



Analysis on the Relationship between TCM Constitution Types and College Students' Physical Health

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Abstract Objective by analyzing the correlation between TCM Constitution Types and college students' physical health, to understand the distribution of TCM constitution types of college students, and to understand the characteristics of different TCM Types of College Students' physical health. Method This study adopts the methods of literature, questionnaire, measurement and mathematical statistics. Results (1) The constitution of many college students is biased, and the tendency of female biased constitution is more obvious. (2) There are differences in the detection rate of TCM constitution types among college students with different BMI levels ($\chi^2=60.66$, $p<0.05$). (3) There are differences in the level of vital capacity among college students with different TCM constitution types ($\chi^2=26.45$, $p<0.05$). (4) There is no significant difference in the overall level of physical fitness among college students with different TCM constitution types ($\chi^2=21.33$, $p>0.05$).

Keywords TCM constitution type; college students; Physical health

1. Introduction

Physical fitness is a comprehensive and relatively stable characteristic of the human body in terms of morphological structure, physiological function and psychological state on the basis of congenital inheritance and the obtained by the day after the day [1]. It's an important indicator of health. From the medical view, TCM Constitution can be divided into nine types according to certain evaluation criteria: Peaceful constitution, Qi deficiency constitution, Yang deficiency constitution, Yin deficiency constitution, Phlegm dampness constitution, Dampness heat constitution, Blood stasis constitution, Qi depression constitution and Special constitution [2]. In 2007, China promulgated the national student physical health standard and revised it in 2014. The Chinese government and relevant departments have been paying close attention to the problems of poor physical health of students and the continuous decline of many physical qualities. College students are an important reserve talent for China's development, and their health level is related to the future development of the nation. This study analyzes the physical health characteristics of college students of different types of Chinese medicine by investigating the physical fitness type of college students of Nanjing Normal University Taizhou College, and provides theoretical reference for widening the path of physical health intervention for college students.

2. Methods and Objects

2.1. Objects

The research object is the relationship between TCM constitution type and college students' physical health.



2.2. Method

2.2.1. Investigation tools and criteria

The online questionnaire survey was conducted by using the "TCM constitution classification and judgment table" issued by the Chinese society of traditional Chinese medicine in 2009. The scale is composed of 9 sub scales with 60 items, each item adopts 5-level scoring method; after calculating the original score, the conversion score is obtained according to the classification and judgment standard of TCM Constitution, and finally the constitution classification is determined. The transformation of each constitution type is divided into 0-100 points, and the specific criteria are as follows: peaceful constitution is normal constitution, and the other eight constitutions are biased constitution. When the transformation score of peaceful constitution is more than or equal to 60 points, and the other 8 kinds of constitution transformation score < 40 points, it is determined that the constitution is basically peaceful. When the transformation score of peaceful constitution is less than 60 points and the other 8 kinds of constitution transformation scores are more than or equal to 40 points, it is judged as biased constitution. When the conversion score of qi deficiency constitution, Yang deficiency constitution, yin deficiency constitution, phlegm dampness constitution, dampness heat constitution, blood stasis constitution, qi stagnation constitution and special constitution score ≥ 40 points, the biased constitution is determined. When the transformation of biased constitution is divided into 30-39 points, it is judged as biased constitution. When the conversion score of biased constitution is less than 30, it is judged as non biased constitution.

The physical health index is based on the content stipulated in the 2014 revision of the National Student Physical Health Standard. The physical fitness assessment index of college students includes body shape (BMI), physiological function (lung capacity), physical fitness[(50m run, jump, sit-up (female)/lead upward (male), 800m (female)/1000m run (male)]. According to the WHO criteria $BMI = [\text{weight (kg)}/\text{height}^2 (\text{m})^2]$, and the BMI was divided into normal weight, overweight, obesity and low weight. The indexes of vital capacity and physical fitness were evaluated according to the percentile method of the same age and gender grade, that is, the upper middle (> p97), the upper middle (p75-p97), the middle (p25-p75), the lower (p3-p25), and the lower (< P3). The indexes were defined as strong, weak, and average in the percentile of the same age and sex class.

2.2.2. Investigation Methods

In this study, online survey was used. Before the questionnaire was issued, the researcher explained the purpose, content and significance of the study. A total of 785 questionnaires were distributed to students of Nanjing Normal University Taizhou College. We collected 785 questionnaires, the recovery rate was 100%, and the effective rate was 100%. 217 male students (27.6%) and 568 female students (72.4%).

2.2.3. Statistical Methods

The data were input and analyzed by Excel 2007 and SPSS 22.0 statistical software. The measurement data was expressed by $(\bar{x} \pm s)$ and t-test was performed; the count data was expressed by (%), χ^2 test, and the difference was statistically significant ($P < 0.05$).

3 Results

3.1 detection rate of different types of TCM Constitution

The detection rate of different TCM constitution types of college students (Table 1), male and female life and quality inspection rate were 43.5% and 25.2%; in biased constitution, the detection rate of dampness heat constitution, yin deficiency constitution and yang deficiency constitution of male students was 14.5%, 11.3% and 9.7%, respectively; while that of female students was Yang deficiency constitution, dampness heat constitution and yin deficiency constitution, which were 27.0%, 12.9% and 12.9%, respectively.



Table 1: detection of different types of TCM Constitution of College Students

TCM constitution types	Gender	
	Male	Female
	N (%)	N (%)
Peaceful constitution	95 (43.5)	143(25.2)
Qi deficiency constitution	7 (3.2)	42 (7.4)
Qi Stagnation	14 (6.5)	38 (6.7)
Hygrothermal	32 (14.5)	73 (12.9)
Phlegm dampness	14 (6.5)	28 (4.9)
Intrinsic constitution	4 (1.6)	7 (1.2)
Blood stasis	7 (3.2)	10 (1.8)
Yang deficiency constitution	21 (9.7)	153 (27.0)
Yin deficiency constitution	25 (11.3)	73 (12.9)

3.2. Distribution of TCM constitution types of college students with different BMI

BMI is a reflection of body shape symmetry. According to BMI standard, human body can be divided into four grades: normal weight, low weight, overweight and obesity. The results showed that there were differences in the detection rate of TCM constitution types among college students with different BMI levels ($\chi^2=60.66$, $p<0.05$). In the normal weight group, the moderate constitution and the Yang deficiency constitution accounted for 24.0% and 14.7% of the respondents respectively. In overweight group, dampness heat constitution and yang deficiency constitution accounted for 4% and 3.11% respectively. In the low weight group, Yang deficiency constitution and yin deficiency constitution accounted for 3.56% and 2.67% of the respondents respectively. In the obese group, phlegm dampness and peace constitution accounted for 2.22% and 1.78% of the total number of the survey respectively. It is worth noting that the number of obese and overweight students in phlegm dampness group is higher than that of normal weight students.

Table 2: Distribution of TCM constitution types of college students with different BMI

TCM constitution types	BMI				χ^2	P value
	Overweight	Low body	Obese	Normal		
	N (%)	weight N (%)	N (%)	weight N (%)		
Peaceful constitution	17 (2.22)	17 (2.22)	14 (1.78)	188 (24.0)	60.66	0.000
Qi deficiency constitution	14 (1.78)	3 (0.44)	0 (0)	31 (4.00)		
Qi Stagnation	14 (1.78)	3 (0.44)	7 (0.89)	28 (3.56)		
Hygrothermal	31 (4.00)	3 (0.44)	0 (0)	70 (8.89)		
Phlegm dampness	17 (2.22)	0 (0)	17 (2.22)	7 (0.89)		
Intrinsic constitution	0 (0)	0 (0)	3 (0.44)	7 (0.89)		
Blood stasis	0 (0)	0 (0)	3 (0.44)	14 (1.78)		
Yang deficiency constitution	24 (0.31)	28 (3.56)	7(0.89)	115 (14.67)		
Yin deficiency constitution	17 (2.22)	21 (2.67)	3(0.44)	56 (7.11)		

3.3. Distribution of TCM constitution types of college students with different lung capacity function

Vital capacity is the main level of human ventilation function. The results show that there are differences in the level of vital capacity function among college students with different TCM constitution types ($\chi^2=26.45$, $p<0.05$). Among the college students with high vital capacity function, the proportion of peaceful constitution was the highest (11.56%), followed by Yang deficiency and yin deficiency (4.89%); among the college students with general vital capacity function, the proportion of peaceful constitution was the highest (14.67%), followed by damp heat and Yang deficiency (8.89%); among the college students with weak vital capacity, the proportion of Yang deficiency was the highest, accounting for 8.44%, followed by Pinghe 22% and 4% respectively.



Table 3: Distribution of TCM constitution types of college students with different levels of vital capacity

TCM constitution types	The level of Vital capacity			χ^2	P value
	High N (%)	Normal N (%)	Low N (%)		
Peaceful constitution	91 (11.56)	115 (14.67)	31 (4.00)	26.445	0.048
Qi deficiency constitution	21 (2.67)	24 (3.11)	3 (0.44)		
Qi Stagnation	10 (1.33)	28 (3.56)	14 (1.78)		
Hygrothermal	21 (2.67)	70 (8.89)	14 (1.78)		
Phlegm dampness	10 (1.33)	31 (4.00)	0 (0)		
Intrinsic constitution	0 (0)	7 (0.89)	3 (0.44)		
Blood stasis	3 (0.44)	10 (1.33)	3 (0.44)		
Yang deficiency constitution	38 (4.89)	70 (8.89)	66 (8.44)		
Yin deficiency constitution	38 (4.89)	42 (5.33)	17 (2.22)		

3.4. Distribution of TCM constitution types of college students with different physical qualities

Physical quality is the strength, speed, endurance and other functions of human body in activities, and it is the external manifestation of individual physical strength. The results showed that the difference between physical quality and ability of college students of different types of TCM was not obvious ($\chi^2 = 21.33$, $P > 0.05$), and most of them were at the general level. In the physical types of traditional Chinese medicine, such as Qi deficiency, damp and heat, phlegm and blood stasis, the detection rate of students with weak physical quality is higher than that of students with strong physical quality; in the physical types of the traditional Chinese medicine with the characteristics of peace, Yang deficiency and yin deficiency, the students with strong physical quality are higher than those with weak physical quality.

Table 4: Distribution of TCM constitution types of college students with different physical qualities

TCM constitution types	Physical quality			χ^2	P value
	High N (%)	Normal N (%)	Low N (%)		
Peaceful constitution	42 (5.3)	174 (22.2)	21 (2.7)	21.33	0.166
Qi deficiency constitution	7 (0.9)	31 (4.0)	10 (1.3)		
Qi Stagnation	10 (1.3)	31 (4.0)	10 (1.3)		
Hygrothermal	3 (0.4)	70 (8.9)	31 (4.0)		
Phlegm dampness	3 (0.4)	21 (2.7)	17 (2.2)		
Intrinsic constitution	0 (0)	10 (1.3)	0 (0)		
Blood stasis	3 (0.4)	7 (0.9)	7 (0.9)		
Yang deficiency constitution	31 (4.0)	133 (16.9)	10 (1.3)		
Yin deficiency constitution	14 (1.8)	73 (9.3)	10 (1.3)		

4. Discussion

The distribution of TCM constitution types of college students with different physical qualities has always been an important reason for the health of Chinese students. Chinese governments at all levels pay more and more attention to students' physical health, and have issued a number of documents, which make it clear that we should strengthen the intervention of students' physical health and constantly improve the level of students' physical health. In order to improve the level of students' physical health, it is necessary to study the factors affecting students' physical health. In recent years, with the continuous development of TCM theory, more and more researchers pay attention to the relationship between TCM Constitution Types and students' physical health. Liu et al, believe that there is a certain dialectical relationship between TCM constitution type and female college students' physical health [3]. Li research shows that the physical health level of students with



moderate constitution is better than that of students with biased constitution [4]. Xu et al, research shows that the use of TCM constitution identification has a good effect on individual physical health interventions for college students [5]. Traditional Chinese medicine believes that the imbalance of yin and Yang is the primary factor of disease invasion. Therefore, the imbalance of yin and Yang will have adverse effects on the health of college students [3]. Huang et al, found that college students' biased constitution is more than 80%, and female students are more likely to be biased [6]. In this study, 785 college students' TCM Constitution Types and related indicators of physical health were analyzed. Among the nine TCM constitution types, 43.5% male college students and 25.2% female college students were healthy constitution (peaceful constitution), while 56.5% of male students and 74.8% of female students belonged to partial constitution, of which male students' damp heat constitution and female students' Yang deficiency constitution were relatively high.

The TCM constitution types of normal weight college students are mainly peaceful constitution and yang deficiency constitution. The TCM constitution types of obese college students are phlegm dampness constitution and peaceful constitution. Overweight College Students' TCM constitution types are mainly damp heat constitution and yang deficiency constitution. Low weight college students' TCM constitution types are mainly Yang deficiency constitution and yin deficiency constitution.

There are differences in the level of vital capacity among college students with different TCM constitution types. In the healthy constitution, the proportion of college students with high vital capacity function is higher than that of students with low vital capacity function, but the proportion of college students with general vital capacity function is the highest. In biased constitution, the level of vital capacity function of college students with Yang deficiency constitution and special constitution is low.

Li et al. believe that there are different degrees of correlation between TCM Constitution Types and various physical qualities of college students [4]. Huang et al. study shown that the amount and intensity of physical activity of college students with biased physique are lower than those of healthy college students [6]. The results of this study show that the relationship between College Students' physical fitness and TCM constitution types is not close. Among many TCM constitution types, the proportion of college students with general physical quality level is higher.

In summary, there is a certain correlation between TCM constitution type and college students' physical health. The difference between the results of other studies is that this study only shows that there are differences in BMI and vital capacity function level among college students of different TCM constitution types, but the difference is not significant in the overall level of physical fitness, which may be due to different evaluation methods of physical quality.

References

- [1]. Wang Qi. Nine Classification and diagnostic basis of constitution types of basic TCM [J]. Journal of Beijing University of traditional Chinese medicine, 2005, 28(4): 1-8.
- [2]. Classification of Chinese medicine and TCM Constitution [M]. Beijing: China traditional Chinese Medicine Press. 2009, 5-7.
- [3]. LIU Chen, WANG Yuan. Investigation of Physical Health of Female College Students with Various Types of Traditional Chinese Medicine Constitution [J]. Journal of Guangzhou University of Traditional Chinese Medicine. 2017, 34(6): 798-801.
- [4]. Li Sheng Nan. The Analysis of Present Situation and Correlation of TCM Constitution and Physical Health of College Students —Take North University of China as an example [D]. North University of China. 2019.
- [5]. Xu Yangcai, Li Jixia et al. Analysis on the application effect of TCM constitution identification in college students' physical health intervention [J]. Journal of mathematical medicine. 2020, 33(1): 140-142.
- [6]. Huang Yao. Study on the relationship between College Students' physical activity and TCM Constitution [D]. Nan Jing Normal University. 2019.

