

The Impact of Continuous Rehabilitation Nursing on Patients' Compliance Behavior and Medication Adherence after Discharge from Cardiovascular and Cerebrovascular Diseases

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Abstract: *Objective:* To explore the impact of continuous rehabilitation nursing on post-discharge compliance behavior and medication adherence in patients with cardiovascular and cerebrovascular diseases. *Methods:* A retrospective analysis was conducted on the data of 120 post-discharge patients with cardiovascular and cerebrovascular diseases collected in our hospital from January 2024 to June 2025. The patients were divided into a control group (conventional discharge nursing) and an observation group (continuous rehabilitation nursing) based on different nursing methods, with 60 patients in each group. Both groups received nursing care for 6 months. The post-discharge compliance behavior, medication adherence, and quality of life were compared between the two groups. *Results:* The post-discharge compliance behavior score in the observation group was higher than that in the control group ($p < 0.05$). The score for treatment adherence following discharge was higher in the observation group than in the control group ($p < 0.05$). The score for quality of life following discharge was higher in the observation group than in the control group ($p < 0.05$). *Conclusion:* Ongoing rehabilitation support can improve treatment adherence among patients with cardiovascular and cerebrovascular diseases following discharge from hospital, increase their adherence to medication, and improve their quality of life.

Keywords: Cardiovascular and cerebrovascular diseases; Continuous rehabilitation nursing; Compliance with medical advice; Medication adherence

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1. Introduction

Cardiovascular and cerebrovascular diseases are the leading chronic conditions threatening public health and are characterized by a high incidence, a high rate of disability, a high rate of recurrence, and a high mortality rate^[1]. Although hospitalization allows the disease to be effectively controlled, long-term management following discharge remains essential to prevent relapses and improve the prognosis. However, clinical practice shows that most patients, following discharge, demonstrate poor adherence to medical prescriptions and insufficient therapeutic compliance, which often leads

to poor disease control and a readmission rate that remains high^[2]. Traditional care models typically provide care only during hospitalization; the health education and treatment advice offered at the time of discharge are very limited, and there is a lack of systematic follow-up and ongoing intervention after discharge. Therefore, the development of an effective outpatient care model is essential for patients' long-term health. Continuous rehabilitation care is a systematic approach that extends care services from the hospital to the patient's home and the community, with the aim of providing continuous and comprehensive care through regular follow-ups, health education, and rehabilitation guidance following discharge^[3]. Currently, research on continuous rehabilitation care for patients discharged with cardiovascular and cerebrovascular diseases in China is still in its early stages. In view of this, the present study aims to explore the impact of continuous rehabilitation care on adherence to medical prescriptions and medication-taking after discharge, as described below.

2. Materials and methods

2.1. General information

A retrospective analysis was conducted on the data of 120 discharged patients with cardiovascular and cerebrovascular diseases collected in our hospital from January 2024 to June 2025. These patients were divided into a control group and an observation group based on different nursing methods, with 60 patients in each group. The control group included 34 males and 26 females, aged 45 to 73 years, with an average age of (61.24 ± 8.36) years. There were 22 cases of coronary heart disease, 18 cases of cerebral infarction, 6 cases of hypertension, and 4 cases of other conditions. The observation group included 32 males and 28 females, aged 43 to 75 years, with an average age of (62.15 ± 8.72) years. There were 24 cases of coronary heart disease, 16 cases of cerebral infarction, 14 cases of hypertension, and 6 cases of other conditions. No statistically significant difference was observed in the general characteristics between the two groups ($p > 0.05$).

2.1.1. Inclusion criteria

- (1) Diagnosed with cerebrovascular and cardiovascular diseases according to diagnostic criteria through pathology and imaging;
- (2) Aged 43–75 years;
- (3) Discharged after stabilizing their condition;
- (4) Conscious with normal cognitive and communication abilities;
- (5) Complete clinical data.

2.1.2. Exclusion criteria

- (1) Patients with severe hepatic and renal insufficiency;
- (2) Patients with malignant tumors;
- (3) Patients with cognitive dysfunction or mental illness;
- (4) Patients with incomplete clinical data.

2.2. Method

The control group received routine discharge nursing care. Before discharge, nurses provided patients with routine discharge instructions, including education on disease-related knowledge, medication guidance, dietary and exercise recommendations, and informed them of the follow-up appointment time. They were also given a discharge instruction manual. After discharge, patients were no longer actively followed up, and nursing services were only provided when patients actively inquired or had follow-up appointments.

The observation group received continuous rehabilitation nursing care based on the control group.

2.2.1. Establishment of a continuous rehabilitation nursing team

The team was led by the head nurses of the cardiovascular medicine department and the neurology department, and included nurses, rehabilitation therapists, dietitians, etc., all of whom had received specialized training and passed the relevant examinations before participating in this study.

2.2.2. Pre-discharge assessment and plan development

Three days before discharge, a comprehensive assessment was conducted on the patients. Based on the assessment results, the nurses, patients, and their families jointly developed an individualized continuous rehabilitation nursing plan, clarifying the rehabilitation goals, nursing measures, and follow-up schedule.

2.2.3. Post-discharge tertiary prevention health education

In response to the long-term management needs of patients with cardiovascular and cerebrovascular diseases after discharge, the nursing team conducted systematic health education centered around the core content of tertiary prevention.

(1) Instructions on the use of medication

Nursing staff should explain in detail the effectiveness of the medication, the times at which it should be taken, and how to recognize the most common side effects, emphasizing the importance of strictly adhering to medical prescriptions over the long term and warning the patient not to increase or reduce the dose or stop treatment on their own initiative

(2) Dietary management

Patients are advised to follow a diet low in salt, fat and cholesterol and rich in fiber, limiting daily salt intake to less than 5 grams. It is recommended to reduce consumption of offal, fatty meats and fried foods, increasing the proportion of fresh vegetables, fruit and whole grains, maintaining adequate fluid intake and avoiding overeating. It is also recommended that carbohydrate intake be strictly controlled.

(3) Daily life

Patients are advised to maintain a routine, ensure 7–8 hours of sleep per day, avoid staying up late and excessive tiredness, stop smoking and limit alcohol consumption, whilst striving to maintain a stable emotional state. The temperature of bath water should not be too high, and bath time should be controlled within 15 minutes.

(4) Exercise rehabilitation

Based on the actual condition of the patients, individualized exercise plans were developed, recommending walking, tai chi, baduanjin, etc. The exercise intensity should be such that the patient slightly sweats without obvious chest tightness or shortness of breath. The exercise duration should be 20–40 minutes per session, 3–5 times per week, and warm-up and cool-down activities should be performed before and after exercise.

(5) Follow-up visits

Patients were clearly informed that they needed to return to the hospital regularly for physiological index reexaminations after discharge. If symptoms such as chest pain, worsening chest tightness, slurred speech, and limb weakness occurred, they should seek immediate medical attention. Nurses needed to remind patients to return for follow-up visits two days in advance by phone to ensure continuous medical care. During follow-up visits, nurses could use various methods such as oral explanations, graphic manuals, and video demonstrations to strengthen patients' health awareness.

2.2.4. Psychological support and social support

Nurses regularly assessed the psychological state of patients, provided psychological counseling to those with anxiety or depression, referred them to psychological consultants when necessary, and encouraged family members to participate in the care process to provide emotional support. Both groups were cared for for 6 months.

2.3. Observation indicators

(1) Compliance behavior

Before and after nursing care, a self-designed compliance behavior questionnaire was used, covering regular medication, reasonable diet, moderate exercise, and regular follow-up. The total score ranges from 0 to 100, with a higher score indicating better compliance behavior.

(2) Medication adherence

Before and after nursing care, the Morisky Medication Adherence Scale is used, with a total score ranging from 0 to 8. A higher score indicates better medication adherence.

(3) Quality of life

Before and after nursing care, the World Health Organization Quality of Life Assessment Schedule-Brevity (WHOQOL-BREF) was used, with a total score ranging from 0 to 100. A higher score indicates a better quality of life.

2.4. Statistical processing

Using SPSS 27.0 statistical software, data conforming to a normal distribution in measurement data are represented by ($\bar{x} \pm s$) and tested using a *t*-test; enumeration data are represented by case [n, (%)] and tested using a χ^2 test. $p < 0.05$ indicates statistical significance.

3. Results

3.1. Comparison of compliance behaviors between the two groups

The observation group had a higher score in terms of compliance behavior after nursing compared to the control group ($p < 0.05$). See Table 1.

Table 1. Comparison of compliance behaviors between the two groups ($\bar{x} \pm s$, points)

Group	Countdown	Before nursing	Post-care
Observation group	60	66.78 ± 7.22	88.62 ± 6.35
Control group	60	67.43 ± 7.26	76.18 ± 7.41
<i>t</i>	-	0.492	9.874
<i>p</i>	-	0.624	< 0.001

3.2. Comparison of medication adherence between the two groups

The medication adherence score of the observation group after nursing was higher than that of the control group ($p < 0.05$). See Table 2.

Table 2. Comparison of medication adherence between the two groups ($\bar{x} \pm s$, points)

Group	Countdown	Before nursing	Post-care
Observation group	60	3.67 ± 1.09	7.02 ± 0.68
Control group	60	3.42 ± 1.05	5.83 ± 1.12
<i>t</i>	-	1.280	7.035
<i>p</i>	-	0.203	< 0.001

3.3. Comparison of quality of life between the two groups

The quality of life scores for the observation group after nursing care were higher than those for the control group ($p < 0.05$).

0.05). See **Table 3**.

Table 3. Comparison of quality of life between the two groups ($\bar{x} \pm s$, points)

Group	Countdown	Before nursing	Post-care
Observation group	60	61.75 $\pm$ 7.86	78.56 $\pm$ 7.23
Control group	60	60.99 $\pm$ 7.79	69.34 $\pm$ 7.17
<i>t</i>	-	0.532	7.014
<i>p</i>	-	0.596	< 0.001

4. Discussion

In daily life, most patients with cardiovascular and cerebrovascular diseases often face challenges after discharge, including decreased medication adherence, difficulty in adjusting lifestyle, and increased risk of recurrence ^[4]. Effective nursing care enables close monitoring of the patient's condition, early detection of any abnormalities, and the implementation of appropriate interventions, which helps to reduce readmission rates. Furthermore, standardized treatment guidelines, monitoring of diet and physical activity, as well as psychological support, help patients adopt healthy lifestyles, improve long-term prognosis, enhance quality of life, and alleviate the burden on families and society.

A retrospective analysis of patients' medical records revealed that, following the nursing intervention, the adherence score in the observation group was significantly higher than in the control group ($P < 0.05$), in line with the findings of the study by Xing Yong et al. ^[5]. The reason may lie in the fact that, during the process of continuous rehabilitation care, patients received ongoing training in disease management through regular follow-ups and online classes, which strengthened their confidence in their health, increased awareness of the risk of disease relapse, and deepened their understanding of the benefits of adhering to medical prescriptions, thereby establishing and consolidating healthy behaviors. Furthermore, by combining telephone follow-ups, home visits, and outpatient check-ups, healthcare staff were able to monitor patients' behavior after discharge in a timely manner and promptly correct behaviors that did not comply with medical prescriptions, making the nursing intervention more targeted and more readily acceptable, thereby improving patients' acceptance and willingness to follow nursing advice. Following the nursing intervention, the score for treatment adherence in the observation group was significantly higher than in the control group ($p < 0.05$), in line with the findings of Hong Wei's study ^[6]. Patients with cardiovascular and cerebrovascular diseases often require long-term pharmacological treatment with various medications, including antiplatelet agents, antihypertensives, and lipid-lowering drugs. The complexity of the treatment regimen often leads to a sense of resistance in patients, which negatively impacts treatment adherence. However, throughout the process of ongoing rehabilitation care, nursing staff maintain treatment records, periodically check patients' adherence, and explain in detail the mechanisms of action of the drugs, helping patients to understand the therapeutic objectives and the importance of each medication. This reinforces patients' awareness of the need for drug therapy, significantly improving their adherence. Furthermore, following the nursing intervention, the quality of life score in the observation group was significantly higher than that in the control group ($p < 0.05$). This improvement can be attributed to the fact that structured aerobic exercise carried out during the continuous rehabilitation period helped to improve cardiovascular function, whilst nutritional counseling helped to develop healthy eating habits, enabling effective control of blood pressure, lipid and blood glucose levels. These measures mitigated the negative impact of disease-related symptoms on daily life. Psychologically, patients often experience negative emotions that can seriously compromise their mental health. Regular psychological assessments and specific psychological counseling help patients to understand their condition correctly, correct irrational beliefs, and alleviate the psychological stress associated with the disease.

In summary, ongoing rehabilitation support helps to improve treatment adherence and quality of life among discharged patients with cardiovascular and cerebrovascular diseases, and therefore deserves to be promoted on a larger scale.

Disclosure statement

The authors declare no conflict of interest.

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