

# Survey Analysis of Traditional Chinese Medicine Constitution Among Night Shift Nurses in a Public Grade A Tertiary Hospital

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**Abstract:** *Objective:* To investigate the distribution of Traditional Chinese Medicine (TCM) constitution among night-shift nurses at a public tertiary-level Class A hospital, thereby identifying new approaches for developing effective interventions to enhance their health status. *Methods:* A total of 601 nurses employed at a public tertiary-level Class A hospital from August 2024 to August 2025 participated in the survey. Analysis was conducted using the Traditional Chinese Medicine Constitution Questionnaire. *Results:* The most prevalent TCM constitution types among night-shift nurses were Yang Deficiency Constitution (50.4%), Yin Deficiency Constitution (49.8%), Qi Deficiency Constitution (45.4%), and Phlegm-Dampness Constitution (45.1%). *Conclusion:* A high proportion of clinical night-shift nursing staff exhibit imbalanced constitution types, severely impacting their physical and mental health. Nursing administrators should implement targeted TCM constitution-based health maintenance and regulation to improve the health status of nursing personnel.

**Keywords:** Night shift; Nurses; TCM constitution identification

**Online publication:** Mar 10, 2026

## 1. Introduction

TCM constitution refers to a stable constitutional pattern formed through the integration of morphological structure, physiological, and psychological functions during human development, based on both congenital and acquired factors. Originating from the Huangdi Neijing (The Yellow Emperor's Classic of Internal Medicine), TCM constitution identification aims to prevent and treat diseases by understanding constitutional patterns and adjusting constitutional imbalances<sup>[1]</sup>. As frontline clinical healthcare providers, nurses' shoulder heavy treatment and nursing responsibilities while facing exposure to various occupational risk factors, severely impacting their physical and mental health.

A large-scale bibliometric study of nursing health cohort research indicates that reproductive health and mental health among female nurses represent emerging research priorities, urgently requiring targeted interventions to improve nursing health outcomes<sup>[2]</sup>. Night shift work, unique to nursing, disrupts circadian

rhythms and compounds occupational and psychological stress, posing serious threats to nurses' health and quality of life [3]. This study conducted a TCM constitution survey among eligible night-shift nurses at a public tertiary-level hospital to propose constructive interventions, laying groundwork for future TCM-based approaches to enhance nursing staff health. Findings are reported below.

## 2. Subjects and methods

### 2.1. Study population

A convenience sampling method was used to select 645 night-shift nurses employed at our hospital between August 2024 and August 2025 as study subjects.

#### 2.1.1. Inclusion criteria

- (1) All participants were registered nurses employed at our hospital.
- (2) Informed consent: All nurses voluntarily participated in this survey.
- (3) Nurses who had worked night shifts within the past 6 months and completed at least 4-night shifts per month.

#### 2.1.2. Exclusion criteria

- (1) Inability to self-assess physical condition.
- (2) Inability to comprehend the questionnaire.
- (3) Failure to complete the questionnaire or careless completion during the survey process.
- (4) Nurses who declined to participate in this survey.
- (5) Nurses who were pregnant, breastfeeding, or on sick leave.

## 2.2. Methods

### 2.2.1. Survey tools

- (1) General information form  
Designed independently based on literature review and consultation with relevant experts, including participants' gender, age, marital status, educational attainment, years of service, professional title, BMI index, etc.
- (2) Traditional Chinese medicine constitution questionnaire  
Developed by Professor Wang Qi of Beijing University of Chinese Medicine and promulgated by the Chinese Association of Traditional Chinese Medicine in 2009. This self-assessment tool comprises nine constitution types: Harmonious Constitution, Qi Deficiency Constitution, Yang Deficiency Constitution, Yin Deficiency Constitution, Phlegm-Dampness Constitution, Damp-Heat Constitution, Blood Stasis Constitution, Qi Stagnation Constitution, and Special Constitution.
- (3) This questionnaire comprises 60 assessment items rated on a five-point scale: Not at all or rarely, Rarely or a little, Sometimes or somewhat, Often or quite a bit, Always or very much. Based on constitutional classification criteria, raw scores and converted scores are calculated. The raw score is the sum of individual item scores. The converted score is calculated as:  $[(\text{Raw Score} - \text{Number of Items}) / (\text{Number of Items} \times 4)] \times 100$ . The Pinghe constitution represents normal constitution, while the other eight

constitutions are collectively termed imbalanced constitutions.

### 2.2.2. Data collection methodology

The survey employed a combined online (via Questionnaire Star) and offline approach. Prior to data collection, investigators received training on questionnaire completion requirements and explained the study's purpose, significance, and confidentiality principles to participants.

### 2.3. Statistical analysis

Data were organized, statistically processed, and analyzed using SPSS software. Count data are presented as case numbers and percentages, with intergroup comparisons performed using the chi-square  $\chi^2$  test. Measurement data are expressed as mean  $\pm$  standard deviation ( $\bar{x} \pm s$ ), with intergroup comparisons conducted using the *t*-test. A *p* value  $< 0.05$  was considered statistically significant.

## 3. Results

### 3.1. General characteristics of study participants

A total of 645 questionnaires were distributed, with 601 valid responses collected, yielding a valid response rate of 93.1%. Among the 601 subjects, the mean age was (30.25  $\pm$  5.40) years. Detailed characteristics are presented in **Table 1**.

**Table 1.** General characteristics of study participants

Item		Number of cases (n)	Percentage (%)
Age	18–29	327	54.4
	30–39	241	40.1
	$\geq 40$	33	5.5
Marital status	Single	395	65.7
	Married	203	33.8
	Divorced	3	0.5
BMI (kg/m <sup>2</sup> )	18.5–23.9	390	64.9
	24.0–27.9	106	17.6
	$\geq 28$	19	3.2
Educational attainment	College	120	19.9
	Bachelor's degree or higher	481	80.1
Years of experience	1–5	185	30.8
	5–10	219	36.4
	11–19	176	29.3
	$\geq 20$	21	3.5
Technical title	Junior	497	82.7
	Intermediate	101	16.8
	Advanced	3	0.5

### 3.2. Distribution of Traditional Chinese Medicine Constitution Types among nurses

Among the 601 night shift workers, the Balanced Constitution accounted for only 0.3%, while the Imbalanced Constitution constituted a high proportion of 99.7%. The top three Imbalanced Constitutions were Yang Deficiency Constitution, Yin Deficiency Constitution, and Qi Deficiency Constitution. See **Table 2**.

**Table 2.** Distribution of traditional Chinese medicine constitution types

Constitution category	Number of cases (n)	Percentage (%)
Harmonious constitution	2	0.3
Qi deficiency constitution	273	45.4
Yang deficiency constitution	303	50.4
Yin deficiency constitution	299	49.8
Phlegm-damp constitution	271	45.1
Damp-heat constitution	241	40.1
Blood stasis constitution	263	43.8
Qi stagnation constitution	268	44.6
Special constitution	135	22.5

## 4. Discussion

The results of this study indicate that the most common TCM constitution types among night-shift nurses are Yang Deficiency Constitution, Yin Deficiency Constitution, Qi Deficiency Constitution, and Phlegm-Dampness Constitution. These findings differ somewhat from the research results of Wang Haiyan<sup>[4,5]</sup>. The proportion of imbalanced constitutions was higher than that reported by domestic scholars Chen Yujuan, Huang Yuan, and Chen Lanlan in their TCM constitution surveys of clinical nursing staff<sup>[6-9]</sup>. The proportion of balanced constitutions was significantly lower than that observed in the general Chinese population, and consistent with the findings of Fang Cheng's findings on 2,241 urban Chinese women<sup>[10]</sup>. This may relate to the nursing population and their work nature. The core characteristics of Yang Deficiency Constitution involve insufficient body Yang energy and diminished warming function, manifesting as aversion to cold and mental lethargy<sup>[11]</sup>.

In this study, 54.4% of night-shift nurses were under 30 years old. Their habit of seeking coolness and excessive consumption of cold foods make them susceptible to cold and Yin pathogens, damaging Yang Qi. Additionally, prolonged night shifts disrupt normal sleep patterns, preventing Yang Qi from being stored internally. Instead, it dissipates externally, leaving the body vulnerable to cold pathogens during the night. Over time, this leads to Yang deficiency. Characteristics of Yin Deficiency Constitution Thin physique, often presenting with heat symptoms<sup>[12]</sup>. Zhu Danxi noted, "Women are governed by blood, which belongs to Yin and is prone to deficiency". Women possess unique physiological functions related to menstruation, pregnancy, childbirth, and lactation. The cyclical shedding of blood during menstruation, as well as pregnancy, delivery, and breastfeeding, are all sustained by Yin blood. Night-shift nurses, however, experience the insidious depletion of Yin blood through prolonged night work. Combined with high work stress, this leads to liver Qi stagnation. Emotional distress transforms into fire, scorching Yin fluids and causing symptoms characteristic of Yin deficiency with fire excess, such as dry mouth, dry throat, dry eyes, restlessness, and irritability. Qi deficiency constitution is characterized by weakened central

Qi and reduced organ function<sup>[13]</sup>. Overwork depletes Qi. In a Qi-deficient state, the limbs, bones, and internal organs fail to receive adequate nourishment. Prolonged persistence of this condition leads to various deficiency-related symptoms. Studies indicate that the incidence of chronic fatigue syndrome among nurses reaches as high as 14.1%<sup>[14]</sup>. Phlegm-dampness constitution arises from phlegm-dampness accumulation in the middle jiao, impairing spleen-stomach function. Manifestations include abdominal fat accumulation, excessive scalp oiliness, thick greasy tongue coating, and heaviness with discomfort. Its formation primarily relates to dysfunction in the spleen, kidney, and liver, particularly impaired spleen transformation and transportation. Night-shift nurses often experience irregular eating patterns. Late-night meals may burden the spleen and stomach, while prolonged sitting during night shifts can weaken spleen Qi. Chronic irregular schedules and sleep deprivation lead to irritability and depression, causing liver Qi stagnation that disrupts spleen function. Combined with prolonged sleep deprivation, this depletes kidney Yang, impairs fluid metabolism, and results in excessive water retention.

Research indicates that night shift work, as an environmental stressor, disrupts the balance between the body's internal biological clock and external circadian rhythms, leading to sleep disorders characterized by insomnia and excessive daytime sleepiness. Simultaneously, it disrupts the secretion of metabolism-related hormones, such as reduced insulin and melatonin secretion and altered reproductive hormone levels, increasing susceptibility to diseases like diabetes, cardiovascular disorders, and female breast cancer<sup>[15-17]</sup>. A meta-analysis on the sleep quality of clinical nurses in China revealed a sleep disorder prevalence rate of 49.9% (95% CI: 44.9–54.9%) among nurses in the country<sup>[18]</sup>. Constitutional types are associated with sleep quality, with blood stasis, Qi stagnation, phlegm-dampness, and damp-heat constitutions identified as independent risk factors. Shift work sleep disorders can trigger adverse emotional responses like anxiety and depression, severely impacting nursing quality and nurses' physical and mental health, a concern warranting attention from nursing administrators.

Traditional Chinese Medicine (TCM), a treasure of Chinese traditional medicine, possesses profound theoretical foundations and practical experience in disease prevention and health maintenance. As a vital branch of TCM, constitutional theory is widely applied in risk assessment and health management, garnering increasing attention within the medical community<sup>[19]</sup>. Academician Wang Qi proposed the theory that "constitution can be classified, is related to disease, and can be adjusted". This theory holds significant implications for managing the health of individuals with imbalanced constitutions and preventing the onset and progression of diseases<sup>[20]</sup>.

In summary, the health status of clinical night-shift nursing staff is closely related to their TCM constitutional imbalances. Nursing administrators must prioritize targeted constitutional regulation for staff with different constitutions. This includes applying TCM methods such as lifestyle adjustments, dietary care, appropriate TCM techniques, and herbal decoctions. Such interventions effectively guide individuals with constitutional imbalances toward correcting abnormalities, achieving balanced constitutions, and enhancing the health status of night-shift nursing personnel.

## 5. Conclusion

Based on the analysis, it is concluded that a significant number of night-shift nurses exhibit imbalanced TCM constitution types, which is closely linked to adverse health outcomes. Therefore, it is recommended that nursing management develops and implements targeted health preservation and regulation programs grounded in TCM constitution theory to effectively enhance the overall physical and mental well-being of the nursing staff.

## Disclosure statement

The authors declare no conflict of interest.

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