

# The Influence of Excellent Traditional Culture on the Health of Teachers in Colleges and Universities

—Taking Chinese Medicine Culture and Teachers of Chinese Medicine Colleges as an Example

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**Abstract**—Firstly, this paper calculates the weight and synthetic weight of all indexes through analytic hierarchy process. Quantitative and qualitative analysis of various factors affecting the health of TCM(traditional Chinese medicine) culture and TCM teachers. Secondly, through the questionnaire survey of expert evaluation, each influencing factor is evaluated separately to verify the rationality and operability of the whole evaluation system. Finally, TOPIS analysis method was used to evaluate the impact of TCM culture on the health of teachers in different schools of TCM colleges.

**Keywords**—analytical hierarchy process; TOPSIS act; TCM culture; teachers in Chinese medicine colleges; evaluate

## I. CONSTRUCTION OF EVALUATION MODEL

### A. Subjects of Study

This article invited 5 experts from TCM colleges and universities, whose specific information is shown in table 1(omitted).

### B. Research Tools and Methods

- Methods of study. This paper adopts analytic hierarchy process, expert investigation method and TOPSIS analysis method.

- Research tools-YAAHP .10 software. AHP(Analytic Hierarchy Process Analytic Process) is a qualitative and quantitative combination, systematic and hierarchical analysis method. It mainly solves the problem of systemic analysis that consists of many factors which are related to each other and lack of quantitative data.<sup>[1]</sup> AHP firstly constructs the judgment matrix by comparing the importance of each factor, and then calculates the maximum eigenvalue corresponding feature vector of the judgment Matrix, and uses the normalized feature vector as the weight of each factor.

- Research steps. The first step is to set up hierarchical structure diagram of evaluation index system.

The structure diagram is divided into three levels: 1 target level A, which is the final goal of the model's decision-making, namely, the impact of Chinese medicine culture on the health of teachers in Chinese medicine colleges; 2 The standard layer

B is the classification element of the model indicator level, that is, the three types of factors that assess the impact of Chinese medicine culture on the health of university teachers, including cultural identity, psychological adjustment and lifestyle; 3 Indicator layer C, Specific indicators for assessing the health impact system of Chinese medicine culture on teachers in Chinese medicine colleges in the model. The study only focused on the weight of the Chinese medicine culture of the index layer and the criterion level on the health impact system of college teachers (omitted).

The second step is to construct a judgment matrix.

The index factors are compared in pairs to obtain the judgment matrix Xij. The value of the judgment matrix uses Satty to propose a 1-9 scale method, and the values rangs from 1 to 9(or 1/1 to 1/9)(omitted).

The third step is to collect expert information.

Step 4, calculate the eigenvalues.

The matrix B is normalized by column A, and the lines of matrix B are normalized to obtain a eigenvector:  $G = (g_1, g_2 \dots g_n)^T$ . The product of the discriminant matrix A and the eigenvector G is calculated by calculation.

$$G \cdot A \cdot G = \begin{bmatrix} 1 & a_{12} & \dots & a_{1n} \\ a_{21} & 1 & \dots & a_{2n} \\ \vdots & \vdots & \dots & \vdots \\ a_{n1} & a_{n2} & \dots & a_{nn} \end{bmatrix} * \begin{bmatrix} g_1 \\ g_2 \\ \vdots \\ g_n \end{bmatrix} = \begin{bmatrix} w_1 \\ w_2 \\ \vdots \\ w_n \end{bmatrix}$$

You can get eigenvalues  $\lambda_{max}$ ,

$$\lambda_{max} = \sum_{i=1}^n \frac{(AG)_i}{nW_i}$$

Step five, consistency check.

The consistency test indicator is the consistency ratio C • R, which is defined as:  $C \cdot R = \frac{C \cdot I}{R \cdot I}$

$$\text{Consistency indicator: } C \cdot I = \frac{\lambda_{max} - n}{n - 1}$$

R.I is an average random consistency indicator. This value is related to the matrix order and is calculated according to the values listed in Table 2(omitted).

The criterion for the test in Table 2 is that the judgment matrix is acceptable when  $C \cdot R < 0.1$ .

## II. EVALUATION

This study uses AHP to determine the weight of each evaluation index and TOPSIS method to evaluate the merits and demerits. The evaluation results will be used as the basis for the impact of TCM culture on the health of teachers in TCM colleges.

### A. Indicator Judgement Matrix and Weights at all Levels

- Determination matrix and weights of indicators(see table 3) (omitted).The weight of cultural identity is 0.5247, the weight of psychological adjustment is 0.3338, and the weight of lifestyle is 0.1416. The weight of cultural identity is significantly higher than the other two indicators

- Determination matrix and weights of indicators(see tables 4,tables 5, tables6) (omitted).Cultural self-confidence indicators occupy the most weight, followed by the recognized TCM indicators and love of TCM indicators, TCM thinking indicators occupy the least weight.

Among the psychological adjustment indicators in Table 5, the two indexes of exercise regulation and harmonious moderation have the same weight, which is 0.2887. Followed by emotional indicators, Chinese medicine conditioning indicators occupy the least weight, 0.1756.

Among the lifestyle indicators in table 6, the most weight of the pre-cure indicator is 0.2474. The second is eating habits, sleep rhythm, exercise choices and life concepts, and the weight of each indicator is gradually reduced.

- Distribution of weights of various indicators in the evaluation system of the impact of TCM culture on teachers. The consistency ratio  $C \cdot R$  of the above judgment matrices is less than 0.1, so it can be concluded that these judgment matrices are acceptable. Based on this, the weights of the indicators of the impact assessment system of Chinese medicine culture on teachers are obtained.

Weight setting: Cultural identity is 0.5247, psychological adjustment is 0.3338, lifestyle is 0.1416. Weight-Objective: The influence of Chinese medicine culture on teachers' mind and body, including the recognition of Chinese medicine 0.1536, cultural self-confidence 0.2098, love of Chinese medicine 0.1039, Chinese medicine thinking 0.0573, Chinese medicine conditioning 0.0586, harmony and moderation 0.0964, sentiment theory 0.0824, exercise regulation 0.0964, sleep rhythm 0.0299, Diet habits 0.0326, exercise choices 0.0270, cure disease 0.0350, life concept 0.0171.

It turns out, cultural identity has the highest weight among the first level indicators, which is 0.5247; Psychological regulation has a weight of 0.3338 and lifestyle has the least weight of 0.1416.

Among the secondary indicators corresponding to the primary indicators, cultural self-confidence, exerciseregulation, harmony and mediocrity, and non-disease treatment indicators account for the most, and TCMthinking, Chinese medicine conditioning, and life concept indicators account for the least weight.

### B. TOPSIS Analysis to Evaluate Advantages and Disadvantages

- TOPSIS analysis. TOPSIS is a more commonly used sorting method. Its principle is based on the optimal solution and the worst solution in the calculation option, namely the ideal solution and the negative ideal solution of the decision problem. The distance between each option and the ideal solution and the negative ideal solution is calculated respectively, and then sort the solutions accordingly. The best option is the one closest to the ideal solution and farthest from the negative ideal solution. In recent years, this method has been widely used in the comprehensive evaluation of multiple indicators. This study applies it to the evaluation of the impact of Chinese medicine culture on teachers. The evaluation results can help college teachers understand their own mental and physical. And can also understand the influence degree of different indicator systems by comparing data, so as to understand the influence of Chinese medicine culture on teachers. The specific calculation steps of TOPSIS are as follows.

The first step is to construct the normalized decision matrix Y

For the comprehensive evaluation problem of M evaluation objects and N evaluation indicators, the decision matrix Y is:

$$Y = \begin{bmatrix} y_{11} & y_{12} & \cdots & y_{1m} \\ y_{21} & y_{22} & \cdots & y_{2m} \\ \vdots & \vdots & \cdots & \vdots \\ y_{n1} & y_{n2} & \cdots & y_{nm} \end{bmatrix}$$

In the formula,  $y_{ij}$  represents the number j evaluation indicator value of the first levaluation object,  $i = 1, \dots, N$ ;  $j = 1, \dots, m$ , normalization of Y to obtain matrix Z:

$$Z = \begin{bmatrix} z_{11} & z_{12} & \cdots & z_{1m} \\ z_{21} & z_{22} & \cdots & z_{2m} \\ \vdots & \vdots & \cdots & \vdots \\ z_{n1} & z_{n2} & \cdots & z_{nm} \end{bmatrix}$$

$$\ln z_{ij} = y_{ij} / \sqrt{\sum_{j=1}^m y_{ij}^2}, i=1, \dots, n; j=1, \dots, m$$

In the second step, determine the ideal solution  $X^+$  and the negative ideal solution  $X^-$ . The ideal solution is the optimal value in each evaluation index; The negative ideal solution is the worst value in each evaluation index.

The third step is to calculate the distance between the evaluation indicators. The distance from each solution to the ideal solution  $X^+$  is:

$$d_j^+ = \sqrt{\sum_{i=1}^n (x_{ij} - x_i^+)^2}, j=1, \dots, m \quad (1)$$

The distance from each solution to the ideal solution X-is:

$$d_j^- = \sqrt{\sum_{i=1}^n (x_{ij} - x_i^-)^2}, j=1, \dots, m \quad (2)$$

The fourth step is to calculate the relative proximity index  $C_i$  of each solution to the ideal solution

$$C_j^+ = d_j^- / (d_j^+ + d_j^-), j=1, \dots, m \quad (3)$$

Step 5, the order of the schemes is arranged in order of  $C_i$  from large to small.

According to the evaluation model, experts can be asked to assess the impact of TCM culture on teachers in Chinese medicine colleges. The evaluation results can be obtained by weighted summation, or TOPSIS can be used to evaluate the merits and demerits. The evaluation results will help understand the influence of TCM culture on teachers.

- TOPSIS evaluation process. Step one, build a decision matrix.

Calculate the mean value of each evaluation indicator and establish a decision matrix(see table 8) (omitted).

The second step is to calculate the ideal solution and the negative ideal solution.

The ideal solution is obtained by calculating the maximum value of each row, and the negative ideal solution is obtained by calculating the minimum value of each row.

Optimal solution  $X^+ = \{0.00992, 0.01239, 0.00648, 0.00423, 0.00386, 0.00669, 0.00571, 0.00809, 0.00232, 0.00240, 0.00214, 0.00264, 0.00110\}$

Worst scenario  $X^- = \{0.00909, 0.01175, 0.00612, 0.00332, 0.00371, 0.00574, 0.00502, 0.00675, 0.00199, 0.00213, 0.00184, 0.00226, 0.00098\}$

Step three, get the statistics.

Use formulae(1),(2) and(3) to calculate  $D^+$ ,  $D^-$ , and  $C^*$  to obtain the evaluation scores for each college(see table 7, see table8).

As shown in table 9, other colleges(teaching and administrative) performed at the best level, and non-medical colleges performed at the worst level, followed by Western medicine nursing colleges and TCM colleges.

### III. CONCLUSION ANALYSIS

The influence of TCM culture on the health of university teachers is very significant. There are the following aspects:

First, cultural identity occupies the most weight, and the weight of psychological adjustment and lifestyle has decreased in turn.

First of all, TCM culture is the crystallization of traditional Chinese cultural wisdom. The Belt and Road National Strategy provides opportunities for the International development of TCM. It is of great significance to promote TCM culture to the world. As the carrier of spreading Chinese medicine culture, higher Chinese medicine colleges and universities play a pivotal role in promoting Chinese medicine cultural identity[4]. Secondly, the influence of TCM culture on the psychological adjustment and lifestyle of teachers in TCM colleges is the secondary weight index of our later division. Finally, by analyzing and comparing the effects of various weights on the health of teachers in Chinese medicine colleges and universities, we understand the health status of teachers in Chinese medicine colleges, so as to effectively avoid the presence of job burnout of teachers in Chinese medicine colleges and improve work efficiency, which is more conducive to the inheritance and innovation of Chinese medicine culture. For example, the essence of the "middle way" of Confucian culture lies in the pursuit of balance and harmony in things, no more than nothing. Balance is the law that everything depends on each other, and the mean is the implementer of this law. The balance law permeates all aspects of TCM health science, guides disease prevention and health care, and prolonging life. With a balanced thinking, it conforms to the nature of heaven and earth, has a festival of food and drink, a degree of anger, and a degree of labor. This is the "middle way" of Chinese medicine's health.

Second, among the secondary indicators, the cultural self-confidence, cure disease, movement adjustment and harmonious mediocrity indicators have the most significant impact on teachers. Second, the weight of approved Chinese medicine, love of Chinese medicine, Chinese medicine thinking, sentiment theory, Chinese medicine conditioning, eating habits, sleep rhythm, exercise choice and life concept are gradually reduced, and the influence of each indicator is gradually weakened. According to the survey, there are common risk factors such as high work pressure, low sleep time, lack of exercise, and overdraft among teachers in colleges and universities. These risk factors are particularly prominent among teachers in the 45-55 age group. Smoking accounts for a large proportion of male teachers in colleges and universities, and there is a significant positive correlation between smoking and major chronic diseases. The prevalence of chronic diseases among college teachers is higher than that of other groups. The top eight patients suffering from diseases in health checkups are all chronic diseases. The detection rates were high blood lipids, fatty liver, hypertension and high blood pressure, abnormal electrocardiogram, overweight and obesity, high blood uric acid, liver and kidney cysts, and chronic pharyngitis. Therefore, by learning and practicing health care methods in TCM culture, we can promote the improvement of health level of TCM teachers.

Third, the teaching and administrative teachers who are responsible for the inheritance and promotion of Chinese medicine culture in Chinese medicine colleges and universities are affected by the Chinese medicine culture to the best level, followed by Western medicine colleges and Chinese medicine colleges. Non-medical colleges are the least affected. Among

them, the teachers of Chinese medicine colleges and universities in various colleges that have a significant impact are often exposed to daily life work, and non-medical college teachers who do not have a significant impact are not saying that they have no influence at all. It is only because they compare with the former that they will get this result. And in the process of collecting data, we also learned that non-medical teachers are more likely than Western doctors to show their recognition of Chinese medicine culture.

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