Psychological Nursing Combined with Biofeedback to Promote the Rehabilitation of Patients with Anxiety Disorders

Xian Yang*

Capital Normal University, Beijing 100048, China

***Corresponding author:** Xian Yang, shirley.x.yang@outlook.com

Abstract: *Objective:* To explore the effect of psychological nursing combined with biofeedback on the rehabilitation of patients with anxiety disorders. Methods: 100 patients with anxiety disorders in our hospital from January to December 2021 were randomly divided into two groups: control group ($n = 50$) and study group ($n = 50$). The control group was given routine nursing, while the study group was given psychological nursing combined with biofeedback. The changes of self-rating anxiety scale (SAS) score, self-rating depression scale (SDS) score, symptom score, and quality of life of the two groups were compared before and after nursing. *Results:* Before nursing, there was no significant difference in the scores of SAS and SDS between the two groups, but after nursing, the scores of SAS and SDS in the study group were lower than those in the control group, and the degree of improvement in the study group was higher than that of the control group. Before nursing, there was no significant difference in the scores of symptoms between the two groups ($P > 0.05$), but after nursing, the scores of stress, crying spells, tremor, and general discomfort in the study group were lower than those of the control group ($P < 0.05$). Besides, before nursing, there was no significant difference in the quality of life between the two groups ($P > 0.05$), but after nursing, the scores of physical function, psychological activity, social ability, and material life in the study group were higher than those in the control group ($P < 0.05$). Moreover, the degree of improvement after nursing in the study group was better than that of the control group. *Conclusion:* Psychological nursing combined with biofeedback to promote the rehabilitation of patients with anxiety disorders effectively improves the negative emotion of patients, reduces stress, depression, tremor, and general discomfort, and improve the overall quality of life. Therefore, it is worth further popularization.

Keywords: Psychological nursing; Biofeedback; Anxiety disorders; Symptom score; Quality of life

1. Introduction

Anxiety disorders are a type of neurological disease, with anxiety as the main manifestation. There are two types of anxiety disorders, which are panic disorder or a generalized anxiety disorder. Both types affect the patients' psychology and physiology and reduce their quality of life [1-2]. In this study, 100 patients with anxiety disorders were selected from January to December 2021 to explore the effect of psychological nursing combined with biofeedback on the rehabilitation of anxiety patients. The results are reported below.

1.1. General information

A total of 100 patients with anxiety disorders in our research from January to December 2021 were randomly divided into two groups: control group ($n = 50$) and study group ($n = 50$). In the control group,

there were 24 females and 26 males, aged 20–29 years old with an average course of disease of 5.03 ± 0.91 months. In the group of study, there were twenty-four females and twenty-six males, the average course of disease about 5.52 ± 0.45 months. There was no significant difference in baseline data in the groups ($P > 0.05$). All the patients' families were involved in this study and signed an informed consent form [3-4].

1.2. Inclusion criteria

Inclusion criteria: (1) patients diagnosed with anxiety; (2) patients with complete data.

1.3. Method

The control group underwent routine nursing. Patients were given related drugs and basic living ability guidance by nurses every day; patients were encouraged to participate in collective activities, so as to divert their attention and increase their positive emotions; health education was given to patients.

Meanwhile, the study group underwent psychological nursing combined with biofeedback.

(1) Psychological nursing

Nurses initiated conversations with the patients, closely observed their emotional changes, and patiently analyzed the factors and pathogenesis of the patients, and helped patients find out the causes of anxiety and took corresponding counseling measures. At the same time, nurses patiently allowed the patients to express their feelings when they are anxious while being considerate towards the patients and encouraged and respect them throughout the conversations. As a result, nurses had a detailed grasp of why the defense mechanism appeared and carried out positive and effective psychological counseling accordingly.

(2) Biofeedback

A biological feedback instrument, BFE2000, was used to carry out the treatment, which is mainly brain wave and myoelectric wave training. Before treatment, nurses informed in detail the importance, significance, and related training of this treatment, which is helpful to improve cognition, so that the patients are confident in this treatment and cooperate actively. During the course of treatment, patients are encouraged to maintain a good mood, relax, concentrate, and train for half an hour at a time, three times a week, with one month considered as one cycle.

1.4. Observation indicators

(1) Comparison of self-rating anxiety scale (SAS) and self-rating depression scale (SDS) scores between the two groups before and after nursing

SAS [5-6] and SDS [4] scores were used for evaluation. Each of the two scales had 20 items, and a 4-grade scoring system was adopted, that is, 1–4 points. The lower the score, the better the emotional state of the patients.

(2) Comparison of the changes of symptom scores between the two groups before and after nursing

Evaluation content: stress, crying spells, trembling, general discomfort, each ranging from 0-3 points, the higher the score, the more serious the condition. Based on HAMA (Hamilton anxiety scale), the higher the score, the more severe the anxiety of the patients.

(3) Comparison of quality of life between the two groups before and after nursing

The comprehensive evaluation scale of quality of life (GQOLI-74) [7] was used to score four items: physical function, psychological activity, social ability and material life status. The higher the functional score index was, the more significant the nursing effect was.

1.5. Statistical methods

The data were analyzed by SPSS22.0, in which χ^2 (%) test was used for counting and t-test for metrology.

2. Result

2.1. The SAS score and SDS score of the two groups before and after nursing

the improvement after nursing in the study group was better than that in the control group ($P < 0.05$) [8-9].

Table 1. Comparison of SAS and SDS scores between the two groups before and after nursing

Groups	SAS		SDS	
	Before nursing	After nursing	Before nursing	After nursing
Study group ($n = 50$)	55.89 ± 2.01	39.49 ± 0.58	58.96 ± 3.01	37.28 ± 0.48
Control group ($n = 50$)	55.87 ± 2.07	45.29 ± 0.59	58.93 ± 3.09	44.90 ± 0.55
t	0.049	49.571	0.049	73.810
P	0.961	0.000	0.961	0.000

2.2. Comparison of symptom scores between the two groups before and after nursing

Before nursing, there was no significant difference in the scores of symptoms between the two groups ($P > 0.05$), but after nursing, the scores of stress, crying spells, tremor and general discomfort in the study group were lower than those in the control group ($P < 0.05$), as shown in **Table 2** [10-11].

Table 2. Comparison of the changes of symptom scores between the two groups before and after nursing

Groups	Stress		Crying spells		Tremors		General discomfort	
	Before nursing	After nursing	Before nursing	After nursing	Before nursing	After nursing	Before nursing	After nursing
Study group ($n = 50$)	2.36 ± 0.03	0.31 ± 0.04	2.49 ± 0.29	0.31 ± 0.03	2.72 ± 0.31	0.34 ± 0.25	2.08 ± 0.31	0.35 ± 0.03
Control group ($n = 50$)	2.39 ± 0.09	0.89 ± 0.08	2.51 ± 0.30	1.39 ± 0.05	2.75 ± 0.32	1.29 ± 0.23	2.10 ± 0.29	1.32 ± 0.06
t	2.236	45.853	0.339	130.969	0.476	19.775	0.333	102.247
P	0.028	0.000	0.735	0.000	0.635	0.000	0.740	0.000

2.3. Comparison of quality of life between the two groups before and after nursing

The degree of improvement of the study group after nursing was better than that of the control group, as shown in **Table 3**.

Table 3. Comparison of quality of life between the two groups before and after nursing

Groups	Somatic function		Psychological activity		Social ability		Material life	
	Before nursing	After nursing	Before nursing	After nursing	Before nursing	After nursing	Before nursing	After nursing
Study group ($n = 50$)	53.29 ± 2.19	91.43 ± 0.42	55.42 ± 2.01	89.37 ± 0.59	55.39 ± 2.20	88.47 ± 0.69	55.49 ± 2.02	92.18 ± 0.95

(Continued on next page)

(Continued from previous page)

Groups	Somatic function		Psychological activity		Social ability		Material life	
	Before nursing	After nursing	Before nursing	After nursing	Before nursing	After nursing	Before nursing	After nursing
Control group (n = 50)	53.27 ± 2.24	74.29 ± 0.54	55.44 ± 2.32	80.37 ± 0.95	55.40 ± 2.21	78.48 ± 0.65	55.52 ± 2.05	80.48 ± 0.53
t	0.045	177.163	0.046	56.907	0.023	74.519	0.074	76.051
P	0.964	0.000	0.963	0.000	0.982	0.000	0.941	0.000

3. Discussion

Anxiety is a kind of negative emotion, and patients with anxiety disorders are constantly in a state of restlessness, fear, and powerlessness [12-13]. While certain amount of anxiety can promote the operation of the brain and direct the body to complete something quickly, excessive anxiety however will cause patients to tremble, have sweaty palms, stress, and even experience fear and panic and do things like running around, scream, and many more. Some patients will have difficulty breathing, numbness of hands and feet, and other symptoms [14-15]. The disease can occur repeatedly, and the patient is conscious during the attack, and will still have lingering fears after it ends, fearing that the same situation will occur next time. In the past, drugs were taken to relieve anxiety-related diseases, but most patients were intolerant to anti-anxiety drugs, causing adverse reactions. Patients are also likely to experience attacks again after drug withdrawal [16-17]. Psychological nursing is a new nursing model, which means that the nurses discover their patients' emotional disorders in time, and apply their psychological knowledge, language skills, and behavior to improve their negative emotions and alleviate the disease. Biofeedback therapy is a new type of treatment put forward by foreign scholars in the 1960s, which aimed to improve the psychology and physiology of patients through biochemical science, and to treat diseases through appropriate training and regulation of physical function [18-19]. This study showed that there was no significant difference in the scores of SAS and SDS between the two groups before nursing, but after nursing, the scores of SAS and SDS in the study group were lower than those in the control group, and the degree of improvement in the study group was better than that in the control group after nursing. Through this study, it is clear that psychological nursing combined with biofeedback is beneficial to improving negative emotion. Through active and effective psychological nursing intervention, the relationship between patients and nurses can be improved , as well as the patients' trust and dependence on nurses. As a result patients can actively express their true thoughts and facilitate the progress of follow-up. Biofeedback can establish effective activity feedback between cerebral cortex and organs, help patients establish normal conditioned reflexes, so that they can effectively adjust their self-cognition and improve negative emotions [20].

The results of this study showed that there was no significant difference between the scores of symptoms between the two groups before nursing ($P > 0.05$); but after nursing, the scores of stress, crying spells, tremors, and general discomfort in the study group were lower than those of the control group ($P < 0.05$). Through this study, it is clear that psychological nursing combined with biofeedback is beneficial to improving related diseases. This is because the patient feedback signal is an objective fact, patients can maintain a good state of mind to receive biofeedback treatment through positive and effective psychological nursing, and avoid undesirable treatment effect due to negative emotions during the course of treatment. Biofeedback can stimulate patients' physiological signals through electronic signals, at the same time, it is convenient for nurses to accurately evaluate their psychological and physiological status, and choose appropriate treatment methods for patients, which is conducive to the early improvement of the disease [9].

In this study, before nursing, there was no significant difference in the quality of life between the two

groups ($P > 0.05$); but after nursing, the scores of physical function, psychological activity, social ability, and material life in the study group were higher than those of the control group ($P < 0.05$). Besides, the degree of improvement after nursing in the study group was better than that of the control group. Therefore, psychological nursing combined with biofeedback can improve the quality of life. In the past, conventional nursing, showed a general effect, and most of the patients relapsed, some even deteriorated after the end of nursing. The implementation of psychological nursing combined with biofeedback and comprehensive nursing and treatment for patients significantly promotes the recovery of anxiety patients. During the treatment process, patients should be educated on the treatment process to improve their confidence in treatment. At the same time, repeated biofeedback training helps patients regulate their emotions autonomously and improve their negative emotions, so as to improve their condition and reduce the rate of relapsing, which is of great significance to improving the quality of their lives [21].

4. Conclusion

In conclusion, psychological nursing combined with biofeedback helps in promoting the rehabilitation of patients with anxiety disorders. It effectively improves patients' negative emotions, reduces stress, crying spells, tremor, and general discomfort, and improve the quality of life in an all-round way. Therefore, it should be further popularized.

Disclosure statement

The author declares no conflict of interest.

References

[1] Cheng X, 2020, Effect of Supportive Nursing Intervention on Emotion of Patients with Anxiety Disorder. Chinese Medicine and Clinic, 20(21): 3699–3701.

[2] Li Y, Li J, Yu S, et al., 2022, Application of Nursing Intervention based on Anxiety Identity Combined Advantage Content Increasing Theory in Patients with Generalized Anxiety Disorder. Chinese Journal of Modern Nursing, 28(4): 544–547.

[3] Wang Z, Chi Y, 1984, Self-Rating Depression Scale (SDS). Shanghai Psychiatry, 1984(2): 239–247.

[4] Ye H, Zhong Q, Ma Y, 2022, Effect of Psychological Nursing on Sleep Quality and Quality of Life of Patients with Anxiety Disorder. Chongqing Medicine, 51(S01): 466 + 468.

[5] Ding H, Liu Y, Zhu D, et al., 2020, Observation on the Effect of Self-Help Cognitive Behavior Intervention on Patients with Generalized Anxiety Disorder. Chinese Journal of Behavioral Medicine and Neuroscience, 2020, 29(4): 337 + 343.

[6] He J, Chen H, Wu H, 2021, Study on the Effect of Relaxation Training Nursing Therapy on Generalized Anxiety Disorder. Chongqing Medicine, 50(S01): 417 + 419.

[7] Zhao J, Yu X, Deng T, 2020, Study on the Relationship Between Depression, Anxiety and Symptom Burden in Patients with Advanced Cancer. Journal of Xinjiang Medical University, 43(8): 1073–1077.

[8] Cai J, Feng G, Shi C, et al., 2021, Investigation on the Prevalence and Treatment of Dental Anxiety in the Dental Clinic of a Hospital. People's Military Medical Officer, 64(1): 69–72.

[9] Li M, Ye T, Qi D, et al., 2021, Current Status of Clinical Trials of Drugs and Interventions for Anxiety Disorders. Chinese General Medicine, 24(11): 1418–1425.

[10] Strawn JR, Geracioti L, Rajdev N, et al., 2018, Pharmacotherapy for Generalized Anxiety Disorder in Adult and Pediatric Patients: An Evidence-Based Treatment Review. Expert Opinion on

Pharmacotherapy, 2018(10): 109–114.

[11] Smith JS, Fu KM, Polly Jr D, et al., 2010, Complication Rates of Three Common Spine Procedures and Rates of Thromboembolism Following Spine Surgery Based on 108, 419 Procedures: A Report from the Scoliosis Research Society Morbidity and Mortality Committee. Spine (Phila Pa 1976), 35(24): 203–210.

[12] Oda T, Fuji T, Kato Y, et al., 2000, Deep Venous Thrombosis After Posterior Spinal Surgery. Spine, 2000(22) 98–103.

[13] Gooch HL, Hale JE, Fujioka H, 2000, Alterations of Cartilage and Collagen Expression During Fracture Healing in Experimental Diabetes. Connective Tissue Research, 2000(2): 67–72

[14] Takahashi H, Yokoyama Y, Iida Y, 2012, Incidence of Venous Thromboembolism After Spine Surgery. Journal of Orthopaedic Science, 17(2): 114–117.

[15] Cabana F, Pointillart V, Vital J, et al., 2000, Revue de chirurgie orthopédique et réparatrice de l'appareil moteur. [Postoperative compressive spinal epidural hematomas. 15 cases and a review of the literature]. Rev Chir Orthop Reparatrice Appar Mot, 86(4): 335–345.

[16] Bryant J, Sellars M, Waller A, et al., 2021, Advance Care Planning Participation by People with Dementia: A Cross-Sectional Survey and Medical Record Audit. BMJ supportive & palliative care, 2021, 12(3): e464–e468

[17] Ward-Griffin C, Hall J, Deforge R, et al., 2012, Dementia Home Care Resources: How Are We Managing?. Journal of Aging Research, 2012: 590724.

[18] Vernooij-Dasssen MJ, Faber MJ, Olde Rikkert MG et al., 2009, Dementia Care and Labour Market: The Role of Job Satisfaction. Aging & Mental Health, 2009(3): 383–390.

[19] Berman RLH, Iris MA, Bode R, et al., 2009, The Effectiveness of an Online Mind-Body Intervention for Older Adults with Chronic Pain. Journal of Pain, 2009(1): 77–84.

[20] Sengupta DK, 2004, Dynamic Stabilization Devices in the Treatment of Low Back Pain. Orthopedic Clinics of North America, 2004(1): 61–67.

[21] Ware JE, 2000, SF-36 Health Survey Update. Spine, 2000(24): 45–52.