

THE DISTRIBUTION OF TRADITIONAL MEDICINE BODY CONSTITUTIONS AND THE FACTORS ASSOCIATED WITH DEPRESSION AMONG ELDERLY IN PATIENTS IN TRADITIONAL MEDICINE HOSPITAL OF THUA THIEN HUE

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ABSTRACT

Objectives: The purpose of this study is to explore the distribution of Traditional Medicine (TM) body constitutions, examine the factors associated with depression among elderly inpatients in Traditional Medicine Hospital of Thua Thien Hue, and further contribute to enhancing the value of traditional medicine theory's quintessence in preventing depression in medical facilities and in the community. **Subjects and methods:** A cross-sectional study of 420 elderly inpatients in Traditional Medicine Hospital of Thua Thien Hue from July 2022 to March 2024, screening for depression, using the Geriatric Depression Scale 30 items (GDS-30) and determining the TM body constitutions, using the Constitution in Traditional Medicine questionnaire (CCMQ). The multiple logistic regression model was applied to examine the factors associated with depression. **Results:** The proportion of the balanced constitution was the lowest (0%). Among the unbalanced constitutions, the highest proportion was the Phlegm-dampness constitution (70.2%), followed by Qi stagnation constitution (66.9%), Yin deficiency constitution (62.6%), Blood-stasis constitution (58.3%), Qi deficiency constitution (56.6%), Dampness-heat constitution (46.9%), Inherited-special constitution (38.8%) and the lowest was Yang deficiency constitution (31.9%). The higher odds of depression were

observed in Qi stagnation constitution ($p < 0.001$, OR = 5.787, 95%CI: 3.275 – 10.227), Qi deficiency constitution ($p < 0.001$, OR = 4.369, 95%CI: 2.643 – 7.222), Yang deficiency constitution ($p < 0.001$, OR = 3.682, 95%CI: 2.097 – 6.277), Gender ($p < 0.001$, OR = 3.451, 95%CI: 1.980 – 6.017), Dampness-heat constitution ($p < 0.001$, OR = 2.534, 95%CI: 1.545 – 4.156), Inherited-special constitution ($p = 0.003$, OR = 2.160, 95%CI: 1.302 – 3.584) and Yin deficiency constitution ($p = 0.028$, OR = 1.771, 95%CI: 1.064 – 2.948). **Conclusion:** This study indicated the distributions of TM body constitutions and the factors associated with depression among elderly inpatients in Traditional Medicine Hospital of Thua Thien Hue. Therefore, the assessment of the TM body constitutions contributes to the prevention strategy and early detection of depression in the health facilities as well as in the community.

Keywords: *Body constitution, Traditional medicine, depression, elderly, Constitution in Chinese Medicine Questionnaire (CCMQ).*

I. INTRODUCTION

Aging is a process associated with cognitive and physical decline. It increases the risk of mental health disorders in the elderly population, including depression which negatively affects physical activities and functions in daily life [1]. According to TM, the concept of body constitution has been described since ancient times in The Yellow Emperor's Inner Canon (Huang Di Nei Jing) and was further developed by Wang Qi in the 1970s. This theory emphasizes the importance of two factors:

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the congenital and the acquired, which play a core role in the formation and development of an individual's quality, temperament, and personality traits. It focuses on shifting the model from centering on the disease to centering on the person [8]. Body constitution is closely related to the aging process. During this stage, internal organs (zang-fu) functions decline, yin-yang disharmony occurs, emotional instability arises, and the spirit is easily distressed, leading to various TM body constitutions in the elderly [7]. Depression falls within the scope of stagnation syndrome according to TM [9]. A systematic review and meta-analysis have reported that some body constitutions such as qi stagnation, yang-deficiency, yin-deficiency, qi-deficiency, and balanced are associated with depression [9]. In Vietnam, there are not many studies on the distribution of TM body constitutions and their association with depression among elderly inpatients in hospitals. Therefore, to enhance the value of TM theory in general as well as the role of the body constitution theory in particular in preventive healthcare systems and early disease detection in the elderly in hospitals as well as in the community, we conducted this study with two objectives:

1.To determine the distribution of TM body constitutions among elderly inpatients in Traditional Medicine Hospital of Thua Thien Hue.

2.To investigate the factors associated with depression in these elderly inpatients.

II. MATERIALS AND METHODS

2.1. Study subjects

2.1.1.Inclusion criteria: Included elderly inpatients aged 60 years or above in

Traditional Medicine Hospital of Thua Thien Hue from July 2022 to March 2024.

2.1.2.Exclusion criteria: Elderly inpatients with language disabilities, hearing loss, visual impairments, signs of confusion, and dementia are assessed through evaluations of spatial and temporal orientation, and self and environmental awareness. Individuals coming for outpatient examination and treatment in the hospital. Elderly inpatients who do not consent to participate in this study.

2.2. Study settings: This study was conducted in Traditional Medicine Hospital of Thua Thien Hue from July 2022 to March 2024.

2.3. Study methods

2.3.1. Study design: This was a cross-sectional study, including descriptive and statistical analyses.

2.3.2. Sample size calculation: The minimum sample size calculated using the formula for evaluating prevalence in the community: $n = Z_{1-\alpha/2}^2 \frac{p(1-p)}{d^2}$

Where: n: number of participants, $Z_{1-\alpha/2} = 1.96$ with a 95% confidence interval, $d = 0.05$ for margin of error, $p = 0.5$ for maximum response distribution rate. We estimated that the required sample size for statistical significance must include at least 385 study participants. In this study, 420 elderly inpatients were selected.

2.3.3. Sampling technique: Elderly inpatients meeting the inclusion criteria will be selected in this study using convenient sampling technique. After sampling, we will assign each subject a code number. Because elderly inpatients may receive treatment in this hospital multiple times during the study period. Therefore, elderly inpatients who were included in the previous rounds will not

be resampled. The data collection will be continued until the desired sample size is reached.

2.4. Data collection tools

- The questionnaire included questions about socio-demographic characteristics: Age, and gender.

- The Geriatric Depression Scale (GDS-30) was used for screening depression in elderly inpatients, consisting of 30 items. Each item is scored as 0 or 1 depending on the patient's response of "no/yes". The maximum score on the scale is 30 and the minimum is 0. Depression assessment according to GDS-30: Not depressed: <13, Depressed: ≥ 13. The GDS-30 has been used and validated in Vietnam [5].

- The Constitution in Chinese Medicine Questionnaire (CCMQ) was used for determining the TM body constitutions among elderly inpatients in this study. The CCMQ was proposed and developed by Wang Qi et al. in China. This questionnaire is classified into 9 sub-scales including 9 TM

body constitutions: Balanced, Yang-Deficiency, Yin-Deficiency, Qi-Deficiency, Phlegm-dampness, Dampness-heat, Qi-Stagnation, and Inherited-special. Each sub-scale has an original score calculated on a Likert scale from 1-5 and standardized to a range from 0 to 100 points, using a conversion formula. In which, the original score = total score of each sub-scale, and the converted score = [(original score - number of items in each sub-scale)/(number of items in each sub-scale x 4)] x 100 [8]. In this study, elderly inpatients may have mixed body constitutions, which is consistent with the characteristics of the elderly according to the theory of TM about the elderly's TM body constitution and TM geriatrics [7]. The CCMQ has been translated and validated in Vietnam by Duong Thi Huong Nguyen et al. (2022) with the internal consistency varied from 0.70 to 0.83 measured by Cronbach's alpha [3]. The criteria for determining the TM body constitutions are described in Table 1.

Table 1. Criteria for determining the TM body constitutions [8]

Body constitution	Condition	Result
Balanced constitution	Converted score ≥ 60	Yes
	The remaining constitution's converted scores all < 30	
	Converted score ≥ 60	Basically yes
The remaining constitution's converted scores all < 40		
	Does not meet the above conditions	No
Unbalanced constitutions	Converted score ≥ 40	Yes
	Converted score 30 - 39	Tend to
	Converted score < 30	No

In the association analysis:

-The Balanced constitution is an independent variable divided into 2 groups: No (Converted score of Balanced constitution < 60 or Converted score of the remaining constitutions ≥ 30) and Yes

(Converted score of Balanced constitution ≥ 60 and Converted score of the remaining constitutions < 30).

-The remaining constitutions are independent variables, with each variable

divided into 2 groups: No (Converted score < 30) and Yes (Converted score ≥ 30).

2.5. Data Analysis

Data was entered in Epidata 3.1 and analysis was done by using SPSS 22. Descriptive statistics such as frequency and percentage were used to summarize the personal characteristics and the TM body

constitutions. A multiple logistic regression model was used to examine the factors associated with depression in elderly inpatients in this study. Data were expressed as OR and 95% CI. The test level was 0.05 and the p-value < 0.05 was considered statistically significant.

III. RESULTS

3.1. The general characteristics of the study population

Table 2. The general characteristics of the study population (n=420)

Characteristics		n	%
Age	60-69	179	42.6
	70-79	161	38.3
	≥ 80	80	19.0
Gender	Male	126	30.0
	Female	294	70.0

Through the survey of 420 elderly patients, the proportion of females in this study was higher than males (70% versus 30%). The age of 60-69 years old accounted for the highest proportion (42.6%).

3.2. The prevalence of depression in elderly inpatients

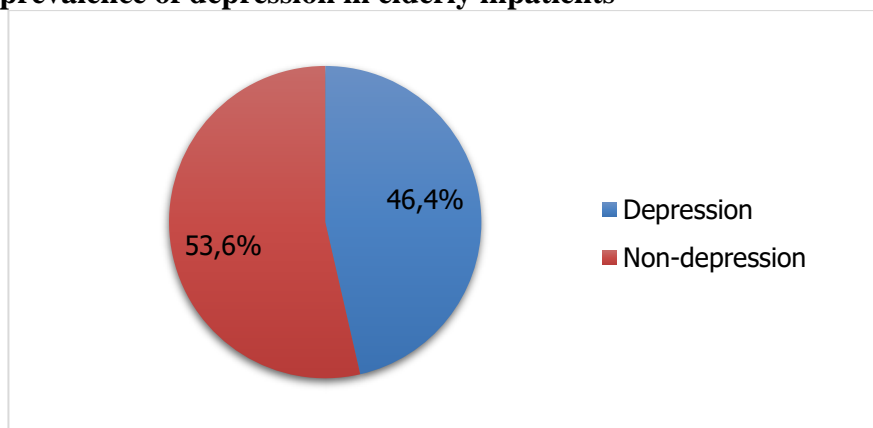


Figure 1. The prevalence of depression in elderly inpatients (n= 420)

The prevalence of depression in elderly inpatients in this study through screening using the GDS-30 scale was 46.4%.

3.3. The distribution of TM body constitutions in elderly inpatients in Traditional Medicine Hospital of Thua Thien Hue

Table 3. The distribution of TM body constitutions in elderly inpatients (n=420)

Body constitutions	Basically yes		Yes		Total	
	n	%	n	%	n	%
Balanced	0	0	0	0	0	0
Yang deficiency	9	2.1	125	29.8	134	31.9

Body constitutions	Basically yes		Yes		Total	
	n	%	n	%	n	%
Yin deficiency	93	22.1	170	40.5	263	62.6
Qi deficiency	69	16.4	169	40.2	238	56.6
Phlegm-dampness	97	23.1	198	47.1	295	70.2
Dampness-heat	132	31.4	65	15.5	197	46.9
Blood-stasis	56	13.3	189	45.0	245	58.3
Qi stagnation	55	13.1	226	53.8	281	66.9
Inherited-special	52	12.4	111	26.4	163	38.8

The balanced constitution accounted for 0%. Among the unbalanced constitutions, the Phlegm-dampness constitution had the highest proportion (70.2%), while the Yang-deficiency constitution had the lowest proportion (31.9%).

3.4. The factors associated with depression in elderly inpatients in Traditional Medicine Hospital of Thua Thien Hue

Table 4. Multiple logistic regression model on the factors associated with depression in elderly inpatients (n=420)

Factors		Non-depression		Depressio n		Adjusted OR	95% CI	p
		n	%	n	%			
Gender	Male	91	21.7	35	8.3	1		<
	Female	134	31.9	160	38.1	3.451	1.980 – 6.017	0.001
Age	60 – 69	104	24.8	75	17.9	1		0.412
	70 – 79	84	20.0	77	18.3	0.947	0.546 – 1.642	0.845
	≥ 80	37	8.8	43	10.2	1.476	0.757 – 2.878	0.253
Yang deficiency	No	177	42.1	109	26.0	1		<
	Yes	48	11.4	86	20.5	3.682	2.097 – 6.277	0.001
Yin deficiency	No	97	23.1	61	14.5	1		0.028
	Yes	128	30.5	134	31.9	1.771	1.064 – 2.948	
Qi deficiency	No	131	31.2	51	12.1	1		<
	Yes	94	22.4	144	34.3	4.369	2.643 – 7.222	0.001
Phlegm-dampness	No	80	19.0	45	10.7	1		0.198
	Yes	145	34.5	150	35.7	1.422	0.832 – 2.430	
Dampness-heat	No	142	33.8	81	19.3	1		<
	Yes	83	19.8	114	27.1	2.534	1.545 – 4.156	0.001
Blood-stasis	No	102	24.3	73	17.4	1		0.066
	Yes	123	29.3	122	29.0	1.589	0.969 – 2.606	
Qi stagnation	No	111	26.4	28	6.7	1		<
	Yes	114	27.1	167	39.8	5.787	3.275 – 10.227	0.001
Inherited-special	No	152	36.2	105	25.0	1		0.003
	Yes	73	17.4	90	21.4	2.160	1.302 – 3.584	

Factors associated with depression in elderly inpatients in this study including Gender (OR = 3.451, $p < 0.001$, 95%CI: 1.980 – 6.017), Yang deficiency constitution (OR = 3.682, $p < 0.001$, 95%CI: 2.097 – 6.277), Yin deficiency constitution (OR = 1.771, $p = 0.028$, 95%CI: 1.064 – 2.948), Qi deficiency constitution (OR = 4.369, $p < 0.001$, 95%CI: 2.643 – 7.222), Dampness-heat constitution (OR = 2.534, $p < 0.001$, 95%CI: 1.545 – 4.156), Qi stagnation constitution (OR = 5.787, $p < 0.001$, 95%CI: 3.275 – 10.227), and Inherited-special constitution (OR = 2.160, $p = 0.003$, 95%CI: 1.302 – 3.584).

IV. DISCUSSION

4.1. The distribution of TM body constitutions in elderly inpatients in Traditional Medicine Hospital of Thua Thien Hue

The balanced constitution in our study accounts for 0%. This can be explained by the fact that our subjects are elderly inpatients in the hospital and the aging process exacerbates the decline in zang-fu organs function, qi and blood imbalance, and Yin-Yang deficiency [6]. A balanced constitution is characterized by the harmony of qi and blood, the balance of yin and yang leading to good physical health and mental well-being [8]. Therefore, the absence of a balanced constitution in this study is consistent with the theory of constitution and geriatrics in TM.

Among the unbalanced constitutions, the Phlegm-Dampness constitution has the highest proportion (70.2%) and the Blood-stasis constitution (58.3%). This may be due to the physiological characteristics during the aging process, where the decline in zang-fu organ system function, the vulnerability to

exogenous factors, and endogenous factors caused by the seven emotional factors lead to qi stagnation, and blood stasis. When qi stagnates, it may, in time lead to the accumulation of body fluids in the form of oedema, dampness, or phlegm and blood stasis. This causes the elderly to often have symptoms of "excess phlegm and excess stasis." Additionally, the function of the Triple energizer (Sanjiao), which is assisting the transformation, transportation, and excretion of fluids at all stages, is weakened and affects the transformation of qi and the distribution of body fluids. It leads to stagnant fluids throughout the body, which results in dampness and oedema [7]. The Qi-stagnation constitution accounts for a high proportion (66.9%), which may be attributed to its characteristic of long-term emotional distress and stagnant qi, resulting in an unstable inward-oriented personality with expressions of melancholy, hesitation, and overthinking, posing a risk factor for developing stagnation syndrome [8].

In the elderly, the decline in the physiological functions of qi, blood, Yin, and Yang in the body is characteristics of the physiological state known as deficiency syndrome [7], forming the constitutions of Yin deficiency (62.6%), Qi deficiency (56.6%), and Yang deficiency (31.9%). In our study, the Yin deficiency constitution accounts for twice the proportion of the Yang deficiency. The characteristics of the Yin deficiency constitution involve the excessive consumption of body fluids, the Yin substances of each organ, the essence and blood. If the condition of Yin deficiency persists for a long time, it eventually leads to the development of empty-heat [8]. In the elderly, long-time deficiency of the spleen and stomach leads to deficiencies in the

source of fluids production, resulting in a reduction in the distribution of body fluids throughout the body, leading to a Yin deficiency condition [6]. Furthermore, our study showed a higher proportion of females compared to males (70% versus 30%). Since blood is the root of women, and body fluids is the source of blood [6], the decrease in blood during this stage affects women more, leading to a higher proportion of Yin Deficiency constitutions compared to Yang Deficiency.

The other constitutions accounted for a lower proportion, including Dampness-heat (46.9%) and Inherited-special (38.8%). The results in our study were higher than those in the study by Chending Hua et al. (2013) [2]. This could be attributed to differences in the study location, socio-demographic characteristics, as well as the method used to determine different body constitutions.

4.2. The factors associated with depression in elderly inpatients in Traditional Medicine hospital of Thua Thien Hue

Our study results indicate that females have a 3.451 times higher risk of depression compared to males ($p < 0.001$). This finding is higher than that of the study conducted by Nguyen Hang Nguyet Van et al. (2019) in Hanoi. This could be explained by the fact that our study was conducted on elderly patients receiving inpatient treatment, who are exposed to the influences of hospital environments as well as illnesses, whereas the study by the aforementioned authors was conducted in the community [4].

Elderly inpatients with the Qi stagnation body constitution have a 5.787 times higher risk of depression ($p < 0.001$). This result is higher than that of the study by Sin Yee Yap et al. (2022), which reported a 3.12 times

higher risk. This could be explained by the fact that the study by Sin Yee Yap et al. involved a comprehensive system-wide analysis and pooled analysis of general depression studies [9], which might result in lower proportions compared to our study conducted solely on the elderly.

Elderly inpatients with the body constitutions of Qi deficiency and Yang deficiency have 4.369 times ($p < 0.001$) and 3.682 times ($p < 0.001$) higher risk of depression, respectively. This can be explained by the fact that in the elderly, the function of qi circulation diminishes over time, leading to a reduction in the warming effect of Yang qi. This affects the promotion of fluids circulation in the body. Insufficient qi and blood circulation affect the mental agility and comfort of individuals, leading to the emergence of stagnation syndrome [6].

Elderly inpatients with a Dampness-heat constitution have a 2.534 times higher risk of depression ($p < 0.001$). This may be because this body constitution is characterized by a tendency towards irritability and anger, which are among the pathological factors of stagnation syndrome [8]. Elderly individuals with a Yin deficiency constitution have a 1.771 times higher risk of depression ($p = 0.028$). This result is higher than that of the study by Sin Yee Yap et al. (2022), which reported a 1.41 times higher risk. The reason may be that our study had a higher proportion of females compared to males (7:3). Women rely on Yin and blood as their roots, and during the aging process, the decline in Yin and blood leads to a state of Yin deficiency. It affects the mentality and spirit of the elderly due to the heat pattern of deficiency symptoms such as mental restlessness, steaming bone fever, menopausal hot flushes,

and five-palm heat (a feeling of heat in palms, soles and chest) [6].

Elderly inpatients with Inherited-special constitution have a 2.16 times higher risk of depression ($p = 0.003$). The formation of this body constitution originates from genetic, congenital, allergic, or autoimmune factors. Among these factors, the allergic constitution, which is characterized by a decrease in physiological functions and self-regulation ability, and an increased sensibility with external stimulations, can be a factor leading to depression in the elderly [8].

V. CONCLUSION

The study demonstrates the distribution of TM body constitutions among elderly inpatients in Traditional Medicine of Thua Thien Hue as well as the association between the TM body constitutions and depression in these patients. Therefore, the evaluation of the TM body constitutions contributes to the prevention and early detection of depression both in the health facilities and in the community.

REFERENCES

1. **Hong Cai, Yu Jin, Rui Liu et al.** Global prevalence of depression in older adults: A systematic review and meta-analysis of epidemiological surveys. *Asian Journal of Psychiatry*. 2023; 80: p.103417. <https://doi.org/10.1016/j.ajp.2022.103417>.
2. **Hua Ding Chen, Ming Zhang, Wan Zheng Qu et al.** Clinical Characteristics of Senile Depression in Elderly Patients with Different Traditional Chinese Medicine Constitution and Syndrome Types in Communities. *Journal of Anhui TCM Collegue*. 32(2). 2013: p. 38-41.
3. **Duong Thi Huong Nguyen, Thao Thu Le, Huy Khanh Tang et al.** The Vietnamese version of the constitution in Chinese medicine questionnaire (CCMQ): validity and reliability. *MedPharmRes*. 2022. 6(2): p. 18-27. DOI: 10.32895/UMP.MPR.6.2.3
4. **Nguyen Hang Nguyet Van, Nguyen Thi Khanh Huyen, Ha Ngoc Anh et al.** Factors associated with depression among the elderly living in Chuong My district, Hanoi. *Journal of Health and Development Studies*. 2019. 3(4): p. 14-22.
5. **Thong Van Nguyen, Kien Trung Nguyen, Phuong Minh Nguyen et al.** Vietnamese Version of the Geriatric Depression Scale (30 Items): Translation, Cross-Cultural Adaptation, and Validation. *Geriatrics*. 2021. 6(4): p. 116. <https://doi.org/10.3390/geriatrics6040116>.
6. **Khanh Vu Pham.** The Geriatrics of Traditional Medicine. Viet Nam Education Publishing House. 2016: p. 23-36.
7. **Fei Wang.** The Geriatrics Pathology of Traditional Chinese Medicine. China Traditional Chinese Medicine Publishing House. 2017: p. 19-28.
8. **Qi Wang.** The Body Constitution of Traditional Chinese Medicine. China Traditional Chinese Medicine Publishing House. 2022: p.1, 134-137.
9. **Sin Yee Yap, Foong Leng Ng, Menaga Subramaniam et al.** Traditional Chinese Medicine Body Constitutions as Predictors for Depression: A Systematic Review and Meta-Analysis. *Behavioral Sciences*. 12(11). 2022. <https://doi.org/10.3390/bs12110423>.