

# Study on the Clinical Effects of Neurology Nursing in the Rehabilitation Process of Stroke Patients

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**Abstract:** *Objective:* To explore the clinical effects of neurology nursing during the rehabilitation process of stroke patients. *Methods:* A total of 80 inpatients with stroke, admitted between July 2023 and July 2024, were selected for the study. They were randomly divided into two groups of 40 patients each. The control group received conventional nursing care, while the study group was provided with neurology nursing. The nursing outcomes of the two groups were compared in terms of: (1) rehabilitation progress, (2) nursing satisfaction, (3) psychological status, and (4) self-care ability. *Results:* The nursing efficacy and satisfaction rates in the study group were significantly higher than those in the control group ( $P < 0.05$ ). Pre-intervention psychological scores showed no significant differences between the two groups ( $P > 0.05$ ). Post-intervention, negative emotions in both groups were alleviated, with the study group showing greater improvement compared to the control group ( $P < 0.05$ ). Additionally, the self-care ability scores of the study group were significantly higher than those of the control group ( $P < 0.05$ ). *Conclusion:* Neurology nursing during the rehabilitation process of stroke patients demonstrated ideal clinical effects, positively contributing to patient recovery, alleviating negative psychological states, and proving beneficial for promotion.

**Keywords:** Neurology nursing; Stroke; Rehabilitation

**Online publication:** February 14, 2025

## 1. Introduction

Stroke, also known as ischemic cerebrovascular accident, is a type of cerebrovascular circulation disorder characterized by ischemic necrosis and softening of localized tissues due to ischemia and hypoxia. Clinically, it manifests as hemiplegia, aphasia, and sensory disturbances, and in severe cases, it can be life-threatening<sup>[1]</sup>. In recent years, stroke

has emerged as a major disease threatening human health, characterized by high recurrence, high disability, and high mortality rates, as well as numerous complications. Even with effective treatment, residual sequelae often affect the patient's quality of life. Therefore, clinical management during the treatment stage should focus on improving neurological deficits and actively implementing nursing interventions to accelerate the recovery process.

Clinical studies have found that neurology nursing, with its emphasis on psychological therapies, can alleviate patients' negative emotions, help build treatment confidence, and foster a positive mindset for treatment cooperation<sup>[2,3]</sup>. Additionally, daily life guidance and interventions, such as dietary and exercise management, play a crucial role in promoting recovery during the rehabilitation of stroke patients. This study included 80 stroke patients treated at the Affiliated Hospital of Hebei University in recent years to evaluate the clinical application and effects of neurology nursing.

## **2. Materials and methods**

### **2.1. General information**

A retrospective analysis was conducted on 80 stroke patients admitted to our department between July 2023 and July 2024. The patients were randomly divided into two groups using a random number table: a control group of 40 patients (24 males and 16 females, aged 49–73 years, with an average age of  $58.65 \pm 5.08$  years) and a study group of 40 patients (14 males and 26 females, aged 48–73 years, with an average age of  $58.33 \pm 5.06$  years). Disease severity in the control group included 8 mild cases, 22 moderate cases, and 10 severe cases, while the study group had 7 mild cases, 24 moderate cases, and 9 severe cases. There were no statistically significant differences between the two groups in terms of gender, age, or disease severity ( $P > 0.05$ ), making them comparable for study purposes. The study was approved by the hospital ethics committee.

**Inclusion criteria:** Patients were included if they met the diagnostic criteria for stroke through cranial CT and other examinations, were first-time stroke patients, had stable vital signs, and provided informed consent along with their families.

**Exclusion criteria:** Patients were excluded if they had malignant tumors, functional abnormalities in major organs (heart, liver, kidneys), severe psychiatric disorders, cranial trauma, incomplete or inaccurate clinical data, or withdrew from the study midway.

### **2.2. Methods**

#### **2.2.1. Control group**

The control group received conventional nursing interventions, including guidance on medication as per doctor's orders, monitoring recovery, advising on daily habits, closely observing the progression of the disease, and reporting any changes to the physician promptly.

#### **2.2.2. Study group**

In addition to conventional care, the study group received neurology nursing interventions, including:

- (1) Psychological rehabilitation intervention: Given the sudden onset of stroke, which significantly disrupts patients' daily lives and causes fear and anxiety, nursing staff guided patients to understand the pathogenesis of stroke, communicated effectively with them, and provided psychological counseling to reduce mental stress. Patients were encouraged to actively cooperate with clinical treatments<sup>[4]</sup>.

- (2) Rehabilitation training: Stroke-induced vascular blockage or rupture often compresses nerves, causing motor impairments. Following medication, nurses provided individualized guidance for effective motor recovery exercises, such as joint and limb activity training after stabilization, as well as practicing sitting and walking to enhance blood circulation and expedite recovery <sup>[5]</sup>.
- (3) Complication management: To prevent complications such as stress ulcers, nurses regularly monitor patients' oral hygiene, gastric fluid, and stool color to ensure safety <sup>[6]</sup>. Skincare was emphasized to prevent pressure ulcers through regular position changes while maintaining clear airways and providing oral hygiene education for families to prevent infections.
- (4) Dietary guidance: Nurses developed individualized dietary plans based on patient preferences, ensuring balanced nutrition while avoiding high salt and cholesterol intake. Patients were advised to eat small, frequent meals, avoid overeating, and refrain from consuming coffee, strong tea, or spicy foods. Increased water intake was also encouraged.
- (5) Daily living guidance: Patients were trained in basic self-care activities such as washing, toileting, dressing, and eating. Nursing staff adjusted training intensity and duration according to patient tolerance, ensuring moderate exercise. Light music was suggested at night to aid sleep quality, facilitating recovery <sup>[7]</sup>.

### 2.3. Observation indicators

- (1) Rehabilitation effectiveness: Patients were categorized based on recovery outcomes into three levels:
  - (a) Cured: Fully independent in daily life with clear thinking.
  - (b) Basically cured: Able to move independently with aids and retained speech functions.
  - (c) Not cured: Dependent in daily life with unclear speech and impaired cognition.
  - (d) Effectiveness rate =  $(\text{Cured} + \text{Basically Cured}) / \text{Total cases} \times 100\%$ .
- (2) Nursing satisfaction: Satisfaction was assessed through a questionnaire (total score: 100). Patients were categorized as fully satisfied ( $\geq 90$  points), satisfied (60–89 points), or dissatisfied ( $< 60$  points). Satisfaction rate =  $(\text{Fully Satisfied} + \text{Satisfied}) / \text{Total cases} \times 100\%$ .
- (3) Psychological state: Psychological evaluations were conducted before and after intervention using the Self-Rating Anxiety Scale (SAS, threshold: 50 points) <sup>[8]</sup> and Self-Rating Depression Scale (SDS, threshold: 53 points). Higher scores indicated more severe negative emotions.
- (4) Self-care ability: Self-care ability was evaluated using the Exercise of Self-Care Agency (ESCA) scale, assessing self-concept (0–36 points), responsibility (0–32 points), self-care skills (0–48 points), and health knowledge (0–56 points). Higher scores indicated better self-care ability.

### 2.4. Statistical analysis

Statistical analysis was performed using SPSS 23.0 software. Measurement data were expressed as mean  $\pm$  standard deviation (SD), and group comparisons were conducted using *t*-tests. Count data were expressed as [*n* (%)] and compared using  $\chi^2$  tests. Statistical significance was set at  $P < 0.05$ .

## 3. Results

### 3.1. Comparison of rehabilitation outcomes between the two groups

After nursing interventions, the effective nursing rate of the study group was significantly higher than that of

the control group, with statistically significant differences ( $P < 0.05$ ). The number of cured and basically cured patients in the study group was noticeably higher, while the number of uncured patients was lower than in the control group. See **Table 1**.

**Table 1.** Comparison of effective nursing rates between the two groups [ $n$  (%)]

Group	$n$	Cured	Basically cured	Uncured	Effective rate
Study group	40	27 (67.50)	12 (30.00)	1 (2.50)	39 (97.50)
Control group	40	22 (55.00)	11 (27.50)	7 (17.50)	33 (82.50)
$\chi^2$	-	-	-	-	4.437
$P$	-	-	-	-	< 0.05

### 3.2. Comparison of nursing satisfaction between the two groups

The evaluation of neurology nursing by patients in the study group was higher than the evaluation of conventional nursing by the control group. The nursing satisfaction in the study group was significantly higher, with statistical significance ( $P < 0.05$ ). See **Table 2**.

**Table 2.** Comparison of nursing satisfaction between the two groups [ $n$  (%)]

Group	$n$	Fully satisfied	Satisfied	Dissatisfied	Satisfaction rate
Study group	40	27 (67.50)	13 (32.50)	0 (0.00)	40 (100.0)
Control group	40	21 (52.50)	12 (30.00)	7 (17.50)	33 (82.50)
$\chi^2$	-	-	-	-	6.709
$P$	-	-	-	-	< 0.05

### 3.3. Comparison of psychological states between the two groups

Before the intervention, both groups showed negative emotions with no significant difference in SAS and SDS scores ( $P > 0.05$ ). After the intervention, the psychological state of both groups improved significantly, with the study group showing better results compared to the control group ( $P < 0.05$ ). See **Table 3**.

**Table 3.** Comparison of psychological state scores between the two groups before and after the intervention (mean  $\pm$  SD, points)

Group	$n$	SAS		SDS	
		Before	After	Before	After
Study group	40	66.16 $\pm$ 4.09	40.75 $\pm$ 3.41	63.19 $\pm$ 7.04	48.24 $\pm$ 8.82
Control group	40	66.93 $\pm$ 4.07	47.16 $\pm$ 3.67	63.48 $\pm$ 7.82	53.67 $\pm$ 8.56
$t$	-	0.931	8.562	0.334	9.242
$P$	-	> 0.05	< 0.05	> 0.05	< 0.05

### 3.4. Comparison of self-care ability between the two groups

The study group scored significantly higher than the control group in self-concept, responsibility, self-care skills,

and health knowledge mastery, with statistically significant differences ( $P < 0.05$ ). See **Table 4**.

**Table 4.** Comparison of self-care ability scores between the two groups before and after the intervention (mean  $\pm$  SD, points)

Group	<i>n</i>	Self-concept	Responsibility	Self-care skills	Health knowledge mastery
Study group	40	28.73 $\pm$ 2.65	23.68 $\pm$ 2.26	38.92 $\pm$ 3.51	46.96 $\pm$ 3.16
Control group	40	22.04 $\pm$ 2.87	20.39 $\pm$ 2.12	34.37 $\pm$ 3.32	40.11 $\pm$ 3.65
<i>t</i>	-	4.819	4.593	6.104	5.155
<i>P</i>	-	< 0.05	< 0.05	< 0.05	< 0.05

## 4. Discussion

With the development of the socioeconomic environment and the improvement of living standards, people's lifestyles have undergone significant changes. The accelerated pace of modern life, increased work pressure, and the influence of unhealthy habits have collectively heightened the risk of cerebral infarction. Additionally, as the aging population continues to grow, elderly individuals, who are at high risk of cerebral infarction, face serious threats to their health. This condition is characterized by high incidence, high disability and mortality rates, high recurrence rates, and numerous complications, making it one of the most common chronic cerebrovascular disorders.

Cerebral infarction, caused by atherosclerosis, results in reduced cerebral blood flow or interrupted blood supply, leading to brain ischemia and hypoxia that impair neurological function. Clinically, patients often present with symptoms such as limb numbness and facial asymmetry. Even after receiving treatment, residual neurological damage often leads to sequelae, further impacting the patient's quality of life. Therefore, during clinical treatment, proactive measures are necessary to alleviate symptoms, enhance the effectiveness of adjunct therapies, and expedite recovery. Conventional nursing interventions have traditionally focused on monitoring and managing changes in the patient's condition and addressing abnormalities promptly. However, this approach often results in slower recovery rates and suboptimal outcomes.

Neurology nursing, an emerging clinical nursing model in recent years, employs a series of intervention methods to promote recovery through multiple aspects<sup>[9]</sup>. The data in this study show that the study group exhibited higher overall nursing efficacy, satisfaction, and self-care ability compared to the control group. Additionally, post-intervention psychological scores in the study group were significantly better than those in the control group ( $P < 0.05$ ). These findings suggest that, compared to conventional nursing, neurology nursing helps patients build confidence in their treatment. Patients suffering from prolonged illness often experience feelings of depression and pessimism, leading to poor treatment adherence and slower recovery. Neurology nursing emphasizes psychological therapy, wherein nurses provide psychological counseling, explaining the causes of cerebral infarction and rehabilitation methods to help patients adopt a positive attitude toward their condition. This approach effectively enhances patients' psychological resilience.

Furthermore, dietary guidance provided by nurses reduces the impact of food on the disease, while rehabilitation training and physical therapy improve blood circulation and restore limb function, further accelerating recovery.

## 5. Conclusion

In conclusion, neurology nursing demonstrates the best outcomes in the rehabilitation of patients with cerebral infarction. It plays a positive role in accelerating recovery and alleviating symptoms, making it a clinical practice worthy of wider adoption.

## Funding

Baoding Science and Technology Bureau Project “Study on the Clinical Effects of Neurology Nursing in the Rehabilitation Process of Stroke Patients” (Project No. 2441ZF275)

## Disclosure statement

The authors declare no conflict of interest.

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