

# Effect of Rehabilitation Nursing on Blood Pressure Control and Quality of Life Among Elderly Patients with Hypertension in Primary Health Centers

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**Abstract:** *Objective:* To analyze the impact of rehabilitation nursing on blood pressure control and quality of life of elderly patients with hypertension in primary health centers. *Methods:* 82 elderly patients with hypertension were selected for data analysis in primary health centers from August 2024 to July 2025. They were divided into groups using the random number table method, with 41 patients in each group. The experimental group applied rehabilitation nursing, and the control group applied routine nursing. The data differences between the groups were compared. *Results:* Compared with the control group, the blood pressure of the experimental group was significantly lower after nursing, and the quality of life score after nursing was significantly higher,  $P < 0.05$ ; compared with the blood pressure and quality of life scores of the two groups before nursing,  $P > 0.05$ . *Conclusion:* The application of rehabilitation nursing in primary care hospitals for elderly patients with hypertension can achieve satisfactory blood pressure control effects and quality of life.

**Keywords:** Rehabilitation nursing; Primary health center; Elderly; Hypertension; Blood pressure control effect; Quality of life

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## 1. Introduction

The incidence of hypertension in the elderly is high, and the patient's vascular function deteriorates and blood pressure stability is poor. If blood pressure is not effectively controlled for a long time, it is easy to induce cardiovascular, cerebrovascular, renal and other multi-organ complications<sup>[1]</sup>. The patient's life safety is easily seriously threatened and the quality of life is significantly reduced. The main battlefield for chronic disease management of elderly patients with hypertension in the jurisdiction is primary health centers.

Routine care lacks integrated rehabilitation interventions such as diet, exercise, and psychology. Patients' bad living habits cannot be corrected, medication compliance is poor, and the patient's blood pressure control compliance rate is low<sup>[2]</sup>. Clinical research on rehabilitation nursing can carry out all-round and continuous comprehensive intervention based on the physical and mental characteristics of elderly patients, and make up for the shortcomings of routine care at the grassroots level<sup>[3]</sup>. This study selected 82 patients to conduct a controlled trial to analyze the impact of rehabilitation nursing on elderly patients with hypertension in primary health centers on blood pressure control and quality of life.

## 2. Materials and methods

### 2.1. Information

82 elderly patients with hypertension were selected for data analysis in primary health centers from August 2024 to July 2025. They were divided into groups using a random number table, with 41 patients in each group. The experimental group included 21/20 men and women, aged 62-85 ( $75.25 \pm 4.45$ ) years old, and the control group included 22/19 men and women, aged 61-84 ( $75.21 \pm 4.44$ ) years old. Comparing the two sets of data,  $P > 0.05$  was obtained.

Inclusion criteria: consistent with clinical diagnostic criteria; long-term residence in this jurisdiction; clear consciousness and normal cognitive function; voluntary participation and informed consent.

Exclusion criteria: secondary hypertension; combined with severe heart, liver, kidney and other organ failure, malignant tumors, sequelae of severe cerebrovascular accidents; mental illness, Alzheimer's disease; acute myocardial infarction, cerebral hemorrhage, cerebral infarction and other serious cardiovascular and cerebrovascular emergencies in the past 3 months, or physical disability that prevents rehabilitation exercises; participating in other similar chronic disease nursing intervention studies during the same period or voluntarily withdrawing midway.

### 2.2. Method

The control group applied routine care: nurses should measure and record the patients' blood pressure values every day, verbally inform the patients of the taking time and dosage of various antihypertensive drugs, instruct the patients to maintain a low-salt and low-fat diet, remind the patients to avoid intense emotions, provide symptomatic support to the patients in a timely manner if they have dizziness, chest tightness, etc., and inquire about the patient's condition during follow-up visits after discharge.

The experimental group applied rehabilitation care: (1) Medication rehabilitation intervention: An exclusive medication rehabilitation file was constructed for each patient, which recorded the names, specifications, daily taking periods, medication contraindications, and adverse drug reactions of all the patients' antihypertensive drugs. Nurses should customize a time-based medication reminder form based on the patient's work and rest conditions, and give the patient and their family a printed paper card for retention. If the patient is under observation in the hospital, regular face-to-face medication supervision will be carried out every morning and evening. Regular reminders will be provided to patients at home through telephone and WeChat channels, and the remaining medication amount will be checked every week. During each nursing session, patients are asked one by one whether they have dizziness, lower limb edema, dry cough, and other drug discomforts, and the feedback content is entered in the file to ensure its completeness. The patient's medication files are organized in a unified manner every month, and patients who miss doses,

reduce medication without authorization, or stop medication are marked, and a separate medication recovery follow-up account is constructed for them. (2) Dietary rehabilitation intervention: When formulating an individualized low-salt and low-fat rehabilitation meal plan for patients, refer to height, weight, basic blood pressure, and underlying diseases. Strictly define the patient's total daily salt intake, and uniformly inform the patient of the list of pickles, processed meat products, pickled foods, and sauces. When dividing soft food and ordinary meals, the patient's chewing ability and digestive function should be considered. Pair enough fresh vegetables and low-sugar fruits every day, and limit the frequency of intake of animal offal, fatty meat, fried foods, and desserts. One-on-one dietary guidance is provided to the patient once a week, and the patient's weekly dietary record is checked on-site to record the patient's daily bad eating behavior. Distribute meal matching manuals to patients' family members, instructing patients' family members to adjust home cooking methods uniformly, use steaming, boiling, and stewing methods to prepare food, and be careful not to add additional high-salt seasonings such as pickles, oyster sauce, and bean paste. (3) Exercise rehabilitation intervention: First, complete the basic assessment of the patient's cardiopulmonary and limb mobility. The rehabilitation exercise program is divided into mild and moderate levels based on the patient's age and blood pressure classification. Daily slow walking, shaking hands in place, and joint stretching are the mild program for 20 minutes/time. Tai Chi and Baduanjin training are added to the moderate program for 30 minutes/time. Pay attention to avoid exercising during the peak hours of blood pressure in the morning, and measure basal blood pressure before exercise. If the systolic blood pressure is  $> 160\text{mmHg}$ , rehabilitation exercise for the day needs to be suspended. The hospital carries out collective rehabilitation training for patients every Tuesday and Thursday. Nurses must standardize the patient's movement guidance throughout the process, record short standard exercise teaching videos for patients at home, and push them to the patients' families. They accompany patients to exercise every day, inquire about patients' exercise completion status by phone every week, and simultaneously record the patient's blood pressure changes after exercise. The patient has mild joint stiffness, and passive limb stretching exercises in bed are provided to the patient every day. (4) Psychological rehabilitation intervention: 10 minutes are reserved for each nursing communication to carry out psychological communication with the patient alone. A simple emotional self-evaluation form is used to evaluate the patient's mood once a week and record the patient's negative emotional expressions such as anxiety, irritability, and pessimism. We provide one-to-one psychological counseling for patients who live alone, are worried about complications for a long time, and are resistant to taking medications; we listen patiently to their complaints and simultaneously register the triggers of their mood swings. A rehabilitation communication group for elderly hypertensive patients in the hospital is established, and offline communication activities are carried out for patients every two weeks. Patients are arranged to share their daily care processes. Nurses are required to accompany and record the changes in the patients' mental state throughout the process. Synchronously linking the patient's family members to carry out daily communication for patients with persistently low mood, and disputes and negative verbal stimulation were significantly reduced. (5) Health education and rehabilitation management: Carry out hierarchical health education for patients by theme every month, including the pathogenesis of hypertension, blood pressure self-test methods, identification of complications, blood pressure control in four seasons, and key points for long-term rehabilitation of chronic diseases. Use graphic manuals, short videos, and real-life demonstrations to carry out health education for patients, adapting to the low cognitive characteristics of the elderly, increasing text size, and reducing professional terms. A practical teaching session is organized for

patients every month to provide step-by-step guidance on the use of home electronic sphygmomanometers and standardize operating steps such as sitting position, cuff binding, and measurement intervals. An online rehabilitation education group was established to push a brief chronic disease rehabilitation knowledge point to patients every day and conduct online Q&A every two weeks. (6) Continuous follow-up rehabilitation management: Develop two sets of follow-up procedures, involving the in-hospital rehabilitation period and the home-maintained rehabilitation period. Four rehabilitation indicators, including blood pressure, diet, exercise, and medication, are recorded for inpatients every day. Follow-up visits are conducted once a week in the first month after discharge, by telephone every two weeks from 2 to 6 months, and once a month after six months. During follow-up, the patient's blood pressure will be retested on site, the patient's medication, diet, and exercise implementation will be verified, the content of the rehabilitation file will be updated, and the patient's existing adverse rehabilitation behaviors will be corrected simultaneously. Every quarter, we organize the rehabilitation files of patients in a unified manner, summarize the implementation data of various interventions, and adjust the individualized rehabilitation care plan for the next stage.

### 2.3. Observation indicators

The blood pressure and quality of life scores of the two groups before and after care were compared and evaluated using the Comprehensive Quality of Life Assessment Questionnaire (GQOLI-74), which has 4 dimensions, 74 items, and a 5-level scoring method, ranging from 0 to 100. Higher scores indicate better quality of life.

### 2.4. Statistics

SPSS 28.0 software was used for data analysis. Counting and measurement data were expressed in the form of rate (%) and mean  $\pm$  standard deviation (SD).  $\chi^2$  and  $t$  tests were carried out, respectively.  $P < 0.05$  was statistically significant.

## 3. Results

Compared with the control group, the blood pressure of the experimental group was significantly lower after nursing, and the quality of life score after nursing was significantly higher,  $P < 0.05$ ; compared with the blood pressure and quality of life scores of the two groups before nursing,  $P > 0.05$ .

**Table 1.** Comparison of blood pressure (mmHg) between the two groups before and after care

| Group                       | Systolic blood pressure |                    | Diastolic blood pressure |                  |
|-----------------------------|-------------------------|--------------------|--------------------------|------------------|
|                             | Before care             | After care         | Before care              | After care       |
| Experimental group (n = 41) | 150.23 $\pm$ 12.44      | 129.27 $\pm$ 9.61  | 96.21 $\pm$ 9.99         | 82.88 $\pm$ 7.11 |
| Control group (n = 41)      | 151.11 $\pm$ 12.46      | 140.44 $\pm$ 10.23 | 97.95 $\pm$ 10.12        | 90.23 $\pm$ 7.61 |
| t                           | 0.3200                  | 5.0957             | 0.7835                   | 4.5189           |
| P                           | > 0.05                  | < 0.05             | > 0.05                   | < 0.05           |

**Table 2.** Comparison of quality of life scores (points) between the two groups before and after care

| Group                       | Psychological |              | Body         |              | Social Function |              | Material Life |              |
|-----------------------------|---------------|--------------|--------------|--------------|-----------------|--------------|---------------|--------------|
|                             | Before care   | After care   | Before care  | After care   | Before care     | After care   | Before care   | After care   |
| Experimental group (n = 41) | 55.06 ± 5.51  | 72.77 ± 6.22 | 55.17 ± 5.42 | 71.78 ± 6.23 | 57.07 ± 5.38    | 74.78 ± 6.86 | 56.62 ± 5.41  | 74.75 ± 6.71 |
| Control group (n = 41)      | 54.98 ± 5.41  | 64.67 ± 5.72 | 55.11 ± 5.38 | 62.68 ± 5.78 | 57.12 ± 5.45    | 65.67 ± 6.36 | 56.58 ± 5.34  | 64.67 ± 6.32 |
| <i>t</i>                    | 0.0663        | 6.1377       | 0.0503       | 6.8565       | 0.0418          | 6.2357       | 0.0337        | 7.0021       |
| <i>P</i>                    | >0.05         | <0.05        | > 0.05       | < 0.05       | > 0.05          | < 0.05       | > 0.05        | < 0.05       |

## 4. Discussion

Primary health centers can provide chronic disease management for elderly patients with hypertension in their jurisdiction. The content of routine care is one-sided and lacks systematicity. This study proposes the application of rehabilitation nursing in the care of elderly patients with hypertension at the primary level, which can improve the primary chronic disease care system.

The results of this study show that after intervention, the blood pressure of patients in the experimental group was significantly lower than that of the control group, and their quality of life scores in terms of psychological, physical, social functions and material life were significantly higher than those in the control group,  $P < 0.05$ . Analyze the reasons for the difference in efficacy in this study: First, rehabilitation nursing constructs an exclusive medication file for each patient<sup>[4]</sup>. When effectively solving the problems of missed doses and unauthorized discontinuation of medication due to memory loss in elderly patients, regular reminders, medication dosage verification, adverse reaction monitoring and other methods can be used to ensure that patients can stably exert the efficacy of the medication. Secondly, applying personalized dietary intervention for patients, strictly limiting the intake of high-salt and high-fat foods, formulating adapted recipes based on the patient's physical condition, and guiding the patient's family members to participate in the entire care process can significantly reduce the patient's blood pressure fluctuation triggers from the dietary source. During the patient's exercise intervention process, the hierarchical plan design is completed based on the patient's physical fitness<sup>[5]</sup>, which can effectively avoid the patient's morning blood pressure peak during exercise. It can not only effectively improve the vascular status and assist in lowering blood pressure, but also significantly ensure the patient's exercise safety and enhance the patient's physical quality. In order to carry out rehabilitation care for the negative emotions such as anxiety and pessimism that are prone to occur in elderly patients, it is necessary to add normalized psychological counseling and patient communication activities<sup>[6]</sup>, which can significantly relieve patients' psychological pressure and prevent patients from increasing their blood pressure due to severe mood swings. In nursing practice, diversified health education is also applied to popularize knowledge in a simple form, and patients' self-management ability is effectively improved<sup>[7]</sup>. At the same time, phased continuous follow-up is carried out for patients, hospitalization and home rehabilitation are connected, and nursing plans are dynamically adjusted to ensure the coherence and implementation of intervention measures<sup>[8]</sup>.

## 5. Conclusion

In summary, the application of rehabilitation nursing for elderly patients with hypertension in primary health centers has achieved satisfactory blood pressure control effects and quality of life, and is worthy of clinical promotion and application.

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## Disclosure statement

The author declares no conflict of interest.

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