

Quantitative Analysis of National Medicine Strategic Policies towards Internationalization of Traditional Chinese Medicine

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Abstract. Objectives To evaluate national strategic policy documents for internationalization of Traditional Chinese medicine in terms of the perspective of policy tools and their strengths and weaknesses, and to provide benchmark information for the policy development for internationalization of Traditional Chinese medicine. Methods Based on the content analysis method, we constructed a two-dimensional analysis framework of policy tools and code classification of Traditional Chinese medicine towards the international market, and classified and statistically analyzed the content of the text. Results A total of 198 codes were categorized in the content analysis unit with 18 policy texts. The x-dimension results showed that supply-based policy tools were used most frequently (66.2%), followed by environmental policy tools (20.7%), and demand-based policy tools were least used (13.1%); and the y-dimension results showed that the supply-based policy tools and demand-based supply were more applicable to scientific research and innovation, while Traditional Chinese medicine was more applicable to environmental policy tools. Conclusion: There is an overall imbalance in the policy tools, and the government needs to formulate targeted policy documents to optimize and adjust the system of TCM to the international arena.

Keywords: Traditional Chinese Medicine Culture; International Dissemination; Policy Tools; Content Analysis Approach; Policy Analysis.

1. Introduction

In the report entitled "Meeting the Challenges of the 21st Century", WHO pointed out that the advantages and characteristics of Traditional Chinese medicine in disease prevention, treatment, and rehabilitation are the significant concern for the international pharmaceutical industry and public health. The culture of Traditional Chinese medicine is a national cultural brand that promotes Chinese culture in the international arena[1]. The Guidelines on Strengthening International Scientific and Technological Cooperation in Traditional Chinese Medicine issued by the State Administration of Traditional Chinese Medicine (TCM) in 2002 made plans for the application of Traditional Chinese medicine in the international arena, proposing the establishment of sound policies and regulations for international cooperation in Traditional Chinese medicine. Since then, documents such as the Ten-Year Plan for Foreign Exchange and Cooperation of Traditional Chinese Medicine, the Development Plan for Traditional Chinese Medicine Belt and Road (2016-2020), and the Opinions of the Ministry of Commerce and Fourteen Other Departments on Promoting the Development of Trade in Traditional Chinese medicine Services have been promulgated successively. Under the background of "Chinese culture going out" and the "Belt and Road" initiative, the strategic measures for TCM for internationalization have become more diversified, mainly including the development of trade in TCM, the establishment of the Confucius Institute for TCM, and publicity and promotion through online media, etc.[2-4]. This study aimed to utilize the policy tool analysis method to focus on the national strategic policy documents for internationalization of TCM, evaluate the current status of the policies including their strength and weakness, and provides benchmark information for the policy development.

2. Data Collection and Methodology

2.1. Data Collection

Data used in this study were extracted with normalized information and classified and coded[5], from 18 valid policy documents, using the quantitative analysis method of policy content. These documents were collected by April 10, 2023, through visiting websites such as the State Council Policy Document Library, the State Administration of TCM, the official website of the Central People's

Government of the People's Republic of China, and the government document module of the China Knowledge Network (CKN); and searching databases such as the China Knowledge Network (CKN) with the keywords of Traditional Chinese medicine, international, internationalization, and going international to collect and organize the normative government documents, such as plans, notices, opinions, and replies. The results are shown in Table 1.

Table 1. Summary of policy documents on Traditional Chinese Medicine going Internationalization

Serial number	Implementation date	Policy texts	issue number
1	June 3, 2002	Guiding Opinions of the State Administration of Traditional Chinese Medicine on Strengthening International Scientific and Technological Cooperation in Traditional Chinese medicine	--
2	February 4, 2004	Circular of the State Administration of Traditional Chinese Medicine on the issuance of guidance on the further implementation of the Ten-Year Plan for Foreign Exchanges and Cooperation in Traditional Chinese Medicine	State Chinese Medicine Development [2004] No. 3
.....			
17	March 3, 2022	Circular of the General Office of the State Council on the Issuance of the Fourteenth Five-Year Plan for the Development of Traditional Chinese Medicine	State Council [2022] No. 5
18	February 10, 2023	Circular of the General Office of the State Council on the Issuance of the Implementation Plan for the Major Project for the Revitalization and Development of Traditional Chinese Medicine	State Council [2023] No. 3

2.2. Research Methodology

Table 2. Coding table for policy texts on Traditional Chinese medicine going international

Serial number	Name of the document	Content of analysis	Code
1	Guiding Opinions of the State Administration of Traditional Chinese Medicine on Strengthening International Scientific and Technological Cooperation in Traditional Chinese medicine	Promote the establishment of a scientific and technological innovation system for Traditional Chinese medicine, the modernization and internationalization of Traditional Chinese medicine, and the development of scientific and technological industries of Traditional Chinese medicine with independent intellectual property rights.	1-1-1
...			
18	Circular of the General Office of the State Council on the Issuance of the Implementation Plan for the Major Project for the Revitalization and Development of Traditional Chinese medicine	Carrying out activities related to the "going out" of Traditional Chinese medicine at the China Import and Export Fair and the China International Fair for Trade in Services, and exploring the establishment of Traditional Chinese medicine-related exhibition panels.	18-5-*3

Note: When a text entry refers to more than one policy instrument, use "*1" "*2" "*.....", "**1" "**2" "**....." and so on. todistinguish between different entries.

The content analysis is a research method that categorizes textual information and reduces it to more relevant and manageable units of data to make valid inferences[6]. "In order to explore the characteristics and shortcomings of the policy texts on Traditional Chinese medicine going international, this study analyzed the textual data through the content analysis, coding, and frequency analysis of the 18 policy texts on the dimensions of policy tools and types of Traditional Chinese medicine going international [7]. The coding method of text content was "policy text number - chapter/specific article", and combined with the qualitative analysis tool NVivo for word frequency counting of policy texts, 18 policy documents and 198 entries were analyzed for frequency counting of text content in two dimensions. Finally, a coding list of policy text content analysis units was formed, as shown in Table 2. After coding, the policy texts were categorized according to 15 policy tools and entered into Excel 2016 software for the descriptive statistical analysis.

3. Constructing a Policy Analysis Framework for Traditional Chinese Medicine Going International

With the help of Rothwell and Zegveld's idea of categorization of policy tools, the policy tools for TCM to go international are classified into three types: supply-type, demand-type and environment-type [8]. Secondly, according to the Ministry of Health of the People's Republic of China, the State Administration of TCM on the issuance of the "Outline of Medium- and Long-Term Planning for Foreign Exchange and Cooperation of TCM (2011 - 2020)", actively promotes the incorporation of foreign exchange and cooperation of TCM into the country's seven development strategies of foreign diplomacy, health, education, science and technology, industry, culture, and trade, etc.[9] .

3.1. Dimension X: Policy Tools for Traditional Chinese Medicine to Go International

Supply-based policy tools play a facilitating role in the development of Traditional Chinese medicine toward internationalization. According to the supply side and the government's different support for the development of Traditional Chinese medicine towards international development and the supply of different resources, the supply-oriented policy tools are divided into several types including infrastructure construction, technology promotion, personnel training, financial support, informationization construction, etc.[10] . Demand-type policy tools refer to the negative impact brought by the uncertainties and other factors that hinder the development of TCM towards international development and are divided into types of industrial systems, intergovernmental cooperation, overseas consumption, service trade, and cooperative base construction. Environmental policy tools are mainly manifested in the favorable influence of external policies, which are usually reflected in the creation of good environmental support to indirectly promote the orderly development of TCM towards international development, mainly including target planning, system optimization, popularization of science and technology, testing platforms, and police protection, etc.[11] .

3.2. Dimension Y: Toward an International Classification of Traditional Chinese Medicine

Traditional Chinese medicine in the international arena has shown diversified development in recent years, in order to understand the focus of Traditional Chinese medicine on the international categories in the policy, and to provide a reference for the relevant departments to manage and regulate, this study introduced the Y dimension, i.e., the dimension of classification of Traditional Chinese medicine to the international arena[7]. According to the Circular of the Ministry of Health of the People's Republic of China and the State Administration of Traditional Chinese Medicine on the issuance of the Outline of Medium- and Long-Term Plan for Foreign Exchange and Cooperation of TCM (2011-2020), the categories of TCM going international are divided into seven parts: service system, TCM industry, team building, scientific research and innovation, management mechanism, health care, and TCM culture, which serve as the analytical framework for the Y dimension [9].

3.3. X-Y Two-dimensional Analytical Framework

This study constructed a policy text analysis framework based on two dimensions policy tools:

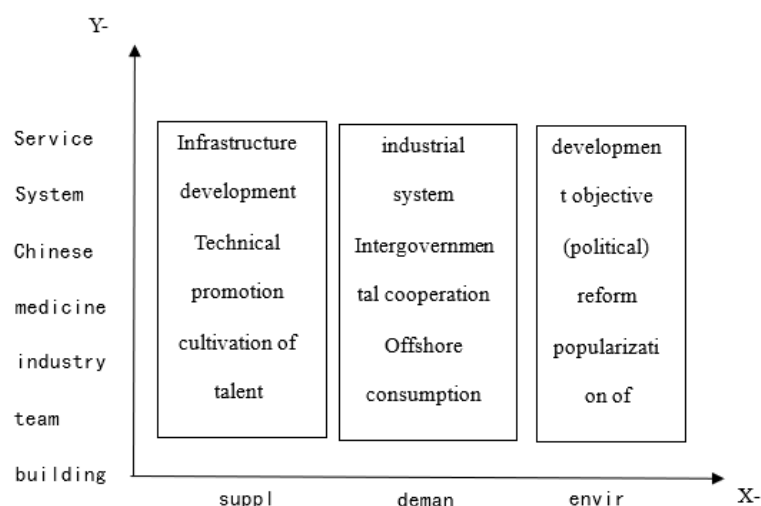


Figure 1. Two-dimensional analytical framework

4. Results

4.1. X-dimension Statistical Results

According to the use of policy tools (Table 3), supply-type policy tools were used most frequently (66.2%), followed by environment-type policy tools (20.7%), and finally demand-type policy tools (13.1%). With analyzing the internal structure of the policy tools, among the supply-type policy tools, talent cultivation (64.1%) was used most frequently, followed by financial support (21.4%), and technology promotion (3.1%) was used less frequently. Among the demand-type policy tools, intergovernmental cooperation (30.8%) was used most frequently, while trade in services (11.5%) was used least frequently. Among the environmental policy tools, target planning (31.7%) was used most frequently, followed by trade in services (11.1%), and the environmental policy tools (11.1%) were used least frequently. Among the environmental policy tools, target planning (31.7%) was used most frequently, followed by system optimization (29.3%) and science promotion (19.5%), while testing platforms (7.3%) were used least frequently.

4.2. Y-dimension Statistical Results

According to the use of policy tools in the classification dimension of TCM at the international level, the supply-type policy tools were more applicable to scientific research and innovation (35.8%), followed by TCM culture (20.7%), and the least applied part is Traditional Chinese Medicine industry (3.4%). The demand-type policy tools were ones mostly applicable to scientific research and innovation (34.6%), followed by TCM culture (25.0%), and the least applied was the TCM industry (3.9%). In the environment-type policy tools, the most applicable one was TCM culture (50.5%), followed by scientific research and innovation (22.3%); and the least applicable part was health care (2.9%) and industry (3.9%). Among the environment-oriented policy tools, the most applicable tool was TCM culture (50.5%), followed by research and innovation (22.3%); and the least applicable one was healthcare (2.9%) (Table 4).

5. Discussion and Policy Recommendations

5.1. Rationalizing the Proportion of Policy Instruments Used

5.1.1. High But Disproportionate Use of Supply-Side Policy Instruments

The rational choice and use of policy instruments are crucial for the realization of policy objectives [12]. As presented in Table 3, the overall use of the three types of policy tools varies greatly, with nearly half of the supply-type policy tools being used.

Table 3. Distribution of the application of policy tools related to China's Traditional Chinese Medicine going international

Policy tools	Project name	frequency	Percentage (%)
Supply-side	Infrastructure development	7	5.3
	Technical promotion	4	3.1
	Talent Cultivation	84	64.1
	Financial support	28	21.4
	informatization	8	6.1
	(grand) total	131	100.0
Demand-based	industrial system	5	19.2
	Intergovernmental cooperation	8	30.8
	Offshore consumption	6	23.1
	trade in services	3	11.5
	Cooperative base construction	4	15.4
	(grand) total	26	100.0
Environmental	target planning	13	31.7
	Institutional optimization	12	29.3
	popularization of science	8	19.5
	Testing platforms	3	7.3
	policy protection	5	12.2
	(grand) total	41	100.0

Table 4. Distribution in different categories for the application of policy tools towards internationalization of Traditional Chinese medicine (%)

Policy tools	Service System	Traditional Chinese medicine industry	Team building	Scientific research and innovation	Regulatory mechanisms	Health care	Traditional Chinese Medicine Culture	Add up the total
Supply-side	11.2	3.4	15.1	35.8	5.0	8.9	20.7	100
Demand-based	11.5	3.9	9.6	34.6	5.8	9.6	25.0	100
Environmental	7.8	4.9	6.8	22.3	4.9	2.9	50.5	100

In the supply-type policy, the current results indicate that the government favors personnel training and capital investment, neglects to strengthen infrastructure construction, and cannot promote TCM technology and enhance informationization. The imbalance of policy tools might lead to the obstruction of TCM in the international market, thus impacting its competitiveness and influence in the international arena. Therefore, it is necessary to consider various factors and modify the internal structure of supply-oriented policy tools to strengthen the protection of TCM infrastructure construction and technology promotion. These outputs indicate that the government should provide financial and resource support: (1) to encourage scientific research institutions and enterprises to increase research on TCM, promote clinical validation and standardization of TCM, and improve competitiveness in the international market; (2) promote TCM education and personnel training, facilitate the employment of TCM professionals, and give full play to the influence of high-quality

professionals in spreading TCM culture; and(3) enhance knowledge exchange to improve the international influence and status of Traditional Chinese medicine, including active participation and organization of international conferences and seminars, and promotion of international academic cooperation, and. In formulating supply policies, it is necessary to give full consideration to the characteristics and needs of the TCM industry and to strengthen support and protection in order to promote the development of TCM in the international market and the healthy and sustainable development of the industry.

5.1.2. Lack of Use of Demand-based Policy Instruments

Demand-based policy tools can help to develop the market for TCM and reduce the uncertainties in the process of building TCM to the international level in order to effectively promote the development of the TCM industry, so their force is often more direct and effective than environment-based tools [13]. However, the present study found that demand-based policy tools were used at a low frequency—only slightly more than 10% of all policy analysis units. They were mainly applied in the industrial system, intergovernmental cooperation, and overseas consumption, indicating that TCM going international mainly relies on the guidance of the consumer market and the promotion of policies from the demand perspective. The service trade and cooperation-based construction were used at the lowest frequency, resulting in an unbalanced internal structure. The current TCM industrial system lacks sound planning and integrated management, resulting in relatively weak promotion and competitiveness of TCM in the international market. The differences between countries in terms of policies, regulations and standards can be obstacles to inter-governmental cooperation, so it is necessary for government departments to give some boost to policies, strengthen inter-governmental coordination and communication, and improve the level of consensus and cooperation. The international promotion of Traditional Chinese medicine is closely related to overseas consumer demand, but the current overseas market for Traditional Chinese medicine products is small in size, and the degree of recognition and acceptance is not high enough. There is a need to further improve the quality standards of products and the level of international certification and to expand the share of TCM products in the international market. There is also a need to develop trade-in services, providing Traditional Chinese medicine diagnostic and treatment services and training, etc. The improvement of trade facilitation policies through simplifying relevant approval procedures and reducing tariffs and trade barriers can provide a favorable development environment for TCM enterprises that can promote the export volume of TCM products and expand their share in the international market. The government should increase the construction and support of cooperation bases and provide better policies and resources to guarantee a good platform and opportunities for TCM to go international.

5.1.3. Lower Use of Environmentally Oriented Policy Instruments and Lack of Effective Catalytic Effect

The use of environmental policy tools accounts for a relatively small proportion, and among its different types of tools, target planning and system optimization are used relatively more frequently, indicating that TCM is still in the development stage of going international. In its internal structure, the use of policy tools such as science popularization and publicity, testing platforms and policy protection accounts for a relatively small proportion, which requires government departments to give certain boosts in policies. At present, the popularization of Traditional Chinese medicine is relatively weak, lacking professional, systematic and effective means and channels of popularization. The international promotion of Traditional Chinese medicine needs to strengthen external communication and publicity work. In addition, the international development of Traditional Chinese medicine also needs to establish a sound system of testing platforms to ensure the quality and safety of products and technologies. Policy protection also needs to be further strengthened to provide strong protection and support for the international development of TCM. For example, increasing financial investment in the international promotion of Traditional Chinese medicine, formulating and improving laws and regulations, and strengthening the protection of intellectual property rights provide Traditional Chinese medicine enterprises with a better development environment and enhance their

competitiveness in the international market. In order to promote the realization of the strategy of TCM to the international market, it is necessary to strengthen the utilization and improvement of environmental policy tools, especially in the popularization of science, testing platforms and policy protection, to provide more powerful support and promotion for the development of TCM to the international market.

5.2. Application of Policy Tools in Different Classifications of TCM to Internationalization

As presented in Tables 2 and 4, the policy texts involve different categorizations of TCM going international. The policies issued by the government all involve seven classifications, with the integrated development of culture, research and industry as the traction, vigorously carrying out scientific research and innovation, disseminating Traditional Chinese medicine culture, enhancing the construction of human resources to pull Traditional Chinese medicine services and Traditional Chinese medicine health care to the international arena. However, the Traditional Chinese medicine industry and management mechanism were less applied, indicating that there is a hierarchy of policies, and indirectly reflecting the inadequacy of Traditional Chinese medicine to the international system; to a certain extent, hindering the development of Traditional Chinese medicine to the international arena. At the same time, the government needs to improve the management system of Traditional Chinese medicine, improve relevant laws and regulations, clarify the status and role of Traditional Chinese medicine, protect the traditional intellectual property rights of Traditional Chinese medicine, and encourage innovation and development. By analyzing the internal situation of the use of policy tools for scientific research and innovation and team building, it was found that the higher frequency of use was the supply-type and demand-type policy tools, and the application of environment-type policy tools was in a less frequency, which indicates that scientific research and innovation and team building need to be further strengthened. There is a need to improve the frequency of using environmental policy tools to: (1) promote the construction of international standards for Traditional Chinese medicine, (2) bring together the wisdom and expertise of the corresponding organizations to take the lead, and (3) give full play to the enthusiasm and role of professionals from different countries. It is necessary to do a good job in planning and designing, reforming the system construction, and gradually perfecting the standardization of Traditional Chinese medicine support system, management system, and operation mechanism. The industry should actively integrate into the global development and standardization of Traditional Chinese medicine, by improving the communication and coordination channels among the organizations of ISO, WHO, WFCMS, and WFAS; and knowledge exchange with cross-organizational and cross-institutional industries, and academic organizations.

6. Conclusion

This study found that supply-type policy tools were used more frequently, while demand-type policy tools were used in a very lower frequency. The result suggests that it is needed to moderately reduce the proportion of supply-type policy tools and increase the capital investment in order to improve the construction of Traditional Chinese medicine itself and its competitiveness and sustained development on the international medical stage. At the same time, the use of demand-based policy tools should be increased, and its internal structure should be adjusted to pay more attention to optimizing the selection and configuration of policy tools from the actual needs of social subjects. The government can actively guide Traditional Chinese medicine industry toward market demand-oriented development, and provide support and motivation for Traditional Chinese medicine to go to the international market through diversified demand-oriented policy tools. Therefore, when formulating policy documents, the government can balance the proportion of supply-type and demand-type policy tools through the flexible configuration of policy tools to create a favorable environment for the development of Traditional Chinese medicine, so as to build a more competitive international brand for the Traditional Chinese medicine industry, and to promote its sustained growth and development in the international market.

Acknowledgments

Project Fund: Chinese Academy of Engineering Strategic Research and Consulting Program Strategic Research on Traditional Chinese Medicine Development in the New Era 2022-XBZD-15.

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