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Effects of Rehabilitation Nursing Combined with Psychological Intervention Based on Mind Mapping Model on Emotional State and Treatment Compliance of Patients with Nephrotic Syndrome

Xiuju Huang, Juan Zhang*

Department of Nephrology, Xuzhou First People's Hospital, Xuzhou 221100, Jiangsu, China

***Corresponding author:** Juan Zhang, 15852491981@163.com

Abstract: *Objective*: To evaluate the value of rehabilitation nursing based on mind mapping model combined with psychological intervention for patients with nephrotic syndrome (NS). *Methods:* A total of 60 patients with NS who visited our hospital from January 2024 to December 2024 were selected as samples and randomly divided into groups. The observation group received rehabilitation nursing based on the mind mapping model combined with psychological intervention, while the control group received routine intervention. The differences in emotional scores, self-care ability scores, compliance, and complications were compared between the two groups. *Results:* The anxiety (SAS) and depression (SDS) scores of the observation group were lower than those of the control group, while the self-care ability scale (ESCA) score was higher than that of the control group ($P < 0.05$). The compliance rate of the observation group was higher than that of the control group ($P < 0.05$). The complication rate of NS in the observation group was lower than that in the control group ($P < 0.05$). *Conclusion:* Rehabilitation nursing based on the mind mapping model combined with psychological intervention can enhance self-care ability, reduce negative emotions, and reduce complications in NS nursing, which is efficient and feasible.
Keywords: Nephrotic syndrome; Psychological intervention; Mind mapping model; Rehabilitation nursing

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1. Introduction

Nephrotic syndrome (NS) is associated with multiple factors such as infection, immunity, and genetics, which can cause proteinuria and increase the risk of hypercholesterolemia and hypoproteinemia. It is mostly treated with hormone regimens [1]. However, due to the long course of NS and the potential adverse reactions caused by long-term hormone therapy, as well as the increased economic pressure, some patients may experience increased self-perceived burden and reduced treatment compliance. Therefore, nursing intervention is necessary for NS patients. Routine nursing often fails to focus on patients' self-care ability and coping skills, and does

not pay attention to the emotional fluctuations of NS patients. Passive nursing services are difficult to meet the needs of modern NS patients [2]. The mind mapping nursing model is a new nursing strategy that presents nursing priorities and key points through clue linking, which can improve clinical nursing efficiency and optimize service quality. Combined with psychological intervention, it can actively guide the negative emotions of NS patients and improve their treatment compliance [3]. In this paper, a total of 60 patients with NS who visited our hospital from January 2024 to December 2024 were selected as samples to explore the value of rehabilitation nursing based on the mind mapping model combined with psychological intervention.

2. Materials and methods

2.1. Materials

Sixty patients with NS who visited the hospital from January 2024 to December 2024 were selected as samples and randomly divided into an observation group and a control group. In the observation group, there were 19 males and 11 females, aged between 51 and 74 years old, with a mean age of (63.11 ± 2.19) years old, and a disease duration of 7–30 months, with a mean duration of (18.01 ± 2.42) months. In the control group, there were 20 males and 10 females, aged between 52 and 74 years old, with a mean age of (63.19 ± 2.21) years old, and a disease duration of 7–31 months, with a mean duration of (18.03 ± 2.39) months. There was no significant difference in baseline characteristics between the two groups ($P > 0.05$).

2.2. Inclusion and exclusion criteria

The inclusion criteria were: (1) Meet the criteria for NS in "Internal Medicine" [4]; (2) 24-hour urinary protein quantitation > 3.5g; (3) Informed consent; (4) No self-administration of immunosuppressive drugs or hormonal drugs.

However, the exclusion criteria included: (1) Cognitive impairment; (2) Severe depression; (3) Malignant tumors; (4) Systemic infection.

2.3. Methods

The control group received routine nursing care, including creating a comfortable and clean environment, monitoring the patient's condition, and providing education on NS, diet planning, and medication guidance.

As for the observation group, they received rehabilitation nursing based on mind mapping model and psychological intervention.

2.3.1. Creating mind maps

The core framework of mind maps can be effectively organized using the WPS mind mapping system, which provides a structured approach to visualizing and organizing information.

2.3.2. Intervention during hospital admission

(1) Establish a service team with the head nurse as the team leader. Regularly train team members to master the content of the mind map and conduct assessments. Only nurses who pass the assessment are allowed to work. Organize regular team meetings to refine nursing services based on the mind map framework, with each framework branching into 3 or 4 levels to form the final module.

(2) Evaluate basic disease conditions: Collect patient medical history data based on mind map prompts and report any abnormalities promptly.

(3) Emotional fluctuation assessment: Use SAS and SDS scales to evaluate anxiety and depression levels, analyze patients' self-perceived burden, and further adjust psychological counseling strategies.

2.3.3. Intervention during hospital stay

(1) Diversified education

Educate patients on NS disease knowledge and medication use, guide them to take medications regularly according to the treatment plan, and inform them of possible complications and control measures. Complete education through various forms such as medication record cards, educational manuals, seminars, and WeChat groups. Provide small rewards to those who have a good grasp of disease knowledge.

(2) Complication management

For critically ill NS patients, recommend absolute bed rest and provide entertaining variety shows to distract them from their illness. Perform all diagnostic and therapeutic procedures according to sterile principles. Assist patients in turning over every 2 hours to avoid skin traction. Advise patients to rest with their hips and lower limbs slightly elevated. Instruct patients to avoid scratching their skin, increase the frequency of changing clothes and handwashing, and monitor respiratory function and skin condition. Immediately report any signs of infection. Record information such as the circumference of both lower legs, urine color, and urine volume at the same time every day, and report any significant changes to the doctor. Regularly monitor lower extremity blood flow status and report any signs of venous thrombosis for thrombolytic therapy.

(3) Diet management

Guide patients to consume 1.0g/kg of high-quality protein and 125–147kJ/kg of calories per day, following a low-fat and low-salt diet. For patients with chronic kidney damage, control protein intake to 0.65g/kg and sodium intake to 1–3g/d based on the degree of kidney damage. Choose unsaturated fatty acid foods for oil supplementation and avoid preserved foods. Supplement vitamins and adjust water intake based on the physiological state of NS patients.

(4) Relaxation exercises

Guide NS patients to lie in a supine position, place both upper limbs naturally on both sides of the body, take slow deep breaths, feel the muscles relaxing, maintain for 5 seconds, and then slowly relax the muscle groups, 20 minutes per session.

(5) Psychological counseling

Quantitatively analyze patients' emotional changes using SAS and SDS scales to provide psychological counseling. Use communication with friends and family, positive language induction by nurses, and other forms to alleviate negative emotions. Play soothing and melodious music, guide patients to take deep breaths following the music rhythm to stabilize their emotions. Choose a quiet room and guide patients to sit comfortably, entering a meditative state by following their breathing rhythm.

2.3.4. Follow-up after discharge

(1) When NS patients meet discharge criteria, prepare and distribute educational manuals. Conduct telephone and WeChat follow-ups on patients' medication adherence and patiently answer any questions or concerns they may have about NS.

(2) Strengthen dietary and exercise guidance for patients, providing extended services for NS patients.

(3)Regularly evaluate patients' emotional changes after discharge, communicate and engage with them in-depth, and provide psychological support.

2.4. Observation indicators

(1) Emotion and self-care ability

The anxiety and depression levels of patients with SAS, SDS, and NS are positively correlated, with critical values of 50 and 53 points, respectively. The self-care ability of patients with ESCA and NS is positively correlated, ranging from 0–172 points.

(2) Compliance

If NS patients follow medical advice, take medication, and undergo follow-up examinations without stopping or missing medication, they are considered compliant. If NS patients occasionally miss medication, they are considered basically compliant. If NS patients frequently miss medication, they are considered non-compliant.

(3) Complications

Record malnutrition, infection, and deep vein thrombosis.

2.5. Statistical research

Data was processed using SPSS 23.0. Count data was recorded as percentages and tested using Chi-square (X^2) test. Measurement data was recorded as mean ± standard deviation(s) and tested using t-test. $P < 0.05$ indicates a statistically significant difference.

3. Results

3.1. Emotion and self-care ability

After nursing intervention, the observation group had lower SAS and SDS scores compared to the control group, and higher ESCA scores. The differences were statistically significant ($P < 0.05$). See **Table 1** for details.

Table 1. Comparison of scores for emotion and self-care ability ($\overline{X} \pm s$)

Group	SAS(score)		SDS(score)		ESCA(score)	
	Before nursing	After nursing	Before nursing	After nursing	Before nursing	After nursing
Observation group (n = 30)	58.29 ± 2.41	33.26 ± 1.82	57.69 ± 2.42	34.18 ± 1.88	85.19 ± 3.69	129.25 ± 4.68
Control group (n = 30)	58.31 ± 2.39	46.29 ± 1.96	57.71 ± 2.44	46.33 ± 2.02	85.17 ± 3.71	114.47 ± 4.06
t	0.0323	26.6827	0.0319	24.1161	0.0323	26.6827
P	0.9744	0.0000	0.9747	0.0000	0.9744	0.0000

3.2. Compliance

The compliance of NS patients in the observation group was higher than that in the control group ($P < 0.05$). See **Table 2** for details.

Table 2. Comparison of compliance among NS patients (n,%)

Group	Compliance	Basic compliance	Non-compliance	Compliance rate
Observation group(n = 30)	19(63.33)	10(33.33)	1(3.33)	29(96.67)
Control group(n = 30)	12(40.00)	12(40.00)	6(20.00)	24(80.00)
X^2	-	-	-	4.0431
P	-	-	-	0.0444

3.3. Complications

The complication rate of NS in the observation group was lower than that in the control group ($P < 0.05$). See **Table 3** for details.

Table 3. Comparison of complications among NS patients (n,%)

Group	Malnutrition	Infection	Deep venous thrombosis	Incidence rate
Observation group (n = 30)	1(3.33)	0(0.00)	0(0.00)	1(3.33)
Control group(n = 30)	3(10.00)	2(6.67)	1(3.33)	6(20.00)
X^2	-	-	-	4.0431
P	-	-	-	0.0444

4. Discussion

Nephrotic syndrome (NS) is not an independent disease but a pathological condition induced by various kidney diseases. It can damage the glomerular filtration membrane of patients, manifesting as increased proteinuria, elevated blood lipids, edema, etc. [5]. NS has a high incidence rate and complex diagnosis and treatment methods, and can be complicated by venous thrombosis, infection, renal failure, and other complications, requiring nursing intervention during treatment. Routine nursing provides regular services for NS conditions, but it is not effective in reducing NS complications [6]. Rehabilitation nursing based on the mind mapping model has advantages in terms of conditioning and logic, which can highlight the focus of clinical nursing, thereby improving nursing efficiency and quality. Combined with psychological nursing, it emphasizes patients' emotional fluctuations and can improve the compliance of NS patients [7]. In addition, implementing rehabilitation nursing based on the mind mapping model combined with psychological intervention can ensure the orderly progress of various nursing tasks, highlight nursing priorities, reduce nursing omissions, and thus enhance the comprehensiveness, scientificity, and pertinence of clinical services. Furthermore, creating a nursing structure diagram, summarizing recent nursing defects, and addressing nursing issues can continuously improve the quality of NS nursing [8].

Based on the data analysis in this article, the observation group had lower SAS and SDS scores compared to the control group, and higher ESCA scores ($P < 0.05$). The reason for this is that during the nursing period, a mind mapping framework was developed, a nursing team was created, and the key nursing content in the framework was refined, which could enhance the quality of nursing. In addition, during the treatment of NS patients, psychological intervention was integrated into various stages of hospitalization, including admission, inpatient care, and discharge. Patients were advised to seek support and guidance from their families, which could alleviate their psychological burden and enable them to actively face the disease. Deep communication, care, and support from family members could eliminate patients' psychological burden and motivate them to actively combat the disease.

Furthermore, during mind mapping nursing, emphasis was placed on lifestyle guidance, complication management, and medication guidance, enabling patients to actively participate in various nursing processes and improving their self-care abilities [9]. Another set of data indicated that the compliance of NS patients in the observation group was higher than that in the control group ($P < 0.05$), and the complication rate of NS in the observation group was lower than that in the control group ($P < 0.05$). The reason for this is that during mind mapping nursing, patients were guided to follow a scientific diet, which could reduce urinary protein excretion, stabilize renal function, and regulate micronutrient and water intake. These measures could alleviate patients'

edema symptoms and prevent complications [10]. Additionally, utilizing diverse forms of education and Q&A sessions such as WeChat, educational manuals, and seminars helped patients understand their own diseases and improved their compliance.

5. Conclusion

In summary, NS patients receiving rehabilitation nursing based on the mind mapping model combined with psychological intervention can improve their compliance, reduce the risk of complications, stabilize their emotions, and enhance their self-care abilities. This approach has significant value for promotion.

Disclosure statement

The authors declare no conflict of interest.

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