



A Study on the Development of Traditional Chinese Medicine Service Trade Facilitated by Digital Technology

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ABSTRACT

As a unique industry in China, traditional Chinese medicine is involved in the primary, secondary and tertiary industries, especially the medical treatment, health, scientific research and service. Targeted at the current conditions and problems of the traditional Chinese medicine service trade in China, this paper analyzes the mechanism that uses digital technology to help the development of traditional Chinese medicine service trade, including its close relationship with market competitiveness, health concepts, trade barriers and cultural heritage. This paper also proposes the countermeasures and suggestions for adaptation to the digitization of the traditional Chinese medicine service trade.

Keywords: service trade, traditional Chinese medicine industry, E-commerce, digital trade.

1. INTRODUCTION

In 2021, the General Office of the State Council issued the Several Policies and Measures on Accelerating the Characteristic Development of Traditional Chinese Medicine. This document points out that “we should implement the open development of traditional Chinese medicine (TCM), develop Internet plus TCM trade, encourage and support social capital to adopt the market-oriented approaches to build a number of friendly TCM hospitals, TCM parks and so on together with the countries that have the potential and willingness to cooperate”. The aim is to advance the modernization and industrialization of TCM, facilitate the high-quality development of TCM and promote TCM to go global.

2. CURRENT CONDITIONS OF TCM SERVICE TRADE IN CHINA

According to the statistics of the Ministry of Commerce, the total import and export value of service in 2021 was RMB 4676.78 billion, a year-on-year growth of 14.7%. The growth trend continued. Of which, the service export value increased by 31.5% and the service import value grew by 2.6%. Under the background of

declining growth rate of world economy, the service trade scale of China still ranked second in the world. Of which, the TCM service trade was an important part of the development strategy of China's service trade. As a unique industry in international trade in services of China, TCM has penetrated into every corner of the world and become a brand new concept[1]. According to General Agreement on Trade in Service (GATS), the supply mode of international trade in services mainly consists of four modes: cross-border supply, consumption abroad, commercial presence and movement of natural persons. The development of TCM service trade is manifested in the following aspects.

2.1. The development of TCM service trade under the mode of cross-border supply

Cross-border supply is the first mode of international trade in service. It refers to providing service from one member country to another member country. A number of public hospitals and more than 10 Internet medical platforms in China have opened online treatment channels, and remote TCM treatment and medical consultation is one of the typical cross-border supply modes[2]. In 2014, Shanghai established China's first

cross-border TCM service platform, Overseas TCM international medical and health service platform, which settled down in Hamburg and Dubai. It is a successful practice for carrying out international medical cooperation based on cloud technology, using modern TCM objectified information collection technology and completing observation and diagnosis of TCM through network transmission, which makes the mode of face-to-face diagnosis and treatment between doctors and patients remote, digital and systematic.

2.2. The development of TCM service trade under the mode of consumption abroad

Consumption Abroad is the provision of services by a member's service provider within its territory to a service consumer from any other member for remuneration. From the consumer's point of view, in search of better-quality medical services, regardless of Chinese and Western medicine, any outbound medical consultation is a consumption abroad. As TCM is gaining more and more attention, the number of people coming to China for medical treatment is increasing. According to the Ministry of Commerce of the People's Republic of China, 288 TCM service providers and enterprises in the country received 230,000 visits from foreign patients and 29,000 hospitalizations in 2016, with a business income of RMB 1.4 billion.

2.3. The development of TCM trade under the mode of commercial presence

Movement of Natural Persons is the movement of a natural person (service provider) from one Member to the territory of any other Members to provide services for remuneration. The mode of movement of natural persons in TCM service trade mainly includes that the TCM talents aiding foreign countries teach abroad as natural persons, and that the TCM personnel participate in relevant TCM cultural promotion meetings and academic exchanges, etc. According to statistics, China sends about 2,200 TCM clinicians every year, accounting for 60% of the total number of medical laborers sent abroad. Among the teams aiding foreign countries sent by China to more than 70 countries in Asia, Africa and Latin America, the number of TCM medical personnel accounts for 10% of the total number of medical personnel.

3. THE MECHANISM THAT DIGITAL TECHNOLOGY HELPS THE DEVELOPMENT OF TCM SERVICE TRADE

Digital trade takes digital platform as the carrier, and realizes the accurate exchange of real goods, digital products and services, digital knowledge and information through the effective use of digital technologies such as artificial intelligence, big data and cloud computing.

TCM trade is a kind of knowledge-intensive service trade, and is the expansion, extension and iteration of traditional trade in the digital economy era.

3.1. Digital technology helps expand the market of TCM service trade

TCM service trade is the basis for measuring domestic TCM services. Digital technology has expanded the TCM service trade market and enhanced the effectiveness of TCM international exchanges and cooperation[4]. At present, the "TCM service platform serving the Belt and Road", "International remote platform for traditional Chinese medicine services", "International Health Platform of Traditional Chinese Medicine" and "International professional service platform of traditional Chinese medicine" established in China. These digital platforms are breaking the time and space limitations of traditional medical transaction services, so they are generally welcomed by various countries. At the same time, the market size of TCM service trade has been expanded through digital technology.

3.2. Digital technology helps TCM service highlight the concept of health

During the outbreak of COVID-19 in Wuhan, TCM was fully involved in the prevention, control and treatment of the epidemic and the important role of TCM was widely recognized by all walks of life[5], especially in the treatment in "Fangcang" hospitals. Treatment with TCM has become a major highlight in the prevention and control of this epidemic. A service platform of traditional Chinese medicine has been built through digital technology, which can provide overseas consultation services for remote anti-epidemic treatment through online consultation by experts. For example, TCM diagnosis and treatment plans were shared and exchanged with 82 countries and regions including Italy, Germany, Japan, and South Korea through digital platforms.

3.3. Digital technology helps TCM service trade break through international market barriers

China's TCM institutions often need to obtain a number of approvals for opening pharmacies, clinics and TCM hospitals and other institutions overseas and the business scope and equity are strictly restricted. At present, in order to obtain the maximum market access and national treatment, China has signed 96 bilateral intergovernmental agreements with foreign governments and relevant international organizations containing TCM cooperation, and 49 specialized TCM cooperation agreements, which have changed the pattern of foreign-related medical service providers. Digital technology

enables remote cross-border medical consultations, helping Chinese medicine services to break through barriers to foreign market access. This model is conducive to enhancing the recognition of Chinese medicine by overseas people, so as to realize the international interaction and sharing of funds, technology and information in the field of Chinese medicine. For example, at the 2nd World Conference on Trade in Traditional Chinese Medicine Services held in Changsha, Hunan Province, the Global Alliance of Traditional Chinese Medicine Industry was officially launched. Under the background that "making Chinese medicine serve the world" has become an international voice, digital technology is the best tool for its realization.

3.4. Digital technology helps TCM service extend into the cultural sphere

The widespread use of the Internet has changed the role of data and information in trade, making digital trade, online shopping or e-commerce the norm in today's world. TCM is interdependent with multiple disciplines and is the basis for an independent Chinese cultural form and cultural confidence. The cognitive and therapeutic models in the TCM system originate from the worldview, methodology, values, cultivation and practice of Chinese civilization, and carry the core value system of Chinese TCM culture, which has a unique contribution to the fusion and development of Chinese civilization and world civilization.

4. PROBLEMS FACED IN THE DIGITAL TECHNOLOGY'S PROMOTING THE DEVELOPMENT OF TCM SERVICE TRADE

The cultural differences between East and West, standardization of TCM, trade barriers of TCM and intellectual property rights of TCM are the bottlenecks faced by the internationalization of TCM, and also inevitably bring various obstacles to trade.

4.1. External factors: TCM service trade may face new digital trade restrictions

Currently, the TCM industry is facing the dual challenges of its own problems and the dominance of the TCM industry by multinational companies from developed countries. Protectionism in international trade has always existed. Combined with the impact of reverse economic globalization, TCM services still have a long way to go for internationalization, and digital service trade is bound to face new international market barriers from various countries. The first and foremost is the industry barrier. The mainstream medical community in some Western countries has never embraced TCM, and registration of TCM in the host country is by no means an easy task, with most TCM being treated as food only.

4.2. Internal factors: the efficacy of TCM is weakened by the lack of specific quantitative indicators

The logical dimensions of Chinese and Western medical science are fundamentally different, with formal and dialectical logic as the main lines respectively. Chinese medical science pays close attention to the four diagnosis methods, namely looking, listening, questioning and feeling the pulse. The doctor's perception and experiences occupy an extremely important position in the diagnosis. One-to-one quantification cannot be realized in most of the quantification but the clustering quantification mode based on classification is adopted. This results in the lack of accurate quantitative indicators and standard systems for TCM diagnosis and treatment. Taking pulse manifestation as example, the expressions "floating", "deep", "slippery" and "sluggish" are often used to indicate the pulse manifestation in TCM and there are no specific quantitative indicators.

4.3. Talent factor: there is a serious shortage of experienced TCM experts with proficiency in foreign languages

The internationalization of TCM must rely on a talented workforce. China still lacks senior TCM translators who both know TCM and are highly competent in TCM translation, and has not established an education system for such translators. TCM is rich in connotations and differs significantly from the Western medicine in terms of diagnostic approach. The use of TCM is more complicated, and specific treatment schemes need to be formulated for different patients. This requires a team of experts with solid theoretical knowledge, rich clinical experience and high level of translation to internationalize TCM.

5. COUNTERMEASURES AND SUGGESTIONS FOR DIGITAL TECHNOLOGY TO PROMOTE THE DIGITIZATION OF TCM SERVICE TRADE

With technological innovation, the development of the Internet and big data and the upgrading of consumer demand, "Internet medical care" has become a new mode of service trade. There is a broad development space to realize the digital development of service trade.

5.1. Digital technology helps digital model innovation of TCM service trade

5.1.1. Digital technology helps develop online TCM medical services

Online medical services include two major parts: "treatment services" and "medicine services". The former refers to services such as online appointment, medical consultation and search for and inquiry on hospitalization information by patients. Domestic websites or APPs such as WeDoctor, PingAn Health, Chunyu Doctor and Dingxiang Doctor have now emerged. Since the outbreak of the COVID-19, online treatment service has become an important means of diagnosing and treating COVID-19 in various countries during the pandemic. The latter refers to services such as drug finding, drug purchasing, drug use, drug giving and drug delivery which can all be realized online through APPs such as Tmall Pharmacy, Jingdong Pharmacy, Pocket Pharmacy and Quick Drug Delivery. The domestic B2C pharmaceutical e-commerce market scale in China increased from RMB 3.2 billion in 2015 to RMB 11.6 billion in 2020, with a compound growth rate of 29.4%. With the development of remote cross-border services, there is hope that the double circulation development of domestic and international TCM B2C model can be realized.

5.1.2. Digital technology helps develop online TCM international consultation services

The combination of TCM advantages and modern technological means will help overcome various difficulties such as overseas cognitive identity barriers, cultural difference, and quality standard, and benefit the world. Online international consultation services are divided into three categories: text consultation, video consultation and medical guide mode. Text consultation includes telephone question and answer, text messaging, email and picture delivery services through which doctors provide basic diagnostic advice and treatment options to patients. Video consultation is a new form of diagnosis in which doctors use remote devices and network technology to provide diagnosis and advice to patients by video. The medical guide model allows hospitals and pharmacies to work together to provide patients with consultation and medicine purchase services. Online consultation services are based on digital trade and have become an important element in the development of double-circulation service trade in the TCM industry. Leveraging Chinese service resources or offshore service outsourcing can promote the development of online international TCM consultation services.

5.2. Digital technology helps digital management innovation of traditional Chinese medicine service trade

5.2.1. Cross-border medical O2O model provides a full range of convenient services for overseas patients

The O2O model (Online to Offline) originally referred to online and offline transactions and first appeared in the United States. Traders collect goods and services online and complete transactions offline. Ten years ago, Healthagen provided users with services such as symptom self-assessment, doctor search, appointment and pharmaceutical purchase through its mobile platform. The TCM O2O model is a closed-loop process from application scenario to demand matching to demand fulfillment. Based on the physical medical institutions and supported by mobile payment technology, it builds a convenient service platform to enable patients to obtain the services from consultation, appointment, diagnosis, referral and follow-up in the context of the Internet. In this way, the precise matching of demand and supply for medical treatment is realized. And based on the feedback iteration of the system and the organization of big data, a personalized health management plan is formed. The three Chinese Internet companies, BAT (B: Baidu, A: Alibaba, T: Tencent), are testing the "medical O2O closed-loop" system, which will provide the technical conditions for solving the conflicts between doctors and patients outside China.

5.2.2. Cross-border medical O2O model provides solution for lack of TCM resources abroad

Under the O2O medical model, doctors' fragmented time can be fully utilized to digitize doctor-patient interaction through the Internet and mobile terminals. The continuous, rich and accurate nature of data from mobile terminals will enable doctors to make more scientific diagnoses and overcome the physical, time and geographical limitations of patient visits, making Chinese healthcare "easier". The cross-border medical O2O model will promote the expansion of online doctor-doctor interaction, doctor-patient interaction, patient-patient interaction and medical insurance interaction modes in TCM, and realize the integrated and coordinated development of online and offline business. This will greatly improve the efficiency and quality of TCM, extend the international industrial chain of TCM, and promote the sustainable development of TCM and health.

5.3. Digital technology assists digital education innovation of traditional Chinese medicine service trade

5.3.1. Developing offline TCM personnel training and expanding the medical talent pool outside China

The key to the international development of the TCM industry is to develop a talent pool. At present, the weak TCM service capacity and the lack of personnel seriously and directly affect the implementation of international service strategy. To build an army of TCM talents outside China, we should pay attention to the training of senior medical and nursing personnel, and strengthen the training of daily TCM personnel outside China. Meanwhile, we should also break the unreasonable view of talents, so that select talents unconventionally to create a "national team" with high-level TCM service capacity. A group of famous senior TCM experts should be selected from existing medical institutions in China to train young and middle-aged TCM doctors in professional skills and foreign languages in the form of mentorship and apprenticeship, so as to vigorously improve the international service quality

5.3.2. Building an international TCM medical service network and completing the construction of TCM infrastructure

"Internet+" medical services are an important part of the technological change process and have become an integral part of today's international trade in services. Starting with the overseas consumption, we should set up reasonable network in foreign regions where the conditions are not met to expand the scale and improve the level of TCM service. Through joint-stock cooperation, the linkage mechanism is implemented to do a good job in emergency and disease control cooperation of overseas medical institutions and share international resources and markets of TCM. At present, the scale of overseas TCM medical institutions is small and the TCM medical system is not mature enough. We encourage powerful institutions in China to invest in overseas or cooperate with corresponding institutions abroad in capital, establish larger-scale commercial entities for TCM services, set up overseas TCM medical institutions, and gradually brand overseas TCM services.

6. CONCLUSIONS

In short, under the new pattern of global digital technology and digital trade, the trade in traditional Chinese medicine services should be guided by the construction of a community with a shared future for mankind. By establishing an integrated service platform for scientific research, education and medicine, build a

complete digital industry chain of traditional Chinese medicine service trade. Traditional Chinese medicine services should use digital technology to face the world and open up a new situation of international service trade in traditional Chinese medicine.

AUTHORS' CONTRIBUTIONS

Rongjun Xie and Meiqin Lv designed research, performed research, analyzed material and wrote the paper.

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