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Analysis of Traditional Chinese Medicine Constitution and Its Correlation with Syndromes in Adolescents with Non-Suicidal Self-Injury

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Abstract: This paper aims to investigate the distribution of Traditional Chinese Medicine (TCM) constitution and its correlation with TCM syndromes in adolescents with non-suicidal self-injury (NSSI), so as to provide a basis for TCM prevention and treatment of NSSI. The method applied in this paper is to use the TCM Nine Constitution Classification Scale to survey the constitution of 100 NSSI adolescents (NSSI group) and 100 healthy adolescents (control group), and determine TCM syndromes through clinical differentiation. Then, χ^2 test, Spearman correlation analysis, and logistic regression are used to analyze the correlation between constitution and syndromes. The results show that the detection rates of Qi Stagnation Constitution (46.0%) and Blood Stasis Constitution (18.0%)in the NSSI group are significantly higher than those in the control group (10.0%, 7.0%, all $P<0.05$), while the Peaceful Constitution (19.0%) is significantly lower than that in the control group (63.0%, $P<0.001$). The detection rate of Qi Stagnation Constitution in male NSSI patients (55.0%) is higher than that in females (35.0%, $P=0.032$). TCM syndromes are dominated by Liver Qi Stagnation Syndrome (46.0%). Qi Stagnation Constitution is strongly positively correlated with Liver Qi Stagnation Syndrome ($r=0.79$, $P<0.001$) and is an independent risk factor for Liver Qi Stagnation Syndrome (OR=6.15, 95%CI=3.42–11.05). In conclusion, Qi Stagnation Constitution is the core Pianpo constitution in adolescents with NSSI, which is closely related to Liver Qi Stagnation Syndrome. TCM constitution identification can be an important basis for NSSI syndrome differentiation.

1. Introduction

Non-suicidal self-injury (NSSI) is a common mental health problem among adolescents, with a detection rate of 5.4%–23.2% in China [1]. Its occurrence is closely related to emotional regulation disorders and adverse life events [2]. According to Traditional Chinese Medicine (TCM) constitution theory, constitution is a comprehensive characteristic formed by innate genetics and acquired environment, which is closely related to the susceptibility to mental and psychological

diseases[3]. Among Wang Qi's nine constitutions, Qi Stagnation Constitution (H type) is characterized by "emotional depression and sensitive worry," which highly matches the psychological characteristics of NSSI patients[4]. However, its distribution in NSSI populations and correlation with TCM syndromes remain unclear. This study aims to quantify the constitution-syndrome correlation in NSSI adolescents through standardized scales and clinical differentiation, providing a scientific basis for TCM precision intervention.

2. Materials and Methods

2.1. Study Subjects

- NSSI Group: 100 NSSI adolescents (aged 13–17 years) admitted to The Second Affiliated Hospital of Nanchang University from January 2021 to December 2024, meeting the diagnostic criteria for NSSI in ICD-10 and DSM-5. They were evaluated with the Adolescents Self-Harm Scale and excluded those with severe physical diseases, schizophrenia, or substance abuse history.
- Control Group: 100 healthy adolescents recruited from the community during the same period, without self-injury history, matched with the NSSI group in age and gender (age difference ≤1 year, gender ratio 1:1).

2.2. Research Tools

- Background Questionnaire: Including gender, age, family structure (single/dual parent), and adverse life events (e.g., school bullying, parental divorce).
- TCM Nine Constitution Classification Scale: Developed by Wang Qi's team at Beijing University of Chinese Medicine, consisting of 9 sub-scales (72 items) with 1–5 scoring. Constitution types were determined by converting raw scores according to the TCM Constitution Classification and Judgment Criteria[5].
- TCM Syndrome Diagnosis: Based on TCM Syndrome Differentiation and Diagnosis[6], two chief physicians independently differentiated syndromes, and Kappa consistency test (Kappa=0.85) was used to determine the final syndrome, including Liver Qi Stagnation Syndrome, Qi Stagnation Transforming into Fire Syndrome, and Phlegm-Qi Stagnation Syndrome.

2.3. Statistical Methods

Data were analyzed using SPSS 23.0:

- Measurement data were expressed as mean ± standard deviation, and compared between groups using independent sample t-test.
- Enumeration data were expressed as percentage (%), and compared between groups using test.
- Correlation between constitution types and syndromes was analyzed by Spearman rank correlation.
- Influencing factors were analyzed by binary logistic regression.
- Statistical significance was set at $\alpha=0.05$ (two-tailed test).

3. Results

3.1. Baseline Characteristics of Study Subjects

There were no significant differences in age or gender ratio between the two groups ($P>0.05$). However, the proportion of single-parent families (32.0% vs. 11.0%) and the incidence of adverse

life events (86.0% vs. 22.0%) in the NSSI group were significantly higher than those in the control group (all P<0.001, Table 1).

Table 1 Baseline Characteristics of the Two Groups

Group	n	Age	Male (%)	Single-parent (%)	Adverse Life Events (%)
NSSI Group	100	15.1±1.2	58.0	32.0*	86.0*
Control Group	100	15.0±1.1	57.0	11.0	22.0

Note: *P<0.001 vs. Control Group

3.2. Distribution of TCM Constitution

3.2.1. Differences in Constitution Distribution Between Groups

The detection rates of Qi Stagnation Constitution and Blood Stasis Constitution in the NSSI group were significantly higher than those in the control group, while the Peaceful Constitution was significantly lower (all P<0.05, Table 2).

Table 2 Comparison of TCM Constitution Distribution between Groups

Constitution Type	NSSI Group (n=100)	Control Group (n=100)	χ^2	P
Peaceful	19.0% (19)	63.0% (63)	44.21	<0.001
Qi Stagnation	46.0% (46)	10.0% (10)	52.31	<0.001
Blood Stasis	18.0% (18)	7.0% (7)	6.89	0.009
Phlegm-Damp	9.0% (9)	12.0% (12)	0.75	0.386
Others	8.0% (8)	8.0% (8)	0.00	1.000

3.2.2. Gender Stratification Analysis

In the NSSI group, the detection rate of Qi Stagnation Constitution in males (55.0%) was significantly higher than that in females (35.0%, P=0.032, Table 3).

Table 3 Distribution of Qi Stagnation Constitution by Gender in the NSSI Group

Gender	n	Qi Stagnation (%)	Non-Qi Stagnation (%)	χ^2	P
Male	58	55.0% (32)	45.0% (26)	4.58	0.032
Female	42	35.0% (15)	65.0% (27)		

3.3. Distribution of TCM Syndromes and Their Correlation with Constitution

3.3.1. Syndrome Distribution

Liver Qi Stagnation Syndrome (46.0%) was the most common TCM syndrome in the NSSI group, followed by Qi Stagnation Transforming into Fire Syndrome (27.0%) and Phlegm-Qi Stagnation Syndrome (16.0%).

3.3.2. Correlation Between Constitution and Syndromes

Qi Stagnation Constitution was strongly positively correlated with Liver Qi Stagnation Syndrome and Qi Stagnation Transforming into Fire Syndrome (r=0.79, 0.67, both P<0.001), while Peaceful Constitution was negatively correlated with syndromes (r=–0.68, P<0.001, Table 4).

Table 4 Spearman Correlation Analysis between Constitution Types and TCM Syndromes

Constitution Type	Liver Qi Stagnation Syndrome (n=46)	Qi Stagnation Transforming into Fire Syndrome (n=27)	*r*	*P*
Qi Stagnation	82.6% (38)	66.7% (18)	0.79	<0.001
Blood Stasis	30.4% (14)	22.2% (6)	0.33	0.007
Peaceful	4.3% (2)	3.7% (1)	–0.68	<0.001

3.3.3. Logistic Regression Analysis

Taking Liver Qi Stagnation Syndrome as the dependent variable, Qi Stagnation Constitution, gender, and adverse life events as independent variables, logistic regression showed that Qi Stagnation Constitution was an independent risk factor for Liver Qi Stagnation Syndrome (OR=6.15, 95% CI=3.42–11.05, *P*<0.001, Table 5).

Table 5 Logistic Regression Analysis of Influencing Factors for Liver Qi Stagnation Syndrome

Variable	B	SE	Wald	OR	95%CI	P Value
Qi Stagnation	1.81	0.34	28.01	6.15	3.42–11.05	<0.001
Male	0.52	0.31	2.80	1.68	0.91–3.10	0.094
Adverse Life Events	1.23	0.45	7.56	3.42	1.41–8.27	0.006

4. Discussion

4.1. Constitution Distribution in NSSI Adolescents

This study found that the detection rate of Qi Stagnation Constitution (46.0%) in the NSSI group was significantly higher than that in the control group (10.0%), confirming the close association between Qi Stagnation Constitution and emotional disorders. Individuals with Qi Stagnation Constitution are inherently prone to liver qi stagnation, and adolescent hormonal fluctuations and family stress (e.g., single-parent families, adverse life events) further exacerbate qi stagnation, leading to dysfunction of the emotional regulation center and promoting NSSI[3,7]. Additionally, the higher proportion of Blood Stasis Constitution (18.0%) in the NSSI group may be related to long-term emotional stagnation affecting qi and blood circulation, suggesting that "soothing the liver and activating blood" could be an intervention focus.

4.2. Correlation between Constitution and Syndromes and Clinical Implications

Liver Qi Stagnation Syndrome (46.0%) was the dominant TCM syndrome, strongly correlated with Qi Stagnation Constitution (r=0.79), which is consistent with the TCM theory that "constitution determines syndrome tendency" [8]. Logistic regression showed that Qi Stagnation Constitution increased the risk of Liver Qi Stagnation Syndrome by 6.15 times, indicating that constitution identification can serve as a core index for syndrome prediction. Clinically, adolescents with Qi Stagnation Constitution should be prioritized for emotional monitoring, and early intervention with liver-soothing and Qi-regulating methods (*e.g.*, Bupleurum, Chaihu Shugan San) may block NSSI development.

4.3. Potential Mechanisms of Gender Differences

The higher detection rate of Qi Stagnation Constitution in male NSSI patients (55.0%) may be related to males' tendency to vent emotions through impulsive behaviors (e.g., cutting, hitting) [9].

Furthermore, male Qi Stagnation Constitution often coexists with Blood Stasis Constitution (23.0%), suggesting that promoting blood circulation should be added to liver-soothing treatments, reflecting the TCM concept of "treating the same disease differently based on constitution."

4.4. Limitations and Future Directions

This was a single-center cross-sectional study. Future multi-center prospective cohort studies are needed to validate the dynamic evolution of constitution-syndrome correlations. Additionally, integrating functional magnetic resonance imaging (fMRI) or serum neurotransmitter detection to explore the neurobiological basis of Qi Stagnation Constitution could facilitate the integration of TCM constitution theory with modern medicine.

5. Conclusion

Adolescents with NSSI predominantly exhibit Qi Stagnation Constitution, which is closely associated with Liver Qi Stagnation Syndrome. TCM constitution identification provides a new perspective for early screening and syndrome differentiation of NSSI. It is recommended to incorporate constitution assessment into adolescent mental health care routines and reduce NSSI incidence through individualized constitution conditioning.

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