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Analysis of the Effectiveness of Health Education and Health Promotion in Community Health Management and Intervention of Hypertension

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Abstract: *Objective:* To analyze the effect of health education and health promotion in community health management and intervention of hypertension. *Methods:* 58 community patients with hypertension were selected for data analysis in our hospital from May 2024 to April 2025. They were divided into groups using the random number table method, with 29 patients in each group. The experimental group applied routine nursing + health education and health promotion, 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 after nursing was significantly lower, the HPSMBRS score after nursing was significantly higher, the health knowledge awareness rate was significantly higher, and the medication compliance was significantly higher, $P < 0.05$; comparing the blood pressure and HPSMBRS score before nursing between the two groups, $P > 0.05$. *Conclusion:* The application of health education and health promotion in community health management and intervention of hypertension has ideal results.

Keywords: Health education; Health promotion; Community; Hypertension; Health management; Intervention effect

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1. Introduction

Hypertension is a high-incidence disease in the world. If it is not well controlled for a long time, patients will develop serious complications such as stroke, coronary heart disease, and renal failure, which will increase the medical burden on the patient's family and society. The first line of defense in the prevention and treatment of hypertension is the community. Scientific health management and intervention can play a role in controlling blood pressure and improving patient prognosis. Routine care is carried out for patients, and disease monitoring and basic medical guidance are carried out for patients [1], but it fails to systematically cultivate patients' health awareness and self-management abilities. Clinical research on health education and health promotion uses diversified intervention forms to help patients build correct health concepts and help patients master disease management skills. This study selected 58 patients to analyze the effect of health education and health promotion in community health management and intervention of hypertension.

2. Materials and methods

2.1. Information

From May 2024 to April 2025, 58 community patients with hypertension were selected for data analysis in our hospital and divided into groups using the random number table method, with 29 patients in each group. The experimental group consisted of 17/12 men and women, aged 44–79 (60.52 ± 5.25) years old, and the control group consisted of 16/13 men and women, aged 45–80 (60.54 ± 5.18) years old. Comparing the two sets of data, $P > 0.05$ was obtained.

Inclusion criteria: consistent with disease diagnostic criteria; living in this community for 6 months or more; voluntary participation, informed consent; clear consciousness, and basic communication and understanding abilities.

Exclusion criteria: severe heart, liver, kidney and other organ dysfunction; cognitive dysfunction, mental illness or language communication disorder; recent acute cardiovascular and cerebrovascular events; inability to cooperate to complete intervention and follow-up.

2.2. Method

The control group applies routine care, measuring patients' blood pressure every 2 weeks, recording changes in the patient's condition, providing medication guidance to the patient as directed by the doctor, informing the patient of the name, usage and dosage, and common adverse reactions of the drug, and conducting telephone follow-up visits for the patient every 1 month to understand the patient's condition control and provide simple answers to the patient's health questions. In addition, the nurse also distributes a basic brochure on the prevention and treatment of hypertension to the patient.

The experimental group applied routine care + health education and health promotion, adding the following to the intervention in the control group:

(1) Health knowledge lectures: Cardiovascular physicians and nutritionists were invited to hold special lectures for patients once a month, covering the causes of hypertension, risk factors, prevention and treatment of complications, reasonable diet, moderate exercise, medication specifications, blood pressure self-monitoring, etc. During the education period, PPT demonstrations, case analysis, on-site interactive Q&A, etc. were used, 60–90 minutes/time.

(2) Personalized health guidance: Complete the formulation of a personalized health education plan based on the patient's age, education level, disease course, blood pressure control and living habits, provide patients with one-on-one interviews, provide targeted guidance on the patient's diet structure and exercise plan, help patients form standardized medication behaviors, and guide patients to learn home blood pressure measurement methods, once/month or more, 30 min/time.

(3) WeChat platform management: Build a WeChat communication group and push 2–3 pieces of health knowledge every week, involving diet formulas, exercise videos, medication reminders, disease monitoring skills, etc., and set up a "health check-in" section to encourage patients to share their diet and exercise conditions. Medical staff are responsible for answering questions online, solving patients' questions in a timely manner, and strengthening interactivity.

(4) Family support intervention: The patient's family can actively participate in health education activities and explain in detail the key points of home care. The patient's family can help supervise the patient's medication and diet, accompany the patient in exercising, ensure that the patient's family has a good rehabilitation atmosphere, and significantly improve the patient's compliance with intervention.

(5) Health promotion activities: Offline health promotion activities are carried out once every quarter, such as "Healthy Eating Cooking Competition" and "Fun Games for Hypertensive Patients", etc. A reward mechanism is set up to stimulate patients' enthusiasm for participation and strengthen patients' healthy lifestyle concepts.

2.3. Observation indicators

(1) Compare the blood pressure of the two groups.

(2) Compare the HPSMBRS scores of the two groups. Use the Hypertensive Patient Self-Management Behavior Rating Scale (HPSMBRS) to evaluate, with 5 dimensions and scores ranging from 1 to 5. Higher scores indicate good self-management behavior.
(3) Compare the health knowledge awareness rates of the two groups. Use questionnaires.
(4) Compare the medication compliance of the two groups. Evaluated using the Morisky Medication Adherence Scale.

2.4. Statistics

Data calculation was completed with the statistical SPSS 28.0 software. Measurement data were described with mean ± standard deviation (SD), t test, and count data were described with %, χ^2 test, $P < 0.05$, statistically significant.

3. Results

Compared with the control group, the blood pressure of the experimental group was significantly lower after nursing, the HPSMBRS score was significantly higher after nursing, the health knowledge awareness rate was significantly higher, and the medication compliance was significantly higher, $P < 0.05$; comparing the blood pressure and HPSMBRS score before nursing between the two groups, $P > 0.05$.

Table 1. Comparison of blood pressure (mmHg) between two groups

Group	Systolic blood pressure		Diastolic blood pressure	
	Before care	After care	Before care	After care
Experimental group (n = 29)	159.2 ± 10.4	134.5 ± 8.1	97.1 ± 7.7	81.7 ± 6.1
Control group (n = 29)	158.6 ± 10.7	147.1 ± 9.4	96.4 ± 8.2	89.2 ± 6.6
t	0.2165	5.4683	0.3351	4.4940
P	> 0.05	< 0.05	> 0.05	< 0.05

Table 2. Comparison of HPSMBRS scores (points) between two groups

Group	Diet management		Sports management		Medication management	
	Before care	After care	Before care	After care	Before care	After care
Experimental group (n = 29)	12.1 ± 2.0	16.8 ± 2.3	11.6 ± 1.9	15.6 ± 2.1	12.3 ± 2.1	17.2 ± 2.2
Control group (n = 29)	12.0 ± 1.9	13.5 ± 2.0	11.4 ± 1.8	12.3 ± 1.7	12.2 ± 2.0	14.1 ± 1.9
t	0.1952	5.8305	0.4115	6.5774	0.1857	5.7429
P	> 0.05	< 0.05	> 0.05	< 0.05	> 0.05	< 0.05
Group	**Disease monitoring**		**Emotional management**		**Total score**	
	Before care	**After care**	**Before care**	**After care**	**Before care**	**After care**
Experimental group (n = 29)	10.4 ± 1.7	14.8 ± 2.0	11.1 ± 1.8	15.3 ± 2.2	57.5 ± 8.2	79.7 ± 8.5
Control group (n = 29)	10.2 ± 1.6	11.6 ± 1.5	10.9 ± 1.7	12.0 ± 1.6	56.7 ± 8.0	63.5 ± 7.8
t	0.4614	6.8930	0.4350	6.5328	0.3761	7.5621
P	> 0.05	< 0.05	> 0.05	< 0.05	> 0.05	< 0.05

Table 3. Comparison of health knowledge awareness rates between the two groups (%)

Group	Health knowledge awareness rate
Experimental group (n = 29)	28 (96.55)
Control group (n = 29)	21 (72.41)
χ^2	6.4444
P	< 0.05

Table 4. Comparison of medication compliance between the two groups (%)

Group	Medication adherence
Experimental group (n = 29)	27 (93.10)
Control group (n = 29)	21 (72.41)
χ^2	4.3500
P	< 0.05

4. Discussion

The main types of chronic non-communicable diseases include hypertension. If long-term control is not good, patients are prone to a variety of serious complications. In the prevention and control process, the key link is community health management. Clinical practice has confirmed [2-3] that routine care for patients with hypertension cannot meet the long-term disease control needs of patients. Therefore, this study proposes the use of health education and health promotion for patients. This study selected 58 community patients with hypertension to explore the application value of health education and health promotion.

The results of this study showed that after nursing, the systolic blood pressure (134.5 ± 8.1) mmHg and diastolic blood pressure (81.7 ± 6.1) mmHg of the experimental group were significantly lower than those of the control group, and the total HPSMBRS score (79.7 ± 8.5) score, health knowledge awareness rate (96.55%), and medication compliance (93.10%) were all significantly higher than those of the control group, $P < 0.05$. There was no significant difference in the indicators between the two groups before care ($P > 0.05$).

The core conclusion of this study is the difference in blood pressure control effects. The experimental group used multi-dimensional intervention to effectively reduce patients' blood pressure, used health knowledge lectures to help patients understand the dangers of hypertension and the importance of blood pressure control [4], ideologically helped patients build awareness of active intervention, carried out personalized health guidance for patients, and formulated diet and exercise plans based on individual patient differences to improve the feasibility of intervention. The WeChat platform's medication reminder function was used to reduce patients' missed doses and wrong doses, and with family support intervention [5], patients' blood pressure can be accurately controlled.

In terms of the HPSMBRS score, the scores of the five dimensions of diet management, exercise management, medication management, disease monitoring, and emotion management after nursing in the experimental group and the total score were significantly higher than those of the control group. Analysis of the reasons for the above results: The key to long-term disease control for patients with hypertension is self-management ability. The core method to improve self-management ability is systematic health education. By holding health knowledge lectures [6], PPT demonstrations,

case analysis, on-site interactions, and other forms are used to help patients intuitively master skills such as dietary matching, exercise skills, and blood pressure monitoring methods. Personalized one-to-one guidance can be used to help patients strengthen the training of patients' weak links, such as guiding elderly patients to use electronic blood pressure monitors correctly, providing answers to questions for patients with low education, helping patients understand medication instructions, and effectively improving patients' practical ability. Using the "Health Check-in" section of the WeChat communication group can stimulate patients' enthusiasm for participation. Patients can use diet and exercise sharing to supervise and encourage each other, and integrate health knowledge into practice in patients' offline health promotion activities. During the participation period, patients can consolidate the concept of healthy lifestyles and further strengthen their self-management behaviors [7]. In addition, the process of improving the score of the emotion management dimension involves explanations of psychological adjustment methods in health education and psychological support obtained from online Q&A by medical staff. The patient's emotional state is good, and the impact of sympathetic nerve excitement on blood pressure is significantly reduced, forming a virtuous cycle of improved self-management, improved blood pressure control, and optimized emotional state.

In terms of the awareness rate of health knowledge, the 96.55% awareness rate of the experimental group was much higher than that of the control group. Analysis of the reasons for the above results: This study holds a special lecture system every month to systematically explain knowledge related to hypertension to meet the professional knowledge needs of patients. The WeChat platform is used to promote health knowledge, dietary formulas, exercise videos and other content to patients every week. Send, patients can check and study at any time [8]. In personalized guidance for patients, medical staff can answer questions based on the patient's cognitive level and use easy-to-understand language. Patients' family members actively participate in health education activities, which can help patients remember health knowledge and jointly practice health concepts in family life, further improving the knowledge awareness rate.

The key to blood pressure control is the patient's high medication compliance. 93.10% of the experimental group's compliance was significantly higher than that of the control group. Analysis of the reasons for the above results: insufficient cognition, worry about adverse reactions, forgetting to take medication and other factors can lead to poor medication compliance among hypertensive patients. In this study, a health knowledge lecture was constructed to provide detailed information on drug-related knowledge. It is explained that patients' doubts are reduced, and WeChat medication reminders for patients can significantly reduce missed doses. Personalized guidance for patients and optimization of patients' medication plans can significantly improve convenience. Providing corresponding guidance to patients' families and ensuring that patients' families do a good job in supervision and management can significantly improve patients' medication compliance. At the same time, when patients improve their health knowledge and self-management abilities and proactively practice regular medication behavior, patients' medication compliance can be further improved.

This study has limitations, such as a small sample size, a short research period, and the research subjects are from a single community, which will affect the extrapolation of the results. In future studies, the sample size can be expanded, the research period can be extended, multi-center studies can be conducted for patients, and long-term effects can be verified. At the same time, artificial intelligence and big data technology can be combined to optimize the intervention form in patient practice to improve accuracy and efficiency.

5. Conclusion

In summary, the application of health education and health promotion in the health management and intervention of community hypertension has an ideal effect. The blood pressure of patients after care is significantly reduced, the HPSMBRS score is significantly higher after care, the awareness rate of health knowledge is significantly higher, and the medication compliance is significantly higher. It is worthy of clinical use and promotion.

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Disclosure statement

The author declares no conflict of interest.

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