Study on the Construction of Chinese Medicine Culture Communication and Education System in the Tripartite Sites of Schools, Hospitals and Communities in China

-- Big data word frequency analysis based on health promotion perspective

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Abstract. Purpose: Based on the literature on "Chinese medicine culture", we extracted high-frequency words and summarized the development of "Chinese medicine culture" from schools, hospitals and the communities. The study was carried out by extracting high-frequency words from schools, hospitals, and communities to summarize the development of "Chinese medicine culture" and its trends, and to provide a reference for the subjects related to "Chinese medicine culture". METHODS: Using China Knowledge Network (CNKI) as the main data source platform, we systematically reviewed the literature on "Chinese medicine culture" from January 2018 to April 2023, and further classified and searched schools, hospitals, and communities as the main venues for spreading Chinese medicine culture. We used BICOMB (Bibliographic co-occurrence analysis system) to analyze the frequency of words, extract high-frequency words and draw a word cloud, and propose suggestions for the dissemination of TCM culture based on "lifelong education". Conclusion: In the past five years, the research results on Chinese medicine culture education by Chinese scholars have been increasing year by year, among which the research on Chinese medicine culture education conducted in "schools" is dominant. Through the dissemination of TCM culture in multiple subjects and forms, the goal of promoting the sustainable development of TCM is finally achieved.

Keywords: Chinese medicine culture; sustainable development; health promotion; lifelong education; word frequency analysis; word cloud map

1 Instruction

Sustainable development is a major issue in the heritage of TCM culture and an important strategy that must be firmly established by health promotion. One of the im-

portant sources of motivation for the sustainable development strategy of TCM is cultural inheritance, and carrying out the dissemination and education of TCM culture is of great practical significance for the inheritance of TCM culture. At this stage, China has raised the development of TCM to the height of national strategy. In China's Education Modernization 2035, "Education for All" and "Lifelong Education" are highlighted, and it is pointed out that "a modern education system that serves lifelong learning for all people should be accelerated".[1] In recent years, General Secretary Xi Jinping has given important instructions on the development of Chinese medicine on many important occasions, pointing out the need to vigorously promote Chinese medicine culture and broaden the coverage of Chinese medicine culture dissemination; the state has also issued a series of policy documents to promote the development of Chinese medicine.

This study takes the national goal of promoting the prosperous development of TCM culture as the guide, and uses keyword frequency analysis to sort out the literature related to "TCM culture" according to the timeline and the three main venues of education for TCM culture dissemination, namely schools, hospitals and communities, to clarify and summarize the hot areas of TCM culture research in China in the past five years, and to propose suggestions for the dissemination of TCM culture based on "lifelong education", so as to provide reference for the subjects related to "TCM culture".

2   Data Sources and Research Methods

2.1   Data sources and literature intelligence analysis

In this study, from the perspective of the dissemination and development of Chinese medicine culture, China Knowledge Network (CNKI) was used as the main platform for literature search, and "Chinese medicine culture" was used as the keyword for the search, and the search period was limited to January 2018-April 2023, and a total of 3535 academic journals were retrieved. A total of 3535 academic journals were searched. Considering the extension and comprehensiveness of the contents and perspectives of the literature related to the dissemination and education of Chinese medicine culture, as well as the focus of this study on the theme of "lifelong education", a total of 648 articles were searched out of the 3,535 articles retrieved, which were further selected from the perspectives of "schools", "hospitals", and "communities" within the scope of the full text, among which the hotspot of research on the dissemination of Chinese medicine culture was the highest in the school-based studies, and the hotspot of the community-based studies was the lower one.During the period of 2018-2023, scholars in China have conducted a large number of studies on TCM cultural education, and the results of the studies basically show an increase year by year, as shown in Table 1.

Table 1. Number of literature publications (articles), 2018-2023

	School	Hospital	Community	Total
2018	45	8	3	56

2019	65	4	4	73
2020	74	19	0	93
2021	124	41	2	167
2022	148	52	3	203
2023	41	10	4	55
Total	497	134	17	648

2.2   Research Methodology

This study mainly adopts BICOMB (Bibliographic Co-occurrence Analysis System) for word frequency analysis. Word frequency analysis is based on Zipf's law of word frequency as the theoretical basis, the keywords and subject words that appear repeatedly in a piece of literature and can reflect the research hotspots are statistically analyzed, aiming to find the research hotspots of related disciplines as well as the future development trend[2].Li Jun (2010), Huang Bin (2019), Luo Ling (2020), conducted a hotspot information study using this method, which showed that the method has good applicability and can overcome the shortcomings of the traditional bibliometric method that relies too much on the researcher's subjective bias.[3][4][5]

This study uses word frequency analysis to analyze the current hotspots of TCM culture dissemination and education, classifies its main venues for TCM culture dissemination and education into schools, hospitals, and communities, uses BICOMB software to count the key words of TCM culture, predicts the hotspots of TCM culture dissemination and education in China based on the high and low word frequency, and uses these three main venues as a platform to build a TCM culture dissemination system based on lifelong education.

3   Hot spots of research on sustainable development of Chinese medicine culture

3.1   The highest threshold of high-frequency keywords

The keywords of the 648 retrieved Chinese documents were extracted, and the keywords were merged and cleaned. For example, "Chinese medicine colleges and universities" and "higher Chinese medicine colleges and universities" were merged into "Chinese medicine colleges and universities", and "strategy" was merged into "countermeasures". and "strategy" into "countermeasure", etc, and delete other invalid data. In order to make the keywords focus on the research focus and better analyze the research hotspots, the frequency of cited papers was used to restrict the keywords, and high-frequency keywords were selected as the research object of this paper. In "An empirical analysis of the applicability of high-frequency word threshold definition method in word frequency analysis method" published by Yisun Liu in 2017, it is mentioned that Price's formula is more scientific compared to the custom method, simpler to calculate than the high and low frequency word definition formula, and is applied in different subject areas.[6] Therefore, the selection method of high-frequency keywords in this

study is based on Price's formula, $M = 0.749\sqrt{N_{max}}$ where M is the high-frequency word threshold and N_{max} indicates the highest value of cited frequency of academic papers in the interval, and the calculation results are shown in Table 2.

Table 2. Distribution of data sources and the highest threshold of citation

	Number of articles	Cited Maximum	Maximum Threshold	Cited maximum papers	Author	Source
School	497	32	4	Analysis of the current situation and counter-measures of Chinese medicine culture in school	Zhang Anran;Xu Caiyun;Xue Tieying;Zhang Weiping;Zuo Zhengyun	Journal of Jiangxi University of Chinese Medicine
Hospital	134	14	3	Chinese hospital culture construction based on the perspective of corporate image recognition system theory	Teng Ye;Wang Xiaoding;Zhang Zongming	China Pharmaceutical Herald
Community	17	14	3	Survey on Health Literacy of Chinese Medicine Culture among Community Residents in Taishan District, Tai'an City	Guo, Li; Wang, Ying; Gong, Jianzhuo; Xue, Yazhuo	Journal of Community Medicine
Total	648					

3.2   Keyword word frequency analysis based on big data

3.2.1 School – keyword word frequency analysis based on big data.

The high-frequency terms for the research on the dissemination and education of TCM culture with "school" as the position in China during 2018-2023 are shown in Table 3. (Note: Due to limited space, the keywords with frequency less than 10 and their proportion will be omitted from the high frequency word analysis table of "school", and the word cloud diagram will not be deleted. Similarly, keywords with frequency less than 8 and their proportion will be omitted from the high-frequency word analysis table of "hospital". The high-frequency word analysis table for the position of "community" will not be deleted due to the limited search content.)The word cloud map

of school-TCM culture dissemination and education research based on the high-frequency word list is the same as above, as shown in Figure 1.

As can be seen from Table 3, when "school" is used as the main venue for the dissemination of TCM culture, the hotspots of research are mainly in the fields of TCM colleges and universities, TCM, curriculum thinking and government, cultural inheritance and innovation, etc. and present the following characteristics: (1) In terms of object selection, the research on the dissemination of TCM culture is mainly concentrated in TCM colleges and universities, especially among college students' groups. The frequency of research in TCM colleges and universities is 85, accounting for 4.61%, which is 64 more than the frequency in primary and secondary schools, accounting for about 4 percentage points higher. Considering the crossover between medical schools, colleges and universities, and higher education institutions and TCM colleges, the research percentage of TCM colleges may be higher. And the research frequency of college students is 32, accounting for 1.73%, which is 28 more than that of elementary school students, accounting for about 1.5 percentage points higher. (2) From the viewpoint of cultural inheritance, the research on TCM cultural communication involves many dimensions of culture, and the frequency of research on cultural confidence, cultural inheritance and innovation, campus culture construction, and Chinese excellent traditional culture is also in the top. (3) In terms of the connotation of campus education, campus education includes curriculum thinking and government, teaching reform, traditional health care and sports, and self-confidence education, which shows that the research focuses more on combining TCM culture with textbooks, curriculum, sports and other forms of education.

Table 3. Analysis table of high-frequency words in school-Chinese medicine culture dissemination and education research (times; %)

serial number	keyword	frequency	proportions	Cumulative percentage
1	Chinese Medicine Culture	241	13.06	13.06
2	Chinese medicine school	85	4.61	17.67
3	Chinese medicine	64	3.47	21.14
4	Civic-mindedness in the curriculum	59	3.20	24.34
5	Cultural heritage and innovation	39	2.11	26.45
6	cultural self-confidence	35	1.90	28.35
7	Chinese Medicine Cultural Confidence	34	1.84	30.19
8	university student	32	1.73	31.92
9	ideological and political education	28	1.52	33.44
10	Chinese outstanding traditional culture	26	1.41	34.85
11	Campus Culture Building	24	1.30	36.15

12	countermeasures	22	1.19	37.34
13	primary and secondary schools	21	1.14	38.48
14	medical student	19	1.03	39.51
15	library	18	0.98	40.49
16	medical school	16	0.87	41.36
17	universities and colleges	14	0.76	42.11
18	Pathfinder	13	0.70	42.82
19	Chinese Medicine Culture in Schools	11	0.60	43.41
20	Core values	11	0.60	44.01
21	reform of the teaching profession	10	0.54	44.55
22	cultivation of talent	10	0.54	45.09
23	humanistic	10	0.54	45.64
24	moral and political education	10	0.54	46.18
25	teach	10	0.54	46.72

Fig. 1. School-TCM culture dissemination and education research word cloud map

3.2.2 Hospitals – keyword word frequency analysis based on big data.

The high-frequency words of Chinese medicine culture communication and education research with "hospital" as the position in China during 2018-2023 are shown in Table 4.The word cloud map of hospital-Chinese medicine culture dissemination and education research based on the high-frequency word list is shown in Figure 2.

From Table 4, we can see that when "hospital" is the main position for the dissemination of TCM culture, the hot spots of research are mainly in the fields of TCM culture construction, TCM, Chinese hospital, nursing management, culture construction, etc., and present the following characteristics: (1) From the perspective of hospital departments, the departments for the dissemination of TCM culture are mainly concentrated

in orthopedics, geriatrics, and obstetrics and gynecology. The research frequencies of the above departments are 10, 9 and 8 respectively, accounting for 1.88%, 1.69% and 1.51% respectively. (2) From the perspective of hospital management, more attention was paid to nursing management in hospitals regarding the dissemination of TCM culture. Ward management, disease management and patient management were also studied more frequently, but nursing management was at the top of the ranking. TCM nursing, nurse-patient communication, nurses, special nursing care, and quality nursing service intersect with nursing management, and the proportion of studies on nursing management may be higher.

Table 4. Analysis table of high-frequency words in hospital-Chinese medicine culture dissemination and education research (times; %)

serial number	keyword	frequency	proportions	Cumulative percentage
1	Chinese Medicine Culture	47	8.85	8.85
2	Building a culture of Chinese medicine	27	5.08	13.94
3	Chinese medicine	22	4.14	18.08
4	Chinese medicine hospital	22	4.14	22.22
5	Nursing management	19	3.58	25.80
6	cultural construction	13	2.45	28.25
7	Orthopaedic Management	10	1.88	30.13
8	fulfill	9	1.69	31.83
9	geriatrics	9	1.69	33.52
10	department of gynecology and obstetrics	8	1.51	35.03
11	Ward management	8	1.51	36.53
12	appliance	8	1.51	38.04
13	effect	8	1.51	39.55

Fig. 2. Hospital- TCM culture dissemination and education research word cloud map

3.2.3 Community - keyword frequency analysis based on big data.

The high-frequency words for the research of Chinese medicine culture dissemination and education with "community" as the position in China from 2018 to 2023 are shown in Table 5.The word cloud map of community-Chinese medicine culture dissemination and education research based on the high-frequency word list is shown in Figure 3.

From Table 5, we can see that when "community" is the main location for the dissemination of TCM culture, the hotspots of research are mainly in the fields of health services, dissemination, and TCM. However, because the number of literature on the dissemination of TCM culture in communities retrieved during the search period of 2018-2023 is limited, the basis for the analysis of its research characteristics is greatly limited, and we will not elaborate too much here.

Table 5. Community- Chinese Medicine Culture Communication and Education Research High Frequency Word Analysis Table (times; %)

Serial number	Key Fields	Frequency	Proportion	Cumulative ratio
1	Chinese Medicine Culture	9	13.43	13.43
2	Health Services	5	7.46	20.90
3	Dissemination	4	5.97	26.87
4	Chinese Medicine	4	5.97	32.84
5	Community	4	5.97	38.81

Fig. 3. Community - TCM culture dissemination and education research word cloud map

4   Construction of Chinese medicine culture communication and education system based on "health promotion"

In line with the concept of lifelong education and the important strategy of health promotion, this study will use the school-hospital-community triad as the main venue for spreading TCM culture, and build an education system suitable for the whole society to learn and spread TCM culture based on the high-frequency key words derived from the above-mentioned word frequency analysis.

4.1   Enrichment of Chinese medicine culture education campus activities in schools

(1) During the adolescent period, the guiding idea is to stimulate students' interest in TCM culture, and to build confidence in TCM culture. In the construction of campus culture, lectures on the theme of "popularization of TCM" can be held, and cultural galleries can be built in the campus; in the curriculum reform, TCM culture and ideological and political education can be deeply integrated and promoted together, and subject linkage can be carried out to integrate TCM knowledge into other professional courses. (2) Foreign education, according to the word frequency analysis, we can see that the dissemination of TCM culture through such educational platforms as Confucius Institute is the most extensive. In the context of "One Belt, One Road", Confucius Institutes should change their mode of operation through innovation in all aspects to further create a good atmosphere for spreading Chinese medicine culture and promote it to the world. (3) Chinese medicine colleges and universities, Chinese medicine colleges and universities have obvious cultural atmosphere and disciplinary characteristics of Chinese medicine, and it is the key point to combine the disciplinary characteristics and carry out related promotional activities. In addition, traditional health care sports such as traditional martial arts and taijiquan can be added to the physical education curriculum, and the educational concepts of "three comprehensive education" and "five education" can be promoted in the dissemination and education of TCM culture.

4.2   Hospitals should strengthen the construction of Chinese medicine characteristic culture system

The audience for which the hospital is oriented is mainly patients, and the age distribution of patients basically covers all age groups. (1) In the environmental image, the courtyard construction (e.g., cultural stones), interior decoration (e.g., TCM-themed cultural wall, pharmacy window decoration) and other designs can functionally distinguish the style of Chinese hospitals from that of Western hospitals, highlight the characteristics of TCM, thus enhancing the attractiveness of Chinese hospitals. (2) In the quality of management, special attention should be paid to nursing management, the quality of nursing work is directly related to the medical safety of patients, and the development and improvement of characteristic TCM nursing techniques and communication between nurses and patients in TCM culture is also the key to strengthening the construction of TCM culture. (3) Hospital geriatric department, the patients in the hospital geriatric department are generally dominated by chronic diseases, whose conditions are intertwined and complex, often requiring repeated examination and treatment. The acceptance and popularity of TCM culture among the elderly groups is higher than that of other age groups. Therefore, the development of TCM education and propaganda for hospital geriatric departments is more conducive to promoting the popularization of TCM culture with the elderly as the center and radiating to all age groups.

4.3   Chinese medicine culture is introduced into the community through the collaboration of multiple entities and the use of media and other forms

(1) The dissemination and education about TCM culture in the community can rely on community-wide educational platforms such as museums, universities, and community health service centers, which often have the ability to sort out and integrate TCM cultural resources. Activities such as lectures on TCM culture, visits to TCM-themed exhibitions, and distribution of TCM science manuals can be used to raise community residents' level of awareness of TCM culture. (2) Extensive use of new media technology, digital teaching and other media to establish an interactive and all-people approach to the dissemination of TCM culture, in which the physical and mental development characteristics of each stage from adolescence to middle age to old age should be paid attention to and analyzed to guide all age groups in the community to truly trust TCM and actively become TCM culture disseminators and practitioners. In this regard, we should pay attention to and analyze the physical and mental development characteristics of each stage from youth to middle age to old age, and guide all age groups in the community to truly trust Chinese medicine practitioners and become active propagators and practitioners of Chinese medicine culture.

5   Conclusion

At the present stage, there is still a large gap between the cultivation of national confidence in TCM culture and the requirements for sustainable development of TCM health in China. This study focuses on several hot theories such as "lifelong education" and "health promotion", and explores the path of Chinese medicine culture dissemination in the school-hospital-community triad, so as to make a positive contribution to the great cause of promoting the sustainable development of Chinese medicine and health promotion. The study will explore the path of TCM cultural communication in the school-hospital-community triad, and make positive contributions to the great cause of sustainable development and health promotion of TCM.

Project Fund

References

1. Chen Wei. Research on Lifelong Education Community [D]. East China Normal University, 2020. DOI: 10.27149/d.cnki.ghdsu.2020.002152.
2. Zhou Chaofeng. A comparative study of common software for literature measurement [D]. Huazhong Normal University,2017.

3. Li Jun. A study of domestic educational technology research hotspots based on word frequency analysis[J]. Modern Intelligence,2010,30(08):131-134.
4. Huang B, Yang XY, Zhou YN. Current status of research on information technology curriculum in primary and secondary schools--based on word frequency analysis method and coword analysis method[J]. China Education Informatization,2019, No.455(20):14-19.
5. Luo Ling, Yang Li-Hui. Mining international research hotspots in remote sensing based on word frequency analysis method[J]. Publishing and Printing,2020, No.116(01):39- 47.DOI: 10.19619/j.issn.1007-1938.2020.01.008.
6. Yisan Liu, Yulin Wang, Mingxin Li. An empirical analysis of the applicability of high-frequency word threshold definition method in word frequency analysis method[J]. Digital Library Forum,2017, No.160(09):42-49