

Study on the correlation between TCM five-state personality and sleep quality of college students

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Abstract: Sleep is a vital physiological function of the human body, and it is inextricably linked to an individual's personality. On the other hand, spiritual emotion and character are deeply discussed in traditional Chinese medicine. Five states of personality are mentioned as early as the "Yellow Emperor's Inner Canon." This study examines the relationship between college sleep quality and five-state personality in order to elaborate on the concepts of personality, physical appearance, and mental health in traditional Chinese medicine. The Pittsburgh Sleep Index Scale and the five-state personality test table are chosen for this study using a random sampling survey, and the questionnaire is published using the Questionnaire Star. Following questionnaire collection, a Pearson correlation analysis was performed. Ultimately, it was determined that sleep quality was negatively connected with yin-yang balance personality, Shaoyin personality, and Shaoyang personality. Sleep quality and Taiyin personality were positively connected; the relationship between Taiyang personality and sleep quality is not clear. The methods used to improve sleep quality in both modern science and traditional Chinese medicine are discussed.

1. The purpose of the research

Numerous theories regarding personality, physical appearance, and mental health can be found in the classics of Traditional Chinese Medicine (TCM). Nowadays, 10.6% to 29.6% of college students have some form of sleep disorder, indicating that their sleep quality is poor. We can more effectively use TCM techniques to treat insomnia by examining the connection between sleep quality and the Five Constitutions Personality. As the "Yellow Emperor's Inner Canon" puts it, "Moderation in diet and regularity in daily routines are essential; indulgence in desires and

dissipation of vital energy through excessive drinking and sexual activities are detrimental." This highlights the significance of maintaining a regular lifestyle for maintaining health.

Enhancing the quality of sleep for college students not only highlights the special benefits of TCM treatments but also helps TCM take on a new look and evolve in the contemporary era.

2. Status of Research

2.1 The Sleep Quality of College Students

Getting a good night's sleep is essential for physical activity. Normal learning and work are adversely affected when sleep quality declines. Over 80% of college students report that their sleep quality has declined in recent years, and over 30% report having sleep disorders ^[1]. This causes a great deal of distress and has a major impact on their regular life and studies. Poor sleep can lower immunity and have an impact on mental health, as Lueke Niloufar noted in her research ^[2]. Subjective sleep quality was found to have the strongest correlation with depressive symptoms by Zhang Xiaocui, who also demonstrated that sleep disorders are a significant risk factor for depression and that the two are influenced by each other ^[3]. Poor sleep quality and low health-related quality of life are most strongly correlated, according to Alamir Yahya Ahmed ^[4]. Numerous studies have identified a number of reasons why college students' sleep quality has declined. For example, Zhang Dan and Hu Xueqing noted that college students who are under a lot of stress tend to overextend their energy and psychological fortitude, which lowers the quality of their sleep. One of the major factors influencing sleep quality is stress ^[5], and college students' poor habits also have an impact on their sleep quality. Zou Guiyuan and Nie Li noted that the degree of mobile phone addiction can significantly predict sleep quality, with higher levels of addiction leading to poorer sleep quality ^[6]; Cheng Yang and others mentioned that short video addiction has a significant positive correlation with trait anxiety and sleep quality ^[7]. The "2021 Youth Sleep Quality Report" reveals that 57.1% of post-00s go to bed after midnight. In their study, Sharafi Fatemeh and Lesani Azadeh discovered that students who have trouble sleeping frequently use the internet excessively and eat poorly ^[8]. Furthermore, character and personality traits are strongly correlated with the quality of sleep. Using the Five-State Personality of TCM to explain the connection between personality traits and sleep quality is more appropriate for Chinese cultural context and has important implications.

2.2 The Present State of Research on the Connection between Sleep Quality and the Five-state Personality

Research on the connection between sleep quality and the Five-state Personality is currently lacking. According to Ge Lingyu and Liu Bing's research, college students' sleep quality has a positive correlation with their Taiyin personality and a negative correlation with their Shaoyang, Yin-Yang, and Taiyang balanced personality scores ^[9].

2.3 A Comparative Analysis of Current Personality Assessment Scales and the Five-state Personality Inventory

The word "personality" was first used in ancient Greek to describe the masks that opera performers wore. In advanced development, it refers to the distinct thought and emotion patterns that set one person apart from another. Its formation is influenced by a variety of factors, including biological genetic, sociocultural, family environment, early childhood experiences, school education, self-regulation, and natural physical factors. Accordingly, the Eysenck Personality Questionnaire (EPQ) and the Cattell 16 Personality Factor Questionnaire (16PF) are the most widely used personality assessment tools. There are a lot of studies on the human spirit and emotions in China, but there aren't many questionnaires about them. The "five constitutions" in the "Yellow Emperor's Inner Canon" served as the basis for the Five-state Personality Inventory, which was used in this study and has strong validity and reliability. Wang Aiping and Xu Yan stated that although the 16PF and the Five-state Personality Inventory have different theoretical underpinnings, they both essentially describe college students' personality traits in demographic variables consistently. However, one dimension of the Five-state Personality Test encompasses a wider range of traits, whereas the 16PF is more detailed in describing personality traits, and the two tests have a significant correlation in corresponding dimensions^[10]. Meanwhile, Ren Binhai's research revealed that the Yin-Yang classification can accurately represent the distinct meanings of Yin and Yang and can be linked to contemporary personality descriptions. Reflecting the scientific and practical nature of the Yin-Yang and Five Elements classification, the Five-state Personality Test can be used to measure college students' personalities and is a good fit for the EPQ^[11]. However, the Five-state Personality Inventory's widespread use is somewhat impacted by the fact that its use necessitates a certain foundation in TCM theory. By contrasting it with widely used personality tests, the public is better able to accept and use this scale, which advances TCM and highlights the unique accomplishments of Chinese local psychological research. The Five-state Personality Inventory has great practicality and can be used extensively in personality assessment when compared to other popular personality assessment scales. This further demonstrates the great potential of China's excellent traditional culture, which can be inclusive, innovative, and up to date with the times.

3. Support via Hypothesis

Based on a straightforward materialistic perspective, traditional Chinese medicine (TCM) theory interprets the numerous changes in nature and society by using the idea that "one qi divides into yin and yang, and yin and yang transform into the Five Elements" to explain how everything grows and evolves. The "Yellow Emperor's Inner Canon" defines psychological concepts like "intent," "thought," "consideration," "wisdom," "emotion," and "will." It also provides a wealth of psychological substance. The Five-state Personality is a crucial element among these. Based on physical characteristics, body strength, and the quantity or deficiency of blood and qi, the Five-state divide people into "Taiyang personalities," "Shaoyang personalities," "Yin-Yang balanced personalities," "Shaoyin personalities," and "Taiyin personalities." These classifications are used as criteria for diagnosing and treating various syndromes. Additionally, these five kinds display various personality traits: While Yin-Yang balanced personalities are more adaptable, capable of

handling a variety of situations, and have higher mental health, Taiyin personalities are better at hiding and suppressing themselves and have lower mental health; Shaoyin personalities are more restless and ambitious and have average mental health; Taiyang personalities are more extroverted and confident, good at discussing, and have higher mental health; and Shaoyang personalities are meticulous and cautious, have strong self-esteem, and have average mental health.

The Ming Dynasty physician Yang Shen once said, "A thousand doses of medicine are not as good as a night alone in bed; a thousand mornings of medicine are not as good as a night alone in bed," which highlights the significance of sleep for the human body. This is just one example of the numerous expressions and studies about sleep that can be found in traditional Chinese medicine. The proverb "A night without sleep, a hundred days without recovery" is also found in the "Yellow Emperor's Inner Canon." The famous politician and military commander Zeng Guofan, who lived during the Qing Dynasty, also said, "The way to nourish life is nothing more than sleep and food." According to the "Yellow Emperor's Inner Canon Suwen," "When yin is balanced and yang is hidden, the spirit is governed; when yin and yang are separated, the essence and qi are exhausted." This highlights the importance of sleep in TCM, making it easy to find TCM solutions for poor sleep quality. It offers a cohesive yet varied method of addressing the issue of poor sleep quality by determining the connection between yin, yang, the Five Elements, and sleep. Based on the yin and yang theory, the Five-state Personality provides a wealth of opportunities for investigation.

The four stages of sleep—light sleep, sleep spindle stage, slow-wave sleep, and deep sleep state—are separated by contemporary scientific thought as a crucial physiological function of the human body. Sleep lays the groundwork for us to perform our regular, productive tasks. The body uses sleep as a "pause period" to clear out metabolic waste, heal damaged cells, strengthen the immune system, and replenish energy. The body's regular processes are disturbed when sleep duration or quality is decreased. Almondes Katie Moraes de et al. discovered that sleep deprivation is typically linked to chronic inflammatory diseases because it desynchronizes circadian rhythms, which may lead to psychophysiological disorders and damage to neuroimmuno-endocrine homeostasis. For instance, American researcher Nathaniel conducted sleep deprivation experiments that seriously injured him and caused malignant changes in the nervous system and blood biochemistry^[12].

4. Methods of Research and Data Analysis

4.1 Research Topics and Approaches

The Pittsburgh Sleep Quality Index (PSQI) and the Five-state Personality Inventory, created by Xue Chongcheng and Yang Qiaoli [13], are the survey instruments utilized with the full-time undergraduate research participants. Yin-Yang balanced, Taiyang, Shaoyang, Taiyin, and Dissimulation are the six subscales of the 103 items that make up the Five-state Personality Inventory. A subscale's score represents one aspect of the subject's personality; a higher score denotes a stronger predisposition toward that feature, while a lower score denotes a weaker tendency. Nine items make up the Pittsburgh Sleep Quality Index, which is intended to gauge a respondent's sleep conditions over the previous month. Higher scores indicate worse sleep quality, while lower values indicate better sleep quality. For random surveys, Questionnaire Star was used to

distribute the questionnaires. The chosen surveys exhibit strong validity and reliability.

4.2 Analysis of Data

The association between total PSQI scores and the Five-state Personality, as well as the correlation between PSQI scores and the Five-state Personality for each gender, was investigated using Pearson correlation analysis and SPSS software. Statistical significance was determined using a p-value of less than 0.05.

5. Research Findings

5.1 Survey Finding

A total of 232 questionnaires were distributed through Wenjuanxing, among which 58 questionnaires were deemed invalid due to low concealment scores in the Five-state Personality Inventory. Based on this criterion, 174 valid questionnaires were collected, with a validity rate of 75%. Among them, there were 100 males, accounting for 58%, and 74 females, accounting for 42%. The number of people with poor sleep quality was 38, accounting for 21.6%; those with moderate sleep quality were 113, accounting for 64.7%; and those with good sleep quality were 23, accounting for 13.7%. Among males, the number of people with poor sleep quality was 21, accounting for 20.5%; those with moderate sleep quality were 64, accounting for 64.2%; and those with good sleep quality were 15, accounting for 15.3%. Among females, the number of people with poor sleep quality was 17, accounting for 22.9%; those with moderate sleep quality were 48, accounting for 65.5%; and those with good sleep quality were 9, accounting for 11.6%.

5.2 Examination of the Association between the Five-state Personality and Overall PSQI Scores

Using Pearson correlation analysis, it was discovered that Taiyin personality has a positive correlation ($p < 0.05$) with the PSQI index, whereas Shaoyang, Yin-Yang balanced, and Shaoyin personalities have a negative correlation ($p < 0.05$). In other words, the better the sleep quality, the higher the scores for Yin-Yang balanced personality, Shaoyang personality, and Shaoyin personality; the worse the sleep quality, the higher the Taiyin personality score. Of these, there is no significant relationship ($p > 0.05$) between Taiyang personality and PSQI scores. Details are in Table 1.

Table 1: Correlation Analysis between PSQI Index and Five-state Personality

Five state Personality	r value	P
Taiyang Personality	-0.118	0.122
Shaoyang Personality	-0.159	0.036
Yin-Yang Balanced Personality	-0.228	0.002
Shaoyin Personality	-0.157	0.038
Taiyin Personality	0.252	0.001

5.3 Examination of the Association between the Five-state Personality and Male PSQI Scores

According to correlation analysis, Taiyin personality has a positive correlation with the PSQI index ($p < 0.05$), while Shaoyang personality, Yin-Yang balanced personality, and Shaoyin personality have a negative correlation with the PSQI index ($p < 0.05$) for males. Additionally, there is no significant correlation between Taiyang personality and PSQI scores ($p > 0.05$). The analysis's findings are generally in line with the relationship between the Five Constitutions Personality and PSQI scores. Details are in Table 2.

Table 2: Male PSQI Index Correlation Analysis with the Five-state Personality

Five state Personality	r value	P
Taiyang Personality	-0.139	0.165
Shaoyang Personality	-0.203	0.042
Yin-Yang Balanced Personality	-0.024	0.025
Shaoyin Personality	-0.203	0.041
Taiyin Personality	0.207	0.038

5.4 Examination of the Association between the Five-state Personality and Female PSQI Scores

According to correlation analysis, there is a negative correlation ($p < 0.05$ or $p < 0.01$) between the Yin-Yang balanced personality and the PSQI score for females, and a positive correlation ($p < 0.05$ or $p < 0.01$) between the Taiyin personality and the PSQI score. Accordingly, the better the sleep quality, the higher the Yin-Yang balanced personality score; conversely, the worse the sleep quality, the higher the Taiyin personality score. There is no significant correlation ($p > 0.05$) between the PSQI index and the personalities of Taiyang, Shaoyang, and Shaoyin. Details are in Table 3.

Table 3: Correlation Analysis between Female PSQI Index and Five-state Personality

Five state Personality	r value	p
Taiyang Personality	-0.085	0.474
Shaoyang Personality	-0.093	0.435
Yin-Yang Balanced Personality	-0.247	0.035
Shaoyin Personality	-0.075	0.529
Taiyin Personality	0.352	0.002

6. Discuss

6.1 The Connection between the Five-state Personality and the Sleep Quality of College Students

Data processing and analysis revealed that the sample's percentage of college students with average sleep quality is comparatively high, with a higher percentage of female students experiencing poor sleep quality than male students and a lower percentage of students experiencing

good sleep quality. It is evident from correlation analysis that the quality of sleep decreases with increasing Taiyin personality scores. Taiyin personalities are characterized by their gentleness and reserve, as well as their inability to articulate their true feelings. Despite their ability to hide their light, they are unable to communicate, which lowers their mental health and impairs their ability to sleep. According to the theory of "the unity of form and spirit," Taiyin people's bodies also exhibit traits of having more Yin and less Yang when influenced by their personalities. "Ling Shu · Tong Tian" documents: "Taiyin individuals have more Yin and no Yang, their Yin blood is turbid, their defensive Qi is astringent, and Yin and Yang are not harmonious." The higher the Yin-Yang balanced personality score, the better the overall sleep quality and the correlation between the Five Constitutions Personality and the sleep quality of male and female students. This is also consistent with the TCM theory that in order for people to perform their regular physiological functions, Yin and Yang must be balanced. On the contrary, people's regular sleep will be impacted by the Yin and Yang imbalance.

6.2 Strategies to Enhance the Quality of Your Sleep

Currently, the majority of insomnia treatments involve the use of medications, such as medium- to long-acting Diazepam, Estazolam, and short-acting Alprazolam. Furthermore, a sizable portion of the population uses melatonin to treat insomnia and restless nights. Medication can greatly improve sleep quality, but it can also cause dependence and create a vicious cycle. Diazepam, for instance, can result in ataxia, fatigue, and dizziness. Finding more trustworthy TCM treatments as well as other contemporary scientific therapies is therefore crucial.

Traditional Chinese medicine holds that human sleep is determined by the rise and fall of Yin and Yang throughout the day and night. According to TCM, pathological states like insomnia and poor sleep are brought on by an imbalance of Yin and Yang. Thus, improving sleep quality can be achieved by balancing the body's Yin and Yang, which is also the fundamental technique used in TCM to treat illnesses. For instance, examining the sleep patterns of college students today, it is evident that they stay up late, go to bed later, and sleep for shorter periods of time. It is the stage where Yin emerges at night. The Inner Canon states that "When Yang Qi is exhausted, Yin Qi causes the eyes to close; when Yin Qi is exhausted, and Yang Qi is abundant, then one wakes up." During this period, not sleeping will cause Yang to linger and not leave, consuming Yin, causing the heart and kidneys to not interact, resulting in a decline in the quality of sleep.

TCM, including the traditional prescriptions Tian Wang Bu Xin Dan, Suan Zao Ren Tang, and Zhu Sha An Shen Wan, has a long history and good clinical efficacy in treating insomnia. Meng Lingling and others have adapted to make Yin and Yang combine by guiding Yang into Yin, so that the heart and spirit can be at peace^[14]. Meng Yilin, Zhang Yonghua, and others have had success in clinical applications by treating insomnia types through syndrome differentiation and treatment with decoctions^[15]. By clearing the heart, calming the liver, and controlling the pivot, Li Zirui and others have focused on enhancing the patient's daytime function. They have modified the traditional Zhi Zi Chi Tang formula into Zhi Dou Shu Mian Fang, which effectively alleviates the patient's symptoms of insomnia^[16].

Insomnia is also significantly improved by emotion therapy. Joy overcoming sorrow, sorrow

overcoming anger, anger overcoming thought, fear overcoming joy, and the Five Elements' generation and overcoming cycle serve as the foundation for emotion therapy. The TCM emotion victory method has been used by Bao Weisu and others for intervention, and it has been shown to have positive effects. On the one hand, it can help patients maintain a calm state of mind; on the other hand, it can effectively alleviate their insomnia and help them achieve a favorable prognosis [17]. Based on the concept of "calming the frightened" in "Su Wen · Zhi Zhen Yao Da Lun," Zhang Congzheng repeatedly exposes patients to frightening situations without any dangerous or frightening events occurring, thereby relieving their tension, uneasiness, and fear. According to Li Wenhui, doctors can help patients with insomnia think logically, understand insomnia correctly, get over the fear psychology brought on by focusing too much on sleep and sleep disorders, and alleviate insomnia symptoms from a deeper level of thought [18].

Insomnia can also be effectively treated with acupuncture. Chronic insomnia causes the body to become stressed; in other words, chronic stress can cause the body to display symptoms of insomnia. The paraventricular nucleus of the hypothalamus, which controls the activity of the HPA axis by secreting associated hormones, is primarily where the body's stress feedback is found. Acupuncture can suppress the overactive HPA axis, inhibit hormone secretion, alleviate the body's stress state, and alleviate insomnia symptoms, according to Wang Jiawen and others [19]. Acupuncture at Neiguan can calm the mind and relieve pain, acupuncture at Zusanli can dry up spleen dampness, acupuncture at Yanglingquan and Sanyinjiao can reduce turbidity and remove dampness, and acupuncture at Yanglingquan and Sanyinjiao can strengthen the spleen and calm the mind, which will harmonize Yin and Yang and calm the mind and spirit, according to Meng Chong, Wang Lili, and others. The effects of acupuncture at the aforementioned acupoints include nourishing the brain, regulating the spirit, calming the mind, regulating the viscera, enhancing blood and qi, and fostering Yin and Yang balance [20]. Hu Bin developed the concept of compound syndrome insomnia based on the clinical signs of insomnia. He also suggested treating compound syndrome insomnia from the "spirit" by combining Mian'an Tang and Wushen needle, which has produced positive results [21]. Traditional Qigong in China also significantly improves the quality of sleep. Based on Zhou Lujing's compilation of the "Chi Feng Su · Huashan Twelve Sleep Skills" during the Ming Dynasty, Ren Qiulin discovered that it significantly improves the quality of sleep [22]. The popular fitness practices of Qigong Wu Qin Xi and Baduanjin also significantly improve the quality of sleep, and the movements are easy to perform. Reducing medication dependence and medication side effects can be achieved by using external treatment methods to address the issue of poor sleep quality.

Modern scientific research on improving sleep quality has produced impressive findings. D'Cunha In addition to the effectiveness of traditional sleep-promoting beverages like milk and chamomile, Nathan M. and Bulman Amanda have found the most recent evidence of the sleep-promoting properties of bioactive compounds like L-theanine and L-tryptophan for the development of functional beverages to improve sleep quality [23]; Zhao Huiqiang, Song Ruiwen, and others found that mindfulness training not only improves an individual's psychological activities and mental state by affecting psychological mechanisms like attention, cognitive ability, and thought patterns, but also regulates an individual's physiological activities and physiological responses by affecting specific brain areas, the autonomic nervous system, and the endocrine

system, assisting practitioners in falling asleep quickly and guaranteeing a good sleep state ^[24]; MaestreCascales Cristina and CastilloA progressive strength training program in everyday activities has been shown by Paredes Antonio and colleagues to significantly improve physical function, pain, and sleep quality ^[25]. Bioholographic technology has been used extensively in biology and medicine in recent years. The ears, the origin of the Yin and Yang of the five viscera, are linked to the kidney. Applying appropriate treatments to the ears can help maximize the whole through the part. This theory is applied in traditional Chinese medicine through the use of auricular points, which mirror contemporary bioholographic theory. One common way to treat diseases with auricular points is to stimulate them with acupuncture or Chinese herbal seeds. For instance, Zhang Xiangyun, Wang Tingting, and others used Shenmen, subcortex, heart, and kidney auricular acupoints for pressure and had positive results ^[26]; Zhuo Ye Wen used magnetic bead auricular point pressure to treat insomnia patients ^[27] based on the flow of time theory. Bioholographic therapies, such as foot acupoints, head needles, and umbilical needles, all significantly improve the quality of sleep.

The right lifestyle choices and health maintenance concepts are also crucial for enhancing the quality of sleep. Long-term, consistent moderate-intensity aerobic exercise has been shown to increase slow-wave sleep duration, decrease daytime sleepiness duration, enhance sleep efficiency, and improve the apnea-hypopnea index, according to Hou Lijuan and colleagues ^[28]. The idea of "not treating the disease, but preventing the disease" is also discussed in traditional Chinese culture. According to the "Yellow Emperor's Inner Canon," "where evil gathers, the Qi must be deficient; when the body is full of righteous Qi, evil cannot invade." To attain the state of "when the mind is harmonious, the spirit is focused, the soul is not scattered, and regret and anger do not arise, then the five viscera are not invaded by evil," it is necessary to develop lifestyle habits that adjust to the Yin and Yang changes of the four seasons. This includes avoiding unhealthy habits like overeating and staying up late.

7. Synopsis

This article's Pearson correlation analysis revealed a negative correlation between sleep quality and the Yin-Yang balanced personality, Shaoyang personality, and Shaoyin personality. The quality of sleep improves with the strength of these three personality traits. There is a clear correlation between the two: the higher the Taiyin personality score, the worse the sleep quality; conversely, the higher the Yin-Yang balanced personality score, the better the sleep quality. The ambiguous relationship between Taiyang personality and sleep quality, which needs more investigation and validation, is one of this article's weaknesses. Additionally, the research subjects need more study and research because they are comparatively restricted to college students. At the same time, it further demonstrates the intimate connection between the theory of TCM spirit and human normal physiological activities by examining the relationship between college students' sleep quality and the Five-state Personality. This study offers TCM methods and TCM thinking for researching people's sleep quality and how to enhance it. Additionally, it brings TCM therapy up to date and encourages the fusion of TCM and Western medicine by talking about the scientific research techniques used to enhance sleep quality.

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