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Original Article

Effect of systematic psychological nursing on sleep quality of schizophrenic patients with sleep disorders

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Abstract: Objective: To investigate the effect of systematic psychological nursing on sleep quality in schizophrenic patients with sleep disorders. Methods: Ninety schizophrenic patients with sleep disorders were selected, and randomly divided into an experimental group (n=45) and a control group (n=45). Both groups were given routine psychotropic drugs. The duration of treatment was 8-12 weeks. Results: The clinical response rate of the experimental group was significantly higher than that of the control group (P<0.05). The scores of subjective sleep quality, sleep time, sleep disorder, sleep latency, habitual sleep efficiency, daytime function and hypnotic drugs in the two groups were significantly decreased after nursing, as compared with before nursing (all P≤0.001). The scores of self-rating anxiety scale, self-rating depression scale and social disability screening schedule in the two groups after nursing were significantly decreased compared to those before nursing (all P≤0.001). The score of WHOQOL in the two groups after nursing were significantly increased over thoes before nursing (P≤0.001). Nursing satisfaction of the experimental group was significantly higher than that the of control group (P<0.05). Conclusion: Systematic psychological nursing for schizophrenic patients with sleep disorders can significantly improve clinical symptoms, sleep quality, quality of life and social function, with high nursing satisfaction, which is worthy of clinical application.

Keywords: Schizophrenia, sleep disorders, systematic psychological nursing, sleep quality

Introduction

Clinically, schizophrenia is a common chronic mental disease, the prevalence rate of which is about 0.16%-0.43%, and the disease occurs most frequently in young adults, especially in women [1]. Clinical study has found that sleep disorder is the most common clinical symptom of schizophrenic patients, occurring in about 72.0% of patients, which can occur at any stage of the disease [2]. Although sleep disorder is not the target symptom of schizophrenia during the treatment period, it can greatly affect the overall treatment effects. Sleep disorder can cause a patient's condition to deteriorate, induce brain dysfunction, and even make the patient have manifestations such as self-injury and suicide so as to endanger family and social stability. At present, drugs are often used to control schizophrenia with sleep disorders in the clinic. Although some results have been achieved, the disease has the characteristics of a long course with complex conditions, which makes the patients endure a state of anxiety and suffering for a long time. Therefore, taking practical nursing measures to improve the patients' psychological state may be helpful to the treatment of the disease.

Systematic psychological nursing is a method that is based on traditional psychological nursing, nurses use psychological theory as guidance and good interpersonal relationships as the basis to communicate with patients in a comprehensive and systematic way so as to improve their psychological state and behavior during the nursing period [3]. A study reported that systematic psychological nursing for patients with different stages of digestive tract cancer could significantly improve their negative emotions, promote them to face the disease positively, thereby improving their treatment compliance [4]. In addition, some scholars have reported that systematic psychological nursing for patients with lupus erythematosus can significantly improve their psychological

symptoms and contribute to the improvement of their therapeutic effect [5]. At present, drug control therapy is mainly adopted for schizophrenic patients with sleep disorders in the clinic, but the importance of psychological nursing in the treatment is still insufficient [6]. The purpose of this study was to investigate the effects of systematic psychological nursing on the clinical therapeutic effects and sleep quality of schizophrenic patients with sleep disorders.

Materials and methods

General information

A total of 90 schizophrenic patients with sleep disorders admitted to Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine from March 2016 to January 2018 were selected and randomly divided into an experimental group (n=45) and a control group (n=45). All the enrolled patients met the diagnostic criteria for schizophrenia in the third edition of *Chinese Classification and Diagnostic Criteria of Mental Disorders* [7], and also met the diagnostic criteria for sleep disorders in the *International Classification of Sleep Disorders* (third edition) [8]. Inclusion criteria: (1) Patients who met the two diagnostic criteria; (2) Patients older than 18 years old; (3) Patients who had no contraindications in this study; (4) Patients who had complete clinical data; (5) Patients whose total course of disease was less than 5 years; (6) Patients whose total score on the positive and negative symptoms scale (PANSS) was not less than 60; (7) Patients who received treatment for the first time. Exclusion criteria: (1) Patients with severe chronic physical diseases; (2) Patients with malignant tumor diseases; (3) Patients with serious diseases of important organs such as the heart, brain, liver, and kidney; (4) Patients who had a history of alcohol or drug dependence. This research obtained the approval from the Ethics Committee of Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine, and all patients or their families signed the informed consent.

Methods

Both groups of patients were given routine psychotropic drugs, including antipsychotic drugs such as risperidone and olanzapine, and routine anti-sleep disorder drugs such as eszopiclone and fast asleep capsule. The duration of treatment was 8-12 weeks. Both groups received continuous nursing for 14 days.

The control group was given traditional psychological nursing treatment, including timely psychological counseling for patients, strengthening the communication between doctors and patients, prompting patients to quickly get familiar with the surrounding environment, helping them form new working and rest patterns, encouraging patients to actively participate in recreational activities so as to help them regain their confidence in life, patiently answering patients' doubts, and timely correcting their incorrect cognition and behaviors to make them feel comfortable and improve their negative emotions.

The experimental group adopted systematic psychological nursing on the basis of the control group, including the following aspects: (1) Emotional nursing: nurses fully understood the patients' situation (family and other), then effectively evaluated their psychological state, and formulated targeted and individual nursing strategies. During the period of understanding the psychological state of patients, the comprehensiveness of psychological counseling was emphasized to ensure that patients' psychological emotions can be effectively adjusted in the process of guiding them, so as to improve their treatment enthusiasm and compliance. (2) Psychological nursing in the acute stage: Because patients in the acute stage had an unstable mental state, which could easily have a serious impact on their life and work enthusiasm as well as interpersonal communication, nursing was encouraged as the key point in this period, based on humanistic care and spiritual support, and then psychological suggestions could be shared to stabilize the patients' emotions. For patients with severe conditions, nursing workers adopted face-to-face and one-on-one methods, and took their cognition of the disease and other contents as the entry point for counseling, and the time was controlled within about 30 minutes. (3) Psychological nursing in stable period: At this stage, the psychological state of patients was relatively stable, and nursing workers properly organized recreational activities to promote patients to restore part of their interpersonal skills, the activity time was controlled within 40 min/time, 2 times/day. For patients in a stable period, group nursing was considered as the best nursing method, which could strengthen the com-

munication between patients and other patients, patients and medical staff, further clear their bad emotions effectively, and restore their social functions. Furthermore, psychological nursing at this stage also involved health knowledge, which could maximize the self-care ability of patients and establish their confidence in treatment. (4) Psychological nursing in the convalescent period: for patients in a convalescent period, their mental state had become normal. Psychological nursing at this stage could consolidate the clinical therapeutic effects and encourage patients to return to collective activities actively, so as to make them full of yearning for their future life and enrich their spiritual world.

Observation index and clinical effect evaluation

(1) The clinical therapeutic effects of the two groups 14 days after nursing were evaluated and compared. After nursing, the patients' clinical symptoms were obviously relieved, and a total score of PANSS improved by more than 50% was regarded as clearly effective; after nursing, the patients' clinical symptoms were improved, and the total score of PANSS improved by more than 20% but less than 50% was regarded as effective; after nursing, the patients' clinical symptoms and total score of PANSS were not improved, or even worsened was regarded as ineffective [9]. Clinical response rate = (obvious effective cases + effective cases)/total cases * 100%. (2) The Pittsburge sleep quality index (PSQI) scale was used to evaluate the sleep quality of the two groups before nursing and 14 days after nursing [10]. This scale involves 7 aspects, including subjective sleep quality, sleep time, sleep disorder, sleep latency, habitual sleep efficiency, daytime function and hypnotic drugs. Each aspect has a score of 0-3, with a total score of 21. The higher the score, the worse the sleep quality. (3) Self-rating anxiety scale (SAS) and self-rating depression scale (SDS) were used to evaluate the changes of psychological state before nursing and 7 days after nursing in the two groups, respectively. The higher the score, the more serious the anxiety and depression of the patients. (4) Social disability screening schedule (SDSS) was used to evaluate the social function of the two groups before nursing and 7 days after nursing. The total score of this scale was 20, and the lower the score, the higher the social function of the patients [11]. (5) WHOQOL was used to evaluate the changes in the quality of life before and after nursing in the two groups. The total score of the scale was 35, and the higher the score, the higher the quality of life [12]. (6) Nursing satisfaction: Patients' satisfaction with the nursing quality was evaluated by the self-made satisfaction evaluation scale. The scale including the evaluation of nursing stuff, nursing measures, psychological nursing and the whole nursing process, with a total score of 100, of which more than 84 was considered as satisfied, 70-84 was basically satisfied, and less than 70 was dissatisfied. Satisfaction = (satisfied + basically satisfied) cases/total cases * 100%.

Statistical analysis

SPSS 20.0 software was used to analyze the data. Measurement data were expressed as mean ± standard deviation ($\bar{x}$ ± sd). Paired t-test was used for the comparison of the measurement data before and after treatment in the same group, and independent sample t-test was used for the comparison of the data between groups at the same time point. Enumeration data were expressed as percentage (%), and processed with the use of chi-square test or Fisher's exact probability test. There is a significant difference at $P<0.05$.

Results

Clinical results

There were no significant differences in the main clinical baseline data, such as gender, age, average course of disease, PSQI score and underlying diseases between two groups (all $P>0.05$). The comparative analysis between the two groups could be continued. See **Table 1**.

Response rate

The clinical response rate of the experimental group was higher than that of the control group, with a significant difference ($P<0.05$). See **Table 2**.

Comparison of sleep quality

There was no significant difference in sleep quality scores between the two groups before nursing ($P>0.05$). Compared with before nurs-

Table 1. Comparison of clinical results

	Experimental group (n=45)	Control group (n=45)	t/χ^2	P
Gender (n)			0.182	0.670
Male	18	20		
Female	27	25		
Age (year)	49.1 ± 2.1	49.2 ± 2.2	0.221	0.826
Body weight (kg)	60.33 ± 4.89	61.06 ± 5.12	0.692	0.491
Average course of disease (year)	2.56 ± 0.27	2.59 ± 0.33	0.472	0.638
Length of stay (month)	14.88 ± 1.85	14.79 ± 1.96	0.224	0.823
Underlying diseases (n)				
Hypertension	3	4	0.155	0.694
Diabetes	3	3	0.000	1.000
Hyperlipidemia	2	5	1.394	0.238
Others	4	6	0.450	0.502

Table 2. Comparison of clinical effects

Group	Obvious effective (n)	Effective (n)	Ineffective (n)	Clinical response rate (n (%))
Experimental group (n=45)	25	17	3	42 (93.33)
Control group (n=45)	20	15	10	35 (77.78)
χ^2	-	-	-	4.406
P	-	-	-	0.036

Table 3A. Comparison of sleep quality ($\bar{x}$ ± sd) (score) (1)

Group	Time period	Subjective sleep quality	Sleep time	Sleep disorder
Experimental group (n=45)	Before nursing	2.14 ± 0.15	2.20 ± 0.21	2.23 ±0.24
	After nursing	0.97 ± 0.04$^{**,\#\#\#}$	0.83 ± 0.05$^{**,\#\#\#}$	0.80 ± 0.10$^{**,\#\#\#}$
Control group (n=45)	Before nursing	2.13 ± 0.12	2.19 ± 0.25	2.21 ± 0.20
	After nursing	1.40 ± 0.08$^{\#\#\#}$	1.53 ± 0.10$^{\#\#\#}$	1.57 ± 0.09$^{\#\#\#}$

Note: Compared with the control group, **P<0.01; compared with the same group before nursing, $^{\#\#\#}$P≤0.001.

Table 3B. Comparison of sleep quality ($\bar{x}$ ± sd) (score) (2)

Group	Time period	Sleep latency	Habitual sleep efficiency	Daytime function	Hypnotic drugs
Experimental group (n=45)	Before nursing	2.09 ± 0.16	2.38 ± 0.30	2.38 ± 0.24	2.30 ± 0.31
	After nursing	0.84 ± 0.07$^{**,\#\#\#}$	0.69 ± 0.08$^{**,\#\#\#}$	0.51 ± 0.06$^{**,\#\#\#}$	0.47 ± 0.12$^{**,\#\#\#}$
Control group (n=45)	Before nursing	2.07 ± 0.20	2.35 ± 0.29	2.34 ± 0.27	2.27 ± 0.34
	After nursing	1.22 ± 0.13$^{\#\#\#}$	1.03 ± 0.11$^{\#\#\#}$	1.13 ± 0.04$^{\#\#\#}$	1.09 ± 0.20$^{\#\#\#}$

Note: Compared with the control group, **P<0.01; compared with the same group before nursing, $^{\#\#\#}$P≤0.001.

ing, the scores of sleep quality, sleep time, sleep disorder, sleep latency, habitual sleep efficiency, daytime function and hypnotic drugs in the two groups after nursing were both significantly decreased (all P<0.001), and the scores of the experimental group were significantly lower than those of the control group (all P<0.01). See **Table 3**.

Comparison of psychological state

There was no significant difference in psychological state scores between the two groups before nursing (P>0.05). Compared with before nursing, SAS and SDS scores of patients in the two groups after nursing were significantly decreased (all P<0.001), and the scores of the

Table 4. Comparison of psychological state ($\bar{x}$ ± sd) (score)

Group	Time period	SAS	SDS
Experimental group (n=45)	Before nursing	52.66 ± 9.01	52.30 ± 8.44
	After nursing	32.73 ± 8.36**,###	35.48 ± 8.35**,###
Control group (n=45)	Before nursing	52.62 ± 8.53	52.36 ± 8.50
	After nursing	45.12 ± 8.59###	46.87 ± 8.90###

Note: Compared with the control group, **P<0.01; compared with the same group before nursing, ###P≤0.001. SAS: self-rating anxiety scale; SDS: self-rating depression scale.

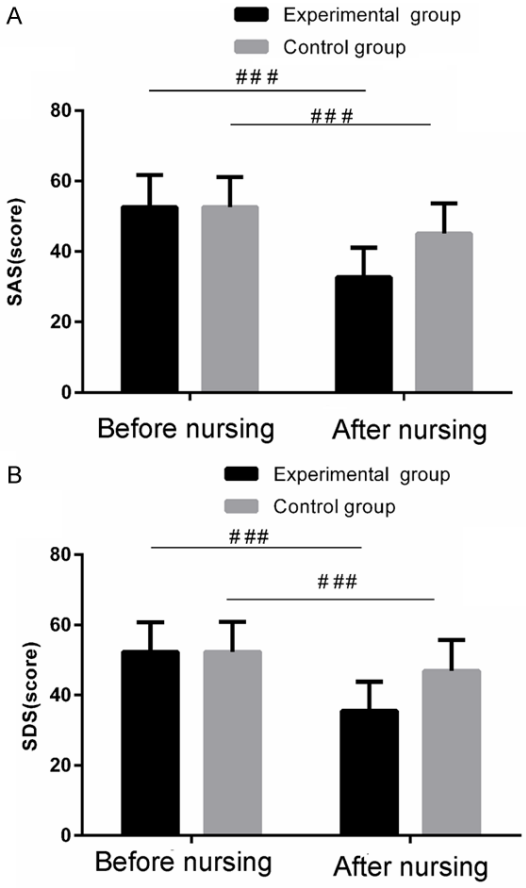

Figure 1. Comparison of psychological state before and after nursing between the two groups. (A) Comparison of SAS score, (B) Comparison of SDS score. ###P≤0.001. SAS: self-rating anxiety scale; SDS: self-rating depression scale.

experimental group were significantly lower than those of the control group (both P<0.01). See **Table 4**; **Figure 1**.

Comparison of social function and quality of life

There were no significant differences in social function and quality of life between the two groups before nursing (both P>0.05). Compared with before nursing, SDSS scores of patients in the two groups after nursing were significantly decreased (both P<0.01), and the score of the experimental group was significantly lower than that of the control group (P<0.01); WHOQOL scores of patients in the two groups after nursing were significantly increased over those before nursing (both P<0.001), and the score of the experimental group was significantly higher than that of the control group (P<0.01). See **Table 5**.

Comparison of nursing satisfaction

The nursing satisfaction of the experimental group was higher than that of the control group, with a significant difference (P<0.05). See **Table 6**.

Discussion

According to the results of a clinical sampling survey, 78.75% of patients with mentally disabled diseases have schizophrenia; the course of schizophrenia is long and easily recurs, which has different effects on the mental health of patients and the quality of family life; some patients have no desire for life, and even have suicidal tendencies [13]. Sleep disorder is common in schizophrenic patients and can occur at any time of the disease. If left unchecked, it can aggravate the condition and increase the difficulty of treatment [14, 15]. At present, long-term medication is the most commonly used treatment for schizophrenic patients with sleep disorders, but it is bound to increase the psychological burden of patients. Therefore, it is of great importance to treat schizophrenia with effective nursing measures while medication is taken. However, the current clinical treatment often neglects the enthusiasm and importance of psychological state to the patient's conditions and outcome during the whole treatment period [16]. According to relevant clinical investigations, about 68% of patients do not have normal social functions after symptomatic treatment with drugs alone [17]. The results of clinical studies show that systematic psychological nursing could effectively reduce the anxiety level of patients with coronary heart

Table 5. Comparison of social function and quality of life ($\bar{x}$ ± sd) (score)

Group	Time period	SDSS	WHOQOL
Experimental group (n=45)	Before nursing	17.35 ± 1.84	16.27 ± 2.80
	After nursing	8.20 ± 0.92**,###	30.07 ± 1.44**,###
Control group (n=45)	Before nursing	17.34 ± 1.83	16.38 ± 2.77
	After nursing	13.55 ± 1.46###	21.36 ± 2.69###

Note: Compared with the control group, **P<0.01; compared with the same group before nursing, ###P≤0.001. SDSS: social disability screening schedule; WHOQOL: World Health Organization on Quality of Life.

Table 6. Comparison of nursing satisfaction

Group	Satisfied (n)	Basically satisfied (n)	Dissatisfied (n)	Satisfaction (n (%))
Experimental group (n=45)	28	12	5	40 (88.89)
Control group (n=45)	21	11	13	32 (71.11)
χ^2	-	-	-	4.444
P	-	-	-	0.035

disease intervention, so that they could receive interventional diagnosis and treatment with stable emotions, reduce the negative impact caused by adverse psychological factors and the incidence of adverse events, and thereby improving the success rate of surgery [18, 19]. At the same time, some scholars have reported that systematic psychological nursing for patients with esophageal cancer undergoing chemotherapy is helpful to improve their psychological state and sleep quality, which is of great significance to the improvement of nursing quality and chemotherapeutic effect [20, 21].

In this study, all the schizophrenic patients with sleep disorders were randomly divided into two groups. Both groups were given the same antipsychotic drugs. The control group was given traditional psychological nursing treatment, and the experimental group was given systematic psychological nursing treatment on the basis of control group. According to the patient's condition in different periods, targeted implementation of psychological nursing can help patients to alleviate their bad mood to a great extent, build up confidence to overcome the disease, and make them return to society as soon as possible. The results of this study showed that the clinical response rate of the experimental group was significantly higher than that of the control group, with a significant difference. At the same time, compared with before nursing, PSQI, SAS, SDS and SDSS scores of the two groups after nursing were significantly decreased, and the score of experimental group was significantly lower than that of control group; WHOQOL scores of the two groups after nursing were significantly increased over those before nursing, and the score of the experimental group was significantly higher than that of the control group; the nursing satisfaction of the experimental group was significantly higher than that of control group, with a significant difference. Our results indicates that systematic psychological nursing for schizophrenic patients with sleep disorders can effectively improve their clinical symptoms, alleviate their bad mood, and significantly improve their sleep quality, social function and quality of life. However, for schizophrenic patients with sleep disorders treated with drugs, although drug control can inhibit the progress of the disease, long-term use can increase their psychological burden, leading to a serious decline in their social function, coupled with the particularity of the disease itself, which can cause some patients to suffer discrimination and further aggravate their depression and irritability; according to the specific conditions of each patient, systematic psychological nursing can effectively achieve one-on-one psychological counseling and maximize the stability of patients' psychological emotions, improve their treatment enthusiasm and compliance [22].

However, systematic psychological nursing may be affected by individual differences such as patients' sensitivity and degree of acceptance, and the number of samples is still somewhat limited. Therefore, a large-scale, multi-center,

and more in-depth research is needed in the later stage, and more objective standard evaluation indices need to be used to evaluate the effect.

In conclusion, systematic psychological nursing for schizophrenic patients with sleep disorders can significantly improve their clinical symptoms, alleviate their bad mood, help improve their sleep quality, quality of life and social function, and patients have high nursing satisfaction, which is worthy of clinical application.

Disclosure of conflict of interest

None.

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