner. The traditional Chinese medicine industry gathers numerous market development forces and has a promising future. The market value and development potential of the traditional Chinese medicine industry have enabled patients to have greater confidence in choosing traditional Chinese medicine medical services, and have also given traditional Chinese medicine professionals the confidence to stay in the industry and realize their own value.

2.3 The aging of the population is intensifying

“Having a reliable support system in old age” and “Having access to medical treatment for illness” are the expectations of most people in our country. As the process of aging in our country continues to advance, we are gradually entering an ultra-aged society. As the elderly population constitutes a special group, they have a relatively high incidence of chronic diseases and comorbidities. Traditional Chinese medicine, with its characteristic of syndrome differentiation and treatment, can play a unique role in preventing chronic diseases and improving the physical condition of the elderly^[2]. “Medical-nursing integration” refers to a new model that combines professional traditional Chinese medicine medical services with elderly care services. “Traditional Chinese medicine health preservation” involves applying traditional Chinese medicine theories and methods to the field of health preservation and care. Both can provide more comprehensive and high-quality health preservation and care services for the elderly, thereby improving the overall level of medical and elderly care in society. Under this model, it is necessary to attract more high-quality, high-standard and high-quality young talents to join the cause of developing the unique medical-nursing integration in traditional Chinese medicine.

2.4 Subjective reasons

In terms of traditional Chinese medicine treatment methods, the elderly have a high level of acceptance for drug treatments

such as Chinese patent medicines and Chinese herbal decoctions, as well as rehabilitation treatments like moxibustion, cupping, gua sha, and massage. They also believe that traditional Chinese medicine is relatively inexpensive, has fewer side effects, and has advantages in the treatment of chronic diseases and difficult conditions. Most elderly people have received traditional Chinese medicine treatment. Therefore, among the elderly population, without any external objective reasons, they have a high level of confidence and strong preference for traditional Chinese medicine treatment services, and have a high degree of recognition of traditional Chinese medicine health services.

3. Analysis of Talent Supply

3.1 Analysis of Talent Supply and Training Model

At present, most traditional Chinese medicine colleges and universities have offered courses such as Traditional Chinese Medicine Prevention, Traditional Chinese Diagnosis, Chinese Pharmacology, Acupuncture and Massage, Basic Clinical Knowledge of Traditional Chinese Medicine, Treatise on Febrile Diseases, Inner Canon, and Warm Disease Theory, which cover the entire life cycle of prevention, diagnosis, treatment, and rehabilitation. The study of ancient classics such as “Shanghan Lun” mostly adopts theoretical teaching methods. Through multimedia and other auxiliary tools, it enhances students’ understanding and comprehension of traditional Chinese medicine culture. The diagnostic-related courses mainly adopt case-based teaching. Based on guiding students to systematically study professional theories, they conduct exercises in basic traditional Chinese medicine diagnostic skills such as observing, listening, questioning and palpation through cases. The relatively systematic training methods nowadays include institutional education and apprenticeship training. During the period of higher education, a large number of students majoring in traditional Chinese medicine can be cultivated in a relatively short time through learning. The apprenticeship model involves one teacher teaching one or several students over a considerable period. The learning duration is long, and it is achieved through teaching by example, oral instruction, and heart-to-heart guidance. Students learn while practicing traditional Chinese medicine, thus having a profound foundation in basic TCM theories and high learning efficiency, making it easier to cultivate outstanding talents^[3].

3.2 Analysis of the Development History of the Traditional Chinese Medicine Industry

Since the founding of the People’s Republic of China, traditional Chinese medicine has embarked on the process of modernization. The cultivation and breeding of medicinal herbs have evolved from scattered planting to intensive production, and from traditional herbal shops to standardized Chinese patent medicine factories. A preliminary framework for China’s traditional medicine industry system has thus been established. In the late 20th century, the management system of traditional Chinese medicine gradually took shape, and corresponding management institutions for traditional Chinese medicine emerged. Although the legal regulations and management institutions for traditional Chinese medicine have gradually improved, the modernization of traditional Chinese medicine is still in its infancy. Under the circumstances of the pandemic, people’s awareness and attention to the traditional Chinese medicine industry have reached a new high in history. Successive governments have issued documents to promote the inheritance, innovation and development of traditional Chinese medicine. The traditional Chinese medicine industry is continuously expanding in its development fields.

The supply-demand relationship of human resources in traditional Chinese medicine in our country exists in two states: “insufficient supply” and “excessive supply”. Both of these states will hinder the coordinated development of the supply and demand of human resources in traditional Chinese medicine.

4. Discussion

4.1 The issue of the total quantity and structure of the talent pool

From a total perspective, on one hand, with the country’s high-level attention to the traditional Chinese medicine industry and the continuous increase in the social demand for traditional Chinese medicine health services, the number of professionals in the traditional Chinese medicine field across the country has grown rapidly. On the other hand, it should also be noted that the number of the traditional Chinese medicine talent pool is increasing, and the amount of medical resources is relatively sufficient. However, there are still some problems in terms of the overall quantity of traditional Chinese medicine talents.

From the perspective of regional distribution, among all the provinces in China, the number of licensed (assistant) physicians

specializing in traditional Chinese medicine is the highest in Guangdong, while it is the lowest in Xizang; the number of trainee traditional Chinese medicine practitioners is the largest in Guizhou, and the least in Shanghai; the number of pharmacists (technicians) is the highest in Shandong, and the least in Xizang. From this, it can be seen that the supply level of traditional Chinese medicine human resources in the eastern region of our country is the highest, followed by the western region. The supply level in the central region is the lowest, and there are also significant differences in supply among the provinces within the region, with an uneven distribution across different regions^[4].

From the perspective of gender structure, there is little difference in the gender ratio among practicing (assistant) physicians. The proportion of females among pharmacists (technicians) and technicians is slightly higher than that of males. However, in registered nurses, the gender imbalance is more severe. From the perspective of age structure, practicing (assistant) physicians, pharmacists (technicians), and technicians are mainly concentrated in the age range of 25-44. From the perspective of educational background, they are mainly at the university undergraduate level. That is to say, the contradiction in the structure of traditional Chinese medicine talents is prominent, and the development of talents is insufficient and the distribution is unbalanced.

4.2 The problems existing in the construction of the talent team in universities

4.2.1 The mechanism for talent cultivation is not well-established

At present, all levels of traditional Chinese medicine colleges and universities in our country have basically established a training curriculum mechanism centered on diagnosis and treatment. The training of traditional Chinese medicine talents in higher education institutions is also mainly based on comprehensive teaching. In higher-level traditional Chinese medicine universities, the majority are of the university type; while institutions such as colleges, independent colleges, junior colleges and traditional Chinese medicine vocational schools account for only a small proportion. This indicates that there is a significant difference in the level of traditional Chinese medicine education among these institutions. Apart from the high-level undergraduate universities, there are few specialized colleges that conduct subject-based teaching for talent cultivation.

4.2.2 The educational and teaching model is not well-developed

First, there is a shortage of preventive medicine professionals. During the COVID-19 pandemic from 2019 to 2022, traditional Chinese medicine health resources played a unique role, and the general public thus regained confidence in it; however, at the same time, it also exposed problems such as the lack of specialized preventive medical talents in traditional Chinese medicine in our country. According to incomplete statistics, currently in China, there are relatively few universities that offer programs in public health and preventive medicine, and their proportion is quite low. For traditional Chinese medicine universities, the development of preventive medicine disciplines is not satisfactory. Many traditional Chinese medicine universities lack specialized preventive medicine programs. From this, it can be seen that prevention, as the leading link in the cultivation of traditional Chinese medicine talents throughout the entire life cycle, has not been effectively developed. Currently, there is a shortage of professionals in traditional Chinese medicine prevention, and the number of students trained by universities is limited and of low quality, which poses certain challenges in responding to sudden public health incidents.

Secondly, the emphasis on diagnostic training is insufficient. Currently, the educational approach in colleges generally follows the model of Western medical education, which is not conducive to the organic combination of educational content and form in traditional Chinese medicine education. As a result, the separation between theoretical learning and clinical practice is quite severe. In traditional Chinese medicine, diagnosis is mainly based on the four diagnostic methods: observation, auscultation/olfaction, inquiry, and palpation. Diagnosis is also the leading step in treatment. At present, traditional Chinese medicine colleges mainly rely on courses such as “Fundamentals of Traditional Chinese Medicine Theory” and “Traditional Chinese Medicine Diagnosis” to cultivate students majoring in traditional Chinese medicine, enabling them to acquire basic diagnostic knowledge and practical skills during their university years. From the practical teaching courses offered by various universities, it can be seen that there is a lack of emphasis on practical training courses. Firstly, the practical courses are merely supplementary to the theoretical courses. Many classroom knowledge cannot be quickly transformed into practical operational skills. Secondly, the teaching mode is not scientific. In the practical training courses, students mainly learn through observing the teachers or the operation methods provided in the videos. During the student practice sessions, the

teachers cannot promptly understand the practical situations of each student, and students are prone to develop bad diagnostic habits. Finally, the simulation environment is not good. There are no real patients for students to experience, and thus students do not pay enough attention to this aspect during the diagnosis process. Compared with the prevention methods of traditional Chinese medicine, the development of traditional Chinese medicine's diagnostic methods has a longer history and a more complete system. However, the existing problems still lead to low quality and insufficient levels of traditional Chinese medicine talent training throughout the entire life cycle.

Without long-term practice and training in clinical operations, the effectiveness of learning traditional Chinese medicine theory can only be evaluated through test scores, which is not conducive to enhancing students' practical application of traditional Chinese medicine theoretical knowledge. This is also reflected in the mismatch between the number of graduates from traditional Chinese medicine colleges and the number of inheritors of renowned masters. Although there are many graduates, there are not enough high-level talents who can independently apply traditional Chinese medicine theories for clinical diagnosis and treatment.

Thirdly, the application of technology is insufficient. Whether it is through academic education or apprenticeship training, there are still some outdated and rigid phenomena in the cultivation of high-level traditional Chinese medicine professionals. With the rapid development of big data, the Internet, etc., if universities fail to attach sufficient importance to the combination of traditional Chinese medicine theoretical phenomena and modern scientific theoretical methods, it will directly affect the effectiveness of cultivating high-level talents in traditional Chinese medicine^[5]. In the process of studying at the institution and receiving apprenticeship education, most students mainly adopt imitative operations, presenting a simplistic and mechanical form of learning. They do not fully exert their subjective initiative, creativity and innovation in experimental operations, thesis content, and practical internships.

4.3 The problems existing in the construction of the talent team within the industry

4.3.1 Having a single personnel management system

The employers in the Chinese traditional medicine industry are mainly traditional Chinese medicine hospitals and traditional Chinese medicine enterprises. To become a traditional Chinese medicine practitioner or a traditional Chinese medicine pharmacist, one must pass the national unified college entrance examination and choose a relevant major that allows them to take the national professional qualification examination for traditional Chinese medicine practitioners and traditional Chinese medicine pharmacists and be admitted by a higher education institution. This series of complex and rigorous procedures actually pose obstacles for a large number of enthusiasts of traditional Chinese medicine, especially those who have already taken the college entrance examination and chosen other majors, but who still wish to make a second attempt to enter the field of traditional Chinese medicine^[6]. Some students, in addition to choosing public traditional Chinese medicine medical institutions, also choose employers from private institutions. Generally speaking, these private institutions do not have very high requirements for the educational background of job seekers, but often have specific requirements for work experience. College graduates, after completing their studies, lack work experience, which means that many people with solid knowledge and skills in traditional Chinese medicine have not been able to fully utilize their talents, resulting in a waste of resources.

4.3.2 The talent evaluation mechanism is lagging behind

The talent evaluation mechanism is an important component of the talent development system and serves as the foundation for the effective development, management and utilization of human resources. The evaluation of the therapeutic effect of traditional Chinese medicine is the final stage of the treatment process and is also one of the assessment items for employers when evaluating traditional Chinese medicine professionals. One of the reasons why medicine has not been widely adopted globally is that the clinical effectiveness of traditional Chinese medicine has not been widely recognized. Currently, in the process of evaluating the clinical effects of traditional Chinese medicine, there is a phenomenon of using the Western biomedical model for evaluation, whether consciously or unconsciously. This model focuses on the evaluation of a single biological factor, neglecting the comprehensive analysis of multiple factors, resulting in limitations in the evaluation of the efficacy of traditional Chinese medicine^[7].

Furthermore, there are deficiencies in the talent evaluation mechanism in the traditional Chinese medicine industry. For

instance, the evaluation indicators for talents are overly simplistic. Many traditional Chinese medicine medical institutions rely solely on papers and projects as evaluation criteria. The evaluation standards are overly rigid and lack corresponding evaluation systems tailored for individuals with different educational backgrounds, different specialties, and different positions. The evaluation methods are outdated, and the evaluation approach dominated by administrative power may lead to unfairness. The aforementioned problems existing in the evaluation mechanism for traditional Chinese medicine professionals have, to a certain extent, made those who wish to enter this field feel intimidated, worrying about not being able to achieve the expected personal career development; on the other hand, it has also caused traditional Chinese medicine professionals within the industry to lose confidence and shift their focus to other industries.

5. Suggestions

5.1 Reform the educational model and cultivate high-quality traditional Chinese medicine professionals

5.1.1 Establish a complete teaching system

First of all, the cultivation of traditional Chinese medicine talents in regular universities, vocational universities and continuing education institutions should be integrated. Compared with a few developed countries, our vocational education system still needs to be upgraded, and the continuing education programs for traditional Chinese medicine also need to be improved. The educational system issues should be addressed by adjusting the curriculum design of the subjects, arranging the teaching of theory and practice, and changing the concepts of teachers and parents. This will fundamentally improve the quality of education and reasonably increase the enrollment scale of vocational education institutions^[8]. The continuing education of traditional Chinese medicine should also be targeted. It should be tailored to the actual needs of hospitals and the public, ensuring the high-quality development of continuing medical education. Secondly, it is necessary to improve the entire life-cycle course teaching system. Increase the proportion of higher education institutions offering preventive medicine programs and public health colleges, integrating traditional Chinese medicine knowledge with preventive medicine; Place practical training courses in the right position, not simply as supplements to theoretical courses, and set strict training operation procedures and standards to guide students to lay a solid foundation in traditional Chinese diagnostic methods and traditional Chinese treatment; At the same time, due to the aging population, the sharp increase in the prevalence of chronic diseases, and the growing health demands of people, it is necessary to fully utilize the efficacy of “preventing disease before it occurs” of traditional Chinese medicine in accordance with the requirements of the times. Add courses such as traditional Chinese health preservation and elderly care in the main courses to create a new type of medical and elderly care healthcare system that integrates medical care and elderly care^[9].

5.1.2 Develop diversified talent cultivation models

Firstly, we should seek a training model that suits the development laws of talents in traditional Chinese medicine, which includes both academic education in institutions and apprenticeship education. Combine the apprenticeship education with the college education, leverage strengths and avoid weaknesses, complement each other's advantages, and give full play to the advantages of the college education in terms of large-scale student enrollment and the high quality of the apprenticeship education. On the basis of establishing a foundation based on traditional Chinese medicine, implement the teaching model of early internship, early on-site practice, and repeated practice. Secondly, we should change the traditional mode of in-school teaching and deepen the cooperation between schools and enterprises. Build an activity platform in the school-enterprise cooperation, cultivate practical application-oriented talents, and lay a foundation for the employment of professionals in the traditional Chinese medicine field. Finally, by introducing modern scientific technologies, we will promote the “Internet +” model of traditional Chinese medicine. We will utilize technological means to conduct teaching activities, and adopt a model that combines online platform teaching with offline classroom teaching to cultivate students.

5.2 Improve the talent evaluation mechanism and reduce the rate of loss of traditional Chinese medicine talents

The evaluation standards for talents in the field of traditional Chinese medicine cannot simply be applied based on the indicators of modern medicine. At present, what needs to be strengthened the most is the assessment of the thinking abilities

of traditional Chinese medicine professionals. For students majoring in traditional Chinese medicine who have just started their careers, an overall evaluative thinking assessment can be used to determine whether they possess the corresponding abilities. Some simple and basic diagnostic and treatment tasks can be assigned to them to enhance their operational proficiency. This can to some extent reduce the difficulty for traditional Chinese medicine students to become qualified professionals and increase the trust between doctors and patients. Meanwhile, relevant employers can set different entry requirements for different positions. They do not solely rely on academic qualifications as the entry point. On the basis of ensuring medical safety, they will employ talents in a flexible and diverse manner. Finally, establishing an efficacy evaluation system with characteristics of traditional Chinese medicine, not simply relying on Western medicine as a reference, can enhance the sense of belonging of professionals in the industry; at the same time, appropriately introducing a third-party evaluation mechanism, separating the main body responsible for evaluating traditional Chinese medicine talents from administrative functions, providing appropriate promotion mechanisms for traditional Chinese medicine talents within the industry, improving employment satisfaction, and ensuring that traditional Chinese medicine talents do not leave the industry.

5.3 Cultivate correct employment concepts and guide students to make reasonable career choices

Students of traditional Chinese medicine professional colleges must undergo necessary vocational preparatory education. To meet the increasing demand for traditional Chinese medicine medical services, a long-term development perspective is required. The education should enable students to identify their own career development direction based on a thorough understanding of the industry prospects, enhance their professional qualities and capabilities, and become successors and a strong reserve force for the development of the traditional Chinese medicine cause^[10]. At the same time, we should also guide students to abandon excessive notions of money and hedonism. During their university years, we should organize a variety of career planning activities, such as career planning courses and employment guidance lectures, to dispel students' doubts and worries about the lower salary levels in the traditional Chinese medicine industry compared to other industries after employment, and guide students to set lofty career ideals, so as to safeguard people's health.

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