

# Analysis of Sleep Quality and Positive and Negative Emotions among Trainee Nursing Students

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## Abstract

**Objective:** To investigate the current situation of sleep quality and analyse the correlation between sleep quality and positive and negative emotions. **Methods** Using the convenient sampling method, the Pittsburgh Sleep Quality (PSQI) scale and the positive and negative emotion scale, we selected the nursing students who worked in a Grade A hospital in Beijing from July 2022 to January 2023. **Results** PSQI score ( $8.63 \pm 4.06$ ), factors score subjective sleep quality ( $1.49 \pm 0.99$ ), time to sleep ( $1.54 \pm 0.9$ ), sleep time ( $1.23 \pm 0.93$ ), sleep efficiency ( $1.27 \pm 1.07$ ), sleep disorder ( $1.02 \pm 0.7$ ), hypno-drugs ( $0.37 \pm 0.81$ ), daytime dysfunction ( $1.44 \pm 0.8$ ). Positive emotions ( $26.8 \pm 5.61$ ) and negative emotions ( $27.4 \pm 2.74$ ), Pearson correlation analysis found that except for "sleep time", positive emotions of trainee nursing students showed a significantly negative correlation with PSQI total score, subjective sleep quality, sleep time, sleep efficiency, sleep disorder, hypnotic medication, and daytime dysfunction; negative emotions positively correlated with seven factors and total PSQI score. **Conclusion** The sleep quality of nursing students is generally poor. Expressing positive emotions is conducive to improving the sleep quality of nursing students, and negative emotions reduce the sleep quality of nursing students.

**Keywords:** internship and nursing students; sleep quality; positive and negative emotions

Sleep is an indispensable physiological activity of human beings and a physiological phenomenon of an essential process of life, which occupies about one-third of the time of human life (Luo Yun, 2018). Emotions include positive emotions and negative emotions, which can broaden the scope of attention, improve the effectiveness of action, and help the body obtain physical, intellectual and social resources; negative emotions refer to the adverse effects of life events on human psychology, such as pain, sadness, anger and fear (Yang Pei, 2019). As a particular group, medical interns face various pressures during internships and are prone to sleep problems. In his report to the 19th



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CPC National Congress, General Secretary Xi Jinping pointed out that we should pay attention to mental health. At the 2016 National Health and Health Conference, he pointed out that "we should care for the physical and psychological health of medical workers"(Liu Yahong, 2018). Studies have pointed out that (Sheng Jia,2021) The psychological stress caused by sleep problems not only damages the personal health of medical students but also damages the personal health of medical students and affects the safety of the entire medical system.

Foreign studies showed that a study in the German community showed that the incidence of sleep disorders in people aged 18 to 80 years was 36% according to the criteria of PSQI score > 5(Hinz A, 2017) Surveyed 112 college students and found that about 38.2% had poor sleep quality and 17.9% needed drugs to improve their sleep (Eliasson A H, 2017). At present, domestic research on sleep quality in recent years found that about 20%~32% of medical survival in light or heavy sleep problems (Huang Jianshuang, 2017). With the continuous deepening of the new medical reform and the constant improvement of people's demand for medical services, medical students will also face more significant pressure and accept higher requirements (Zou Li et al., 2020). Some research on the sleep quality of college students, but their study on sleep quality is still limited. Therefore, through the status of sleep quality and positive and negative emotional correlation analysis, this study causes education workers to pay attention to sleep quality and attention. And for the future practice of sleep quality intervention.

## Objects and Methods

### Study Subjects

Using the convenient sampling method, 124 nursing students who practised in a tertiary A hospital in Beijing from July 2022 to January 2023 were selected as the research objects. Inclusion criteria: ① Informed consent and voluntary nursing interns with a college degree or above in ②. Exclusion criteria ① schizophrenia, severe heart disease and severe psychological and emotional physical disorders。 ② Refusing to cooperate in filling in the questionnaire.

### Research Tools

The general data questionnaire includes age, gender, educational background, disease history, whether regular use of sedative-hypnotic agents (up to 3 times/week) in the past month, and whether they have experienced major stress events (such as bereavement, employment, examination, etc.).

Pittsburgh Sleep Index Quantity Table (Pittsburgh Sleep Quality Index, PSQI) Is a psychiatrist at the University of Pittsburgh, USA. et al. 1989. Self-evaluation of sleep quality scale, Chinese version PSQI. The scale used to assess the sleep quality of the nursing population has high reliability and validity (Liu Zhixi, Shi Qianping, 2020). These 18 of the ten projects include 7 Parts, and each part is scored as 0~3. The ades

are scored, and the total score of each part is PSQI~The total score. The total score range is 0~21, total points > 7. The score indicates a sleep problem, and the higher the score, The worse the sleep quality.

Positive and negative emotions scale PANAS was David Watson, Lee Anna Clark, and Auke Tellegen in 1988(Watson D,1988). It is A mental scale with 20 questions based on the idea that positive and negative emotions are two independent systems. Using the Li Ke five-level scoring method, the range is from 1 arrive to 5. From "not at all" to "very much". The Chinese version of the scale was shown to have good reliability validity(Guo Mingzhu, 2010), PANAS Total amount of table Cronbach The coefficient was 0.976.

## Data Collection

The online questionnaire method was conducted using the questionnaire star APP. A total of 130 questionnaires were distributed, and 124 valid questionnaires were collected, with an effective recovery rate of 95.3%.

## Statistical Analysis

Statistical analysis method: SPSS20.0 statistical software was used for input data, and means, standard deviation, maximum, and minimum values were used for means and standard deviation descriptive analysis. Correlation analysis was performed using Pearson.

## Results

### General Information of Trainee Nursing Students (see Table 1)

A total of 130 questionnaires were distributed in this survey, and 124 valid questionnaires were recovered. The effective recovery rate was 95.3%

Thirty-two men (25.8%) and 92 women (74.2%): the youngest subject was 19 years, and the oldest was age 23. Degree of the study subjects: 58 cases (46.8%), 66 cases (53.2%), 2 (1.6%). Related diseases include (primary insomnia, narcolepsy, Dioria, History of a mental illness, Ongoing sedative-hypnotic or antidepressant treatment, Obstructive sleep apnea-hypopnea syndrome, and leg syndrome): 19 (15.3%).

**Table 1:** General data of 124 Trainee Nursing Students

<b>project</b>	<b>class</b>	<b>Example number (n)</b>	<b>constituent ratio (%)</b>
sex	man	32	25.8
	woman	92	74.2
age	19	6	4.9
	20	28	22.6
	21	14	11.3
	22	76	61.2
record of formal schooling	undergraduate course	58	46.8
	junior college	66	53.2
Suffering from related diseases	yes	2	1.6
	deny	122	98.4
Experience stress events	yes	19	15.3
	deny	105	84.7

### PSQI Score of Nursing (see Table 2)

The total mean score of the Pittsburgh Sleep Quality Index (PSQI) of 124 trainee nursing students involved in our hospital was ( $8.63 \pm 4.06$ ). And subjective sleep quality ( $1.49 \pm 0.99$ ), sleep time ( $1.54 \pm 0.9$ ), sleep duration ( $1.23 \pm 0.93$ ), sleep efficiency ( $1.27 \pm 1.07$ ), sleep disturbance ( $1.02 \pm 0.7$ ), hypnotic drugs ( $0.37 \pm 0.81$ ), and daytime dysfunction ( $1.44 \pm 0.8$ ). (See Table 1)

**Table 2:** PSQI Score of Trainee Nursing Students (N =124)

<b>project</b>	<b>score</b>
total points	8.63±4.06
factor 1	Subjective sleep quality 1.49±0.99
factor 2	Sleep time 1.54±0.9
factor 3	hour of sleep 1.23±0.93
factor 4	Sleep efficiency 1.27±1.07
factor 5	Sleep disorder 1.02±0.7
factor 6	Use hypnotics 0.37±0.81
factor 7	Disfunction during the day 1.44±0.8

### Emotional Scores of Trainee Nursing Students (see Table 3)

In this study, the total score of positive emotions (was  $26.8 \pm 5.61$ ), the highest score was 55, and the lowest score was 11. the average score of each question was 2.68; the total score of negative emotions (was  $27.4 \pm 2.74$ ; the highest score was 54, the lowest score was 10, and the average score of each question was 2.74.

**Table 3:** Emotional scores of Trainee Nursing Students (N=124)

variable	Positive emotions	Negative emotions
crest value	55	54
least value	11	10
M±SD	26.8±5.61	27.4±2.74
The entries are equally divided	2.68	2.74

### Correlation of Sleep Quality and Mood among Trainee Nursing Students (see Table 4)

Data were processed using the Pearson correlation analysis. Relevant analysis showed that besides "sleep time", the positive emotions of nursing students were significantly negative correlation with PSQI total score, subjective sleep quality, sleep time, sleep efficiency, sleep disorder, use of hypnotic drugs and daytime function dysfunction; the negative emotions were significantly positive correlation with the total score of seven factors and PSQI.

**Table 4:** Correlation of sleep quality and mood among trainee nursing students (r)

variable	Positive emotions	Negative emotions
Subjective sleep quality	-.210**	.235**
Sleep time	-.157**	.182**
hour of sleep	.022	.122*
Sleep efficiency	-.073*	.274**
Sleep disorder	-.115**	.126**
Use hypnotics	-.182**	.275**
Disfunction during the day	-.218**	.312*

Note: \* P < 0.05; \*\* P < 0.01.

## Discussion

### Analysis of the Status Quo of Sleep Quality of Trainee Nursing Students

The total score of nursing students ( $8.63 \pm 4.06$ ), the scores of PSQI, sleep time ( $2.47 \pm 0.25$ ) and sleep efficiency ( $2.03 \pm 0.37$ ) were higher than daytime dysfunction ( $1.98 \pm 0.36$ ), subjective sleep quality ( $1.42 \pm 0.22$ ), sleep time ( $1.17 \pm 0.19$ ), sleep disorder ( $0.69 \pm 0.13$ ), and hypnotic medication ( $0.12 \pm 0.01$ ). This survey shows that the average PSQI total score of trainee nursing students is ( $8.63 \pm 4.06$ ). According to the judgment criteria of sleep grade, the poor sleep quality of trainee nursing students (PSQI total score 7) urgently needs to be addressed, and appropriate methods must be taken to improve it. This survey results and Zhong Yazhi, Gao Mingrong (Zhong Yazhi, 2018) The close results of 200 nurses ( $9.95 \pm 1.05$ ) using the Chinese version of the PSQI scale indicate the decline in sleep quality of trainee nursing students. Of the seven

factors of PSQI, the "use hypnotic drugs" score is the lowest, suggesting that nursing students are still very cautious about using sleeping pills; this may be due to medical students having more health awareness, more understanding of the side effects of drugs, so less likely to use sleep drugs, but also prone to drug dependence, the impact on physical and mental health is very serious consequences. The "sleep time" was the highest score among the seven factors, representing the longer extended time range from lying in bed to fully falling asleep. Part of the reason is that intern nursing students are under great pressure during working hours. They habitually watch various short videos on their mobile phones before going to bed to relieve their pressure. However, using this method will put our brains in a state of excitement and then increase the time to fall asleep. The other reason is that practice is an important step in the combination of theory and practice for medical students, and it is also a transitional stage in the transition from medical students to nurses. In the course of practice, nursing students are faced with excessive work burden, lack of clinical experience, interpersonal conflict, inner expectation and practical gaps, occupational and work pressure, and poor mental health status. Poor sleep quality has a negative impact on the health of nursing students and not only has a negative impact on the health of nursing students but also on the quality and effect of their clinical practice, thus making nursing students fail to adapt, leading to difficulty falling asleep or insomnia. Good sleep is very important for the training and life of nursing interns. In grade A hospitals, the special medical environment makes the sleep quality not optimistic. This not only affects the health of the internship nursing students themselves but also may not be standardised operation, and even affect and even affects the safety of patients (Zhang X, Chang R, 2017) (Fagerström L, Kinnunen M, Saarela J., 2018). In general, the poor sleep quality of trainee nursing students should attract wide attention, and positive measures should be taken to enhance the sleep quality of nursing students so as to improve their physical and mental health.

### Analysis of the Positive and Negative Emotions of Intern Nursing Students

The researchers of emotions divided emotions into different levels, positive and negative, and emotions at the hierarchy, at the top of the structure. Therefore, this study begins with the highest level of emotion classification. However, this does not mean that only these two categories are emotions. There are many different types of emotions, but the study of each emotion is beyond this paper's scope. Studies have shown that positive and negative emotions are two-dimensional structures that are both independent and distinct. From each other, People can experience both strong positive and negative emotions. Emotions include positive emotions and negative emotions. Reducing negative and increasing positive emotions have become important measures to promote health. Since medical students are a very special exceptional group among college students, the influence of positive and negative emotions is highly important (Zhang Xin, Gao Yuanyuan, 2019). Significant for them in this survey, the score of positive emotions ( $26.8 \pm 5.61$ ) was negative emotions ( $27.4 \pm 2.74$ ). In this study, the score of intern nursing students was lower than that of Huang Lei (Huang Lei, 2020); as a result of the study, negative emotion scores are higher than Huang Lei's, indicating that the

problem of intern nursing students is more serious. In this study, trainee nursing students received higher scores than the average younger group and had more negative emotions than the average student. The reasons related to the nursing of medical students are more severe than those of students in other majors.

Students with negative emotions, such as interpersonal loneliness and fear, use their mobile phones as a means of communicating and seeking comfort. Reduced sleep and sleep efficiency will lead to daily fatigue and energy shortages among trainee nursing students, greatly affecting learning efficiency and aggravating sleep disorders. Problems facing medical students face difficulties in finding jobs and preparing for postgraduate entrance exams, increasing mental stress, and poorer sleep quality (Xue Huiyuan, 2020). College students in school to their future, when college students begin to practice in the face of low social expectations and peers' low identity, cannot realise their value own think really during the internship to play their talent, not practice internship sleep quality is difficult to ensure, now society nurses still have certain prejudice, nurses feel they didn't get enough respect. Do not get the corresponding return (Wang Ying, 2020). However, we all know that the doctor-patient relationship has been relatively tense in recent years, and the medical environment is complex. The medical environment is complex. The contradictions between doctors and patients are heavy, making medical students' study and work pressure great. They are more likely to be affected by emotions. Medical students are more likely to have emotional problems. Long-term negative emotions can seriously affect the mental health of medical students. The mental health of medical students can be severely affected by long-term negative emotions (Zhao Jing, 2018). Therefore, the hospital should organise internship programs intelligently and effectively to reduce the burden of clinical nursing students and relieve their excessive fatigue and psychological conflicts; give full play to the role of teaching teachers, gradually understand and master the psychology of clinical nursing students in daily work, and improve and improve the means and methods of dealing with psychological problems. Make full use of the hospital newspaper, website, and WeChat community platform, publicise mental health knowledge among clinical nursing students, and improve students' awareness of mental health to promote mental health (He Yun, 2021).

### Correlation Analysis Between Sleep Quality and Mood among Trainee Nursing Students

In this study, Pearson correlation analysis showed that except for "sleep time", positive mood and PSQI total score and subjective sleep quality, sleep time, sleep efficiency, sleep disorder, use of hypnotic drugs and daytime function disorder; and negative mood was significantly positively associated with seven factors and the total score of PSQI. This survey and Xie Yuge (Xie yuge,2015) have Similar conclusions on the relationship between mobile phone dependence, rumination, mood, and sleep quality. With the increase in positive mood among trainee nursing students, the PSQI total score decreased, i.in., improved sleep quality. Negative affect increased, and their total PSQI score increased; that is, sleep quality decreased. Positive emotions can relieve sleep

problems, and negative emotions are a harmful component that causes sleep difficulties. Some studies examined the relationship between positive mood and sleep quality or only between negative affect and sleep quality. There is a bias between these two parts; it is actually a bias.

Positive emotions and negative emotions are two aspects of individual emotions, which, along with negative and positive emotional states, improve daytime wakefulness and considerably shorten sleep efficiency. Increase sleep problems and reduce daytime waking in negative emotions. Positive emotions can reduce the individual's psychological perceptions. Let individuals take positive behaviour regulation to buffer stress and adverse effects on individuals, help to maintain a good sleep state and promote physical and mental health.

On the contrary, if negative emotions are adopted through harmful behaviour regulation methods, they will adversely affect the individual's physical and mental health. Therefore, trainee nursing students should be encouraged to express positive emotions and then reduce the impact of negative emotions on trainee nursing students. Improving the sleep quality of trainee nursing students is helpful in improving their ability to manage emotions. In contrast, good nurses' ability to manage emotions the ability of good nurses to manage emotions helpful to promote positive emotions. Therefore, people with good sleep quality will have more positive emotions when dealing with family, friends, and patients in life and when dealing with family work. The study found that most interns had poor sleep quality due to stressful work and professional training, more night shifts and poor lifestyles. People with poor sleep quality have a negative attitude and are prone to dissatisfaction and boredom. Long-term poor sleep quality often leads to emotional burnout of practice nurses, such as hostility, apathy or loss of compassion, so the increase of negative emotions in life will lead to serious sleep disorders of practice nurses, making them into a vicious circle. In conclusion, improving sleep quality in young nursing students may help to reduce the performance of negative emotions.

## Conclusion

- (1) This study found that the survival of practice care is poor sleep quality.
- (2) Negative emotions scores are higher than positive emotions.
- (3) Correlation analysis found that the higher the sleep quality, the higher the positive mood score of the trainee nursing students, the better the sleep quality, and the higher the negative mood score, the worse the sleep quality.

## Recommendations and Limitations

### Suggestions

In order to better adjust and improve the sleep problems of trainee nursing students and prevent their work and life quality from being affected by excessive health burden, the following suggestions for improving the sleep quality of nurse students according to the research results:

(1) Intern nursing students should be more involved in social activities to improve their ability to interact with others. On the one hand, they can better manage their own work pressure and promote positive emotions. On the other hand, improving communication skills can improve the relationship between nurses and patients if trainee nursing students treat their patients as friends and communicate more with them. It will facilitate the further development of medical work and can make the job pleasurable. Empathy can improve the doctor-patient relationship and improve the ability of medical staff, so cultivating empathy is particularly important for medical students (Zhao Di, Wang Juan,2019).

(2) Family parenting style will affect the anxiety and anxiety depression of nursing students. Pay attention to communicating with family and friends at ordinary times to avoid the bad mood at work affecting the family. Try to avoid bringing conflicts in life into work. Be able to face and solve family life problems and learn how to change roles in family life and work. Clinical nursing students will form the foundation of a future nursing career, and their mental health is critical to their work.

(3) It is necessary for internship and nursing students to develop healthy living habits, exercise appropriately, ensure sleep as much as possible, and learn to control their emotions. Appropriately adjust to the possible pressure in daily medical work and life in a timely manner, and set long-term life goals with a positive, optimistic, open-minded, cheerful attitude towards work and life. Set long-term life goals and face work and life with a positive, optimistic and open attitude.

(4) Clinical teaching teachers should help nursing students to have a correct understanding of correctly, build confidence, and set reasonable goals for their practice.

Intern nursing students should also strive to improve their professional level and correctly evaluate their life positioning. They should actively improve their personal service level and service attitude, reduce the occurrence of doctor-patient disputes and medical accidents, enhance their confidence in work, and realise their own life value. A platform can also be established to share information, encourage nursing students to communicate and discuss sleep and emotional problems, actively share methods that can effectively improve sleep quality and emotional state, and effectively comfort the psychological pressure of nursing students.

(5) Introduce and improve the appropriate management system for our hospital to maximise the job satisfaction of internship nursing students. Most importantly, the health workers' benefits must be considered, and the benefits of the health workers must be taken into account when developing the relevant policies. Reduce unreasonable working time as far as possible so that every medical staff member can get sufficient rest time; at the same time, establish appropriate reward and punishment mechanisms so that they can work and improve job satisfaction and a sense of belonging to the unit. The primary goal is to create more opportunities for young medical and care technicians to better achieve their goals better. The government should also provide more opportunities for young medical health technicians with more opportunities to realise their value better.

(6) Hospitals should regularly hold lectures related to mental health counselling and carry out various forms of psychological counselling activities. Speed up the construction of a psychological counselling room for our medical staff and monitor the mental health of our trainee nursing students. Medical techniques that can help our medical staff deal with psychological problems through courses such as emotion management, stress management and meetings. At the same time, the hospital should increase the pace of humanistic construction so that the hospital staff is in place. Education and training on sleep quality and emotional health can be carried out to improve nurses' self-awareness of sleep quality and to enhance their awareness of self-management. Training can include a variety of factors affecting sleep quality and emotional well-being, as well as how to take effective actions to improve sleep quality and emotional well-being. Hospitals should also organise irregular activities to promote employee social interaction and communication. Moreover, it provides prompt assistance when detecting serious sleep problems to improve the overall sleep quality of medical students and correct sleep disorders.

## Limitations

(1) There are also some defects in this study. The included trainee nursing students included are from a hospital, and their scope is not wide enough.

(2) This study is only a cross-sectional study, which can only examine the relationship between the variables, and causality cannot be inferred.

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