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Original Article

The effects of systematic psychological nursing on the sleep quality of schizophrenic patients with sleep disorders

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Abstract: Objective: This study was designed to explore the effects of systematic psychological nursing (SPN) on the sleep quality of schizophrenic patients with sleep disorders. Methods: A total of 101 schizophrenic patients with sleep disorders were divided into the control group (50 patients who underwent routine nursing) and the observation group (51 patients who underwent SPN, including health education, psychological nursing, cognitive intervention, reasonable entertainment, and family and social support). One month after the nursing, the sleep quality (the Pittsburgh Sleep Quality Index (PSQI) scores), the improvement in the patients' schizophrenic symptoms (their Positive and Negative Syndrome Scale (PANSS) scores), their sense of self-esteem (their Self-Esteem Scale (SES) scores), their medication compliance (their Morisky Medication Adherence Scale (MMAS) scores), their self-efficacy (their Strategies Used by People to Promote Health (SUPPH) scores), and their quality of life (Generic Quality of Life Inventory (GQOLI)-74 scores) were compared between the two groups. Results: After the nursing, the PSQI and PANSS scores in the two groups were decreased, and lower scores were seen in the observation group (both $P<0.05$). However, there were opposite trends in the SES, MMAS, GQOLI-74, and SUPPH scores (all $P<0.05$). Conclusion: SPN can effectively improve the schizophrenia symptoms and the sleep quality, enhance the sense of self-esteem, and improve the medication compliance, self-efficacy, and quality of life in schizophrenic patients with sleep disorders. Therefore, SPN is worthy of clinical application.

Keywords: Schizophrenia, sleep disorders, systemic psychological nursing, quality of life

Introduction

Among the various mental disorders, schizophrenia is the most common. A survey shows that the number of schizophrenia patients accounts for more than 50% of the total number of patients with mental disorders [1]. Additionally, sleep disorders are common clinical manifestations of schizophrenia with a high incidence in schizophrenic patients. One study found that the incidence of sleep disorders in schizophrenic patients reaches over 70% [2].

Long-term sleep disorders in schizophrenic patients may aggravate the illness, and further worsen the patients' cognitive dysfunction. The development of sleep disorders in schizophrenic patients can induce other mental diseases such as anxiety, depression, etc. Appropriate intervention means can improve the sleep quality of schizophrenic patients with sleep disorders, reduce the occurrence of other adverse psychological states, and reduce the self-mutilation and suicidal tendencies of schizophrenic patients [3]. Systematic psychological nursing (SPN) is a specific and scientific nursing measure provided for patients from the aspects of health education, psychological counseling, social support, etc. [4]. At present, SPN has been widely applied in patients with schizophrenia or sleep disorders, and the results show that after SPN, the adverse psychological states of patients with schizophrenia or sleep disorders have been significantly improved [5]. However, there are few published studies on the influence of SPN on the sleep quality of schizophrenic patients with sleep disorders. Therefore, this study mainly discusses the

effects of SPN on the sleep quality of schizophrenic patients with sleep disorders.

Materials and methods

General information

A total of 101 schizophrenic patients with sleep disorders treated in our hospital from December 2018 to January 2020 were recruited as the study cohort and randomly divided into the control group (50 patients who underwent routine nursing) and the observation group (51 patients who underwent SPN).

Inclusion criteria: ① Patients ranging in age from 18 to 50 years old. ② Patients who were clinically diagnosed with schizophrenia and with significant sleep disorders. ③ Patients who were diagnosed with paranoid or simple schizophrenia and currently in the recovery period. ④ Patients with a score of 12 or higher on the Pittsburgh Sleep Quality Index (PSQI) [6]. ⑤ Patients who signed the informed consent forms.

Exclusion criteria: ① Patients with diseases of the immune system, the circulatory system, or the endocrine system. ② Patients with other severe mental illnesses. ③ Patients with malignant tumors. ④ Patients with scores lower than 80 on the Positive and Negative Syndrome Scale (PANSS) [7]. ⑤ Pregnant or lactating patients.

This study was approved by the medical ethics committee of our hospital.

Methods

The patients in the control group underwent routine nursing, and were provided with a quiet and good sleep environment, and they were prescribed drugs and were supervised to take the drugs.

The patients in the observation group underwent SPN, and the details were as follows [8, 9]. (1) The establishment and maintenance of a good doctor-patient relationship: After admission, full-time psychological counselors communicated regularly with the patients face to face to determine the patients' basic information, 1-2 times a week, for about 60 minutes each time. The counselors used gentle language and had kind attitudes in their communication process, which was conducive to the establishment of a good doctor-patient relationship. (2) Health education: The nursing staff explained to the patients the relevant information about the clinical manifestations, the importance and the necessity of the treatment, and the possible adverse reactions of schizophrenia. Through these explanations, the patients were able to understand that the current symptoms are caused by the disease, and these symptoms can be significantly improved or even completely disappeared as long as they actively cooperated with the doctors in the treatment. It helped enhance the patients' confidence and cooperation with the treatment. (3) Psychological nursing: Full-time psychological counselors arranged to communicate with the patients, and the communication frequency was 1-2 times/week, about 60 minutes each time. Through the communication, the counselors learned the causes of the patients' emotional fluctuations, and they gave reasonable explanations. The counselors also corrected the patients' negative self-evaluations and analyzed their causes, so as to guide patients to eliminate the unhealthy mentality and rebuild their personality. Affirmation and praise were given to the patients making significant progress, and encouragement and guidance were given to the patients making not very ideal progress. (4) Cognitive intervention: Full-time psychological counselors were asked to negotiate with the patients about a discussion theme. The next day, the patients recalled the theme of the previous day and responded accordingly. In the evening, two hours before bed, the patients discussed the theme and made corresponding reflections, and the counselors gave corresponding guidance at the same time. The patient making significant progress were given affirmation and praise, and encouragement and guidance were given to the patients with not very ideal progress. Cognitive intervention was performed once a week, 40 to 60 minutes each time, and the frequency could be increased or decreased according to the patient's condition. (5) Reasonable entertainment and participation in activities: The nursing staff reasonably arranged and encouraged the patients to participate in recreational activities, such as playing chess, skipping rope, Tai Chi, etc. The frequency of activities was once a day, about 30 minutes each time. Reasonable

entertainment and activities serve to divert the patients' attention, create a good and harmonious atmosphere for the patients, and arouse the patients' psychological satisfaction. (6) Family and social support: The nursing staff encouraged the patients' family members to enhance communication with the patients, and to give the patients comfort, encouragement, understanding, and support. Through this process, the patients could feel the warmth of their family and their families' attention to them, and the expectation of their return to society and family. The intervention effects were compared one month after the nursing.

Outcome measures

The outcome measures were measured before the nursing and at one month after the nursing.

Primary outcome measures: (1) Sleep quality: The sleep quality was evaluated by PSQI, including sleep quality, sleep efficiency, hypnotic drug, sleep time, sleep disorders, time to falling asleep, and daytime function. Each item was scored from 0 to 3. The lower the score, the better the quality of life.

(2) Schizophrenic symptoms: The schizophrenic symptoms were assessed using PANSS, including the negative scale (7-49 points), the positive scale (7-49 points), and the general psychopathology scale (16-112 points). The higher the score, the more severe the schizophrenic symptoms.

Secondary outcome measures: (1) Sense of self-esteem and medication compliance: The patients' sense of self-esteem was evaluated using the Self-Esteem Scale. The Self-Esteem Scale (SES) has a total possible score of 40 points [10]. The higher the score, the higher the patient's sense of self-esteem. The medication compliance was assessed using the Morisky Medication Adherence Scale (MMAS), with a total possible score of 20 [11]. The higher the score, the better the patient's medication compliance.

(2) Self-efficacy: The self-efficacy was evaluated using the Strategies Used by People to Promote Health (SUPPH) scale [12]. The scale covers stress relief (10-50 points), self-decision (3-15 points), and positive attitude (15-75 points). The higher the score, the stronger the self-efficacy.

(3) Quality of life: The quality of life was assessed using the Generic Quality of Life Inventory (GQOLI)-74, with a scoring range from 76 to 380 points [13]. The higher the score, the better the quality of life .

Statistical analysis

SPSS 20.0 was used for data analysis. The measurement data were expressed as $\bar{x} \pm sd$. Paired t tests were used for comparisons before and after the nursing, and independent t tests were used for the comparison between the two groups. The count data were expressed as n (%), and χ^2 tests were used for the comparisons. $P<0.05$ indicated that a difference was statistically significant.

Results

Comparison of the general information

The general data of the two groups were comparable, and there were no significant differences (all $P<0.05$), as shown in **Table 1**.

Sleep quality, and schizophrenic symptoms

Before the nursing, there were no statistically significant differences in the PSQI and PANSS scores between the two groups (all $P>0.05$). After the nursing, the PSQI scores in both groups were decreased, and the scores in the observation group were lower than the scores in the control group (all $P<0.05$), as shown in **Tables 2**, **3**.

Sense of self-esteem, medication compliance and self-efficacy

Before the intervention, there were no significant differences in the SES and MMAS scores between the two groups (all $P>0.05$). After the intervention, the SES and MMAS scores were increased in both groups, and higher scores were seen in the observation group (all $P<0.05$). See **Table 4**. There was a similar trend in the SUPPH scores. See **Table 5**.

Quality of life

Before the nursing, the GQOLI-74 scores in the observation and control groups were

Table 1. General data (n, $\bar{x}\pm sd$)

	Observation group (n=51)	Control group (n=50)	χ^2/t	P
Gender (n)			0.554	0.457
Male	21	17		
Female	30	33		
Age (years)	30.5±4.5	31.2±6.3	0.641	0.523
Course of disease (years)	5.56±1.40	5.88±1.28	1.199	0.233
Previous treatment history (n)			0.728	0.394
Yes	43	45		
No	8	5		
Current medication status (n)			1.217	0.544
Single drug	10	8		
Two kinds of drugs	24	20		
Three or more kinds of drugs	17	22		
Disease classification (n)			0.239	0.625
Paranoia schizophrenia	30	27		
Heboid schizophrenia	21	23		
PANSS score	141.16±10.04	140.79±12.28	0.166	0.869
PSQI score	14.40±1.94	14.72±2.01	0.814	0.418
Education Level (n)			0.774	0.679
Junior high school and below	26	28		
High School or junior college	14	10		
Bachelor's degree or above	11	12		

Note: PANSS: Positive and Negative Syndrome Scale, PSQI: Pittsburgh Sleep Quality Index.

Table 2. The PSQI scores ($\bar{x}\pm sd$)

	Observation group (n=51)		Control group (n=50)	
	Before nursing	After nursing	Before nursing	After nursing
Sleep quality	2.01±0.48	1.20±0.27*,#	2.10±0.50	1.66±0.38*
Sleep efficiency	2.22±0.44	1.17±0.38*,#	2.13±0.53	1.77±0.30*
Hypnotic drugs	2.14±0.40	1.03±0.43*,#	2.22±0.38	1.69±0.40*
Sleep time	2.05±0.40	1.28±0.28*,#	2.10±0.44	1.70±0.29*
Sleep disorder	1.98±0.30	1.20±0.25*,#	2.03±0.33	1.69±0.29*
Time to fall asleep	1.88±0.23	0.98±0.27*,#	1.92±0.31	1.33±0.26*
Daytime function	2.12±0.30	1.39±0.26*,#	2.22±0.38	1.70±0.37*

Note: PSQI: Pittsburgh Sleep Quality Index. Compared with before the nursing, *P<0.05, compared with the control group, #P<0.05.

(185.50±20.04) and (186.38±18.39), respectively. After the nursing, these values were (254.49±20.55) and (214.40±19.40), respectively. There were no significant differences in the GQOLI-74 scores between the two groups before the nursing (all P>0.05). After the intervention, the GQOLI-74 scores in both groups were increased, and the observation group had higher scores (all P<0.05). See **Figure 1**.

Discussion

With the acceleration of pace of life and the increase of work pressure, the prevalence of schizophrenia also increases. WHO research has found that schizophrenia affects about 5% of the world's population and schizophrenia is expected to become the world-leading disease burden by 2030 [14]. Surveys indicate that more than 70% of schizophrenic patients may

Table 3. The PANSS scores ($\bar{x}$±sd)

Group	Negative scale	Positive scale	General psychopathology scale
Observation group (n=51)			
Before nursing	34.49±4.40	36.60±5.05	70.07±9.95
After nursing	22.37±4.95*,#	25.55±6.30*,#	49.97±8.70*,#
Control group (n=50)			
Before nursing	35.02±6.38	36.20±4.96	69.57±10.02
After nursing	29.93±4.77*	30.05±5.56*	58.88±8.94*

Note: PANSS: Positive and Negative Syndrome Scale. Compared with before the nursing, *P<0.05, compared with the control group, #P<0.05.

Table 4. The SES and MMAS scores ($\bar{x}$±sd)

Group	SES scores	MMAS scores
Observation group (n=51)		
Before nursing	20.05±3.33	10.04±2.39
After nursing	30.98±5.44*,#	16.68±3.08,*#
Control group (n=50)		
Before nursing	20.64±4.38	10.73±2.20
After nursing	25.58±4.99*	13.39±3.10*

Note: SES: Self-Esteem Scale; MMAS: Morisky Medication Adherence Scale. Compared with before the nursing, *P<0.05, compared with the control group, #P<0.05.

also suffer from various degrees of sleep disorders. Sleep disorders without effective treatment affect patient recovery and reduce patients' quality of life [15].

In this study, after the nursing, the PSQI and PANSS scores in the observation group were lower than they were in the control group, suggesting that SPN can more effectively improve the schizophrenic symptoms and the sleep quality of schizophrenic patients with sleep disorders. Schnatschmidt et al. found that after SPN, the sleep disorder rate was significantly reduced, sleep efficiency was significantly improved and the sleep times were significantly prolonged in patients with sleep disorders [16]. Suh et al. explored the influence of psychological intervention on the sleep quality of insomnia patients, and they found that compared with conventional intervention, a significant improvement of sleep quality in insomnia patients was seen after psychological intervention [17]. SPN was conducted from the patients' admission, and the nursing staff communicated with the patients enthusiastically, which lays a foundation for the establishment and maintenance of a good doctor-patient relationship. Then, through health education, the patients understood the importance and necessity of active cooperation with the treatment. In addition, through communicating with the patients, we could understand the causes of emotional fluctuations and the patients' negative self-evaluations, and then we gave targeted psychological counseling, helping to eliminate the patients' unhealthy mentality and to rebuild their personalities. Moreover, reasonable entertainment and activities helped the patients to maintain pleasant moods and the sleep quality at night might be improved to a certain extent due to an increased amount of daytime activity. The above factors worked together, greatly promoting an improvement in the sleep quality and in the schizophrenic symptoms [18].

Affected by the disease itself and its related clinical symptoms, most schizophrenic patients will have a sense of inferiority to varying degrees and they have unpractical negative evaluations of themselves, and they even self-mutilate or suicidal tendencies develop in severe cases [19]. This study showed that after the nursing, the SES and MMAS scores in the observation group were higher than the corresponding scores in the control group, indicating that SPN can significantly enhance the sense of self-esteem and improve the medication compliance of schizophrenic patients with sleep disorders. Some studies have also found that psychological nursing can improve patients' sense of self-esteem, especially for those who need long-term treatment, such as patients with malignant tumors or mental illnesses [20, 21]. The above studies have conclusions similar to this study's conclusions. Through health education, effective psychological nursing and cognitive intervention, patients understand the importance and necessity of active cooperation with the treatment, thus effectively enhanc-

Table 5. The SUPPH scores ($\bar{x}$±sd)

Group	Stress relief	Self-decision	Positive attitude
Observation group (n=51)			
Before nursing	24.49±4.30	8.84±1.94	40.06±5.55
After nursing	34.06±4.88*,#	13.08±1.80*,#	50.06±5.72*,#
Control group (n=50)			
Before nursing	25.04±4.95	9.02±1.49	39.86±5.48
After nursing	29.95±4.06*	11.20±1.85*	45.50±6.44*

Note: SUPPH: Strategies Used by People to Promote Health. Compared with before the nursing, *P<0.05, compared with the control group, #P<0.05.

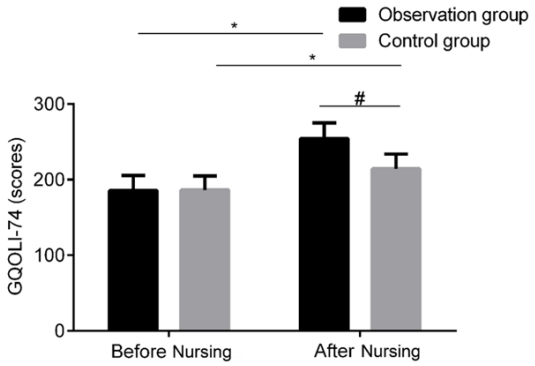

Figure 1. The GQOLI-74 scores before and after the intervention in the two groups. GQOLI: Generic Quality of Life Inventory. Compared with before the nursing, *P<0.05, compared with the control group, #P<0.05.

ing the enthusiasm of patients to cooperate with the treatment. The improvement of clinical effectiveness helps the patients improve their sense of self-esteem [22]. "Self-efficacy" was first proposed by Albert Bandura, a psychologist from Stanford University in the United States. It refers to an individual's sense of self-related abilities, that is, his expectation of whether he is capable of completing a certain behavior [23]. In this study, after the nursing, the SUPPH and GQOLI-74 scores of the patients in both groups were increased, and the scores in the observation group were higher than the scores in the control group. This indicated that SPN significantly enhanced the self-efficacy and contributed to the improvement of the quality of life in schizophrenic patients with sleep disorders. Wang et al. also pointed out that reasonable high-quality nursing is significant helpful in improving the quality of life of schizophrenic patients with sleep disorders [24].

However, this study was a single-center study with a small cohort, and it only compared the changes in various indicators between before the nursing and at one month after the nursing. Further research should be conducted on the effect of this nursing mode on the patients' long-term sleep quality.

In conclusion, SPN effectively improves schizophrenic symptoms and sleep quality, enhances the sense of self-esteem, and improves the medication compliance, self-efficacy and quality of life in schizophrenic patients with sleep disorders, so it is worthy of clinical promotion.

Disclosure of conflict of interest

None.

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