Advances in Precision Medicine, 2026, Volume 11, Issue 8
https://bbwpublisher.com/journal/APM
Online ISSN: 2424-9106
Print ISSN: 2424-8592

Research on the Intervention Effect of Prevention Measures and Control of Chronic Non-communicable Diseases

Yu Chen

Jiangsu Changzhou Economic Development Zone Public Health Management Service Center Changzhou 213000, Jiangsu, China

Copyright: © 2026 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: *Objective:* To explore the intervention effect of chronic non-communicable diseases prevention and control measures. *Methods:* From January 2025 to December 2025, patients with hypertension and type 2 diabetes were selected into the study. 88 cases were the total number of cases. They were divided into a control group and an observation group according to the envelope method, with 44 cases in each group. The control group implemented routine management, while the observation group implemented chronic non-communicable disease prevention and control measures. The blood pressure and blood sugar control compliance rates, health knowledge scores and total self-management behavior scores of the two groups were compared. *Results:* After the intervention, the observation group's blood pressure and blood sugar control compliance rate was higher than that of the control group, and the total health knowledge score and self-management behavior score were higher than those of the control group ($p < 0.05$). *Conclusion:* Implementing chronic non-communicable disease prevention and control measures can improve patients' blood pressure and blood sugar control compliance rates, enhance health knowledge, improve self-management behavior, and have a positive effect on disease prevention and long-term control.

Keywords: Chronic non-communicable diseases; Preventive measures; Intervention effect

Online publication: August 26, 2026

1. Introduction

Chronic non-communicable diseases have the characteristics of long course, insidious progression, complex risk factors and continuous management cycle, and have become a public health problem affecting the health of residents [1]. Such diseases are closely related to high-salt and high-sugar diets, lack of exercise, smoking and drinking, overweight and obesity, and insufficient health awareness. If patients do not adhere to standardized medication and indicator monitoring, they can easily cause fluctuations in blood pressure and blood sugar, and increase the risk of damage to target organs such as the heart, brain, and kidneys [2]. Routine management mainly completes health education, medication reminders and regular reviews. Although it can

meet basic needs, it does not pay enough attention to individual risk factors, behavioral habits, psychological state and family support, making it difficult to form a continuous disease control model. Chronic non-communicable disease prevention and control measures are based on risk assessment and combine cognitive education, dietary regulation, exercise guidance, medication supervision, etc., which can encourage patients to participate in health management and improve disease knowledge and self-management abilities [3]. Based on this, this study implemented prevention and control measures for patients with hypertension and type 2 diabetes, and analyzed the intervention effects. The report is as follows.

2. Materials and methods

2.1. Baseline data

From January 2025 to December 2025, patients with hypertension and type 2 diabetes were selected into the study. The total number of cases was 88. Two groups were set up using the envelope method, and the control group and observation group were confirmed, with 44 cases per group. In the control group, there were 26 males and 18 females respectively, aged 45 to 80 (62.10 ± 2.85) years old. In the observation group, there were 25 males and 19 females respectively, aged 44 to 79 (62.25 ± 2.70) years old. Comparative data between groups ($p > 0.05$).

2.1.1. Inclusion criteria

(1) Meet the relevant diagnostic criteria for essential hypertension and type 2 diabetes;
(2) The condition is stable and able to complete continuous management and follow-up;
(3) The patient is informed and voluntarily participates.

2.1.2. Exclusion criteria

(1) Recent acute cardiovascular and cerebrovascular events or acute complications of diabetes;
(2) Combined with malignant tumors;
(3) Existence of mental and cognitive disorders.

2.2. Method

2.2.1. Control group

Implement routine management. After patients are enrolled, health files are established, and nursing staff record disease history, medication history and living habits, and monitor blood pressure, fasting blood sugar and other indicators as directed by the doctor. Explain the basic knowledge of hypertension and diabetes to patients, remind them to take antihypertensive and antidiabetic drugs on time and in the right amount, and are not allowed to stop taking drugs or adjust the dosage on their own. General advice on diet and exercise was given, and the patient was instructed to reduce the intake of high-salt, high-sugar, and high-fat foods, maintain moderate activity, and quit smoking and limit alcohol consumption. Follow-up calls are conducted once a month to understand the status of medication, diet, exercise and index control, and to supervise regular outpatient reviews. When abnormal symptoms such as dizziness, palpitations, and hypoglycemia occur, instruct patients to seek medical treatment promptly.

2.2.2. Observation group

Implement prevention and control measures for chronic non-communicable diseases. (1) Risk archiving: After patients are enrolled, collect relevant information such as disease course, previous medication, diet, exercise, life, and family, measure blood pressure, fasting blood sugar, evaluate health knowledge and self-management status, identify risk factors and create files, and formulate stage control goals. (2) Cognitive education: Explain disease mechanisms, complications, control standards and early warning symptoms through explanations, graphic manuals, short videos, etc. Group education is provided twice a week, demonstrating the operation methods of blood pressure monitors and blood glucose meters, guiding patients to keep records and feedback results, helping patients correct misunderstandings in a timely manner, and promoting the continuous improvement of execution abilities. (3) Diet control: Design recipes based on body weight, blood pressure, blood sugar, and dietary preferences. Low-salt, low-sugar, low-fat, regular and quantitative. Daily salt intake should not exceed 5g. Reduce the intake of pickled foods, sweets, animal fats, and fried foods. Increase the intake of vegetables, whole grain foods, and high-quality protein. Instruct the use of food exchange method and ask family members to help remember meals. (4) Exercise intervention: Choose appropriate aerobic exercise, such as brisk walking, Tai Chi, aerobics, etc., five days a week, 30 to 45 minutes a day. Measure blood pressure, heart rate, or blood sugar before and after exercise. Stop immediately if chest tightness, dizziness, palpitations, or cold sweat occurs, and adjust the amount of exercise according to tolerance. (5) Medication supervision: Make a medication card, indicate the name of the medication, dosage, time, and precautions, and use a medication box or mobile phone to remind you to take medication regularly. During the follow-up visit, check the remaining dose, inquire about missed doses, voluntary dose reduction, adverse reactions, etc., inform the identification and treatment methods of hypoglycemia and orthostatic hypotension, and contact the doctor if there is any abnormality. (6) Psychological support: Listen to patients' concerns about long-term medication, complications, and prognosis, and use goal feedback and success stories to increase patients' confidence. For anxious patients, abdominal breathing training and music relaxation are provided, and family members accompany the patient to take care of the patient's emotions. (7) Continuous follow-up: Regular follow-up on blood pressure, blood sugar, diet, exercise, and medication by phone or WeChat, once a week, with a total score, and the corresponding indicator goals will be adjusted based on the total score results. For those with abnormality or low compliance, the number of follow-up visits will be increased, and a personalized checklist will be issued before the end of the follow-up visit, indicating the follow-up time, signs of abnormal medical treatment, and contact information.

2.3. Observation indicators

(1) The compliance rate of blood pressure and blood sugar control before and after intervention. Blood pressure standards: patients with hypertension have blood pressure < 140/90 mmHg; patients with diabetes have blood pressure < 130/80 mmHg. Blood glucose control compliance rate: for patients with diabetes, glycated hemoglobin < 7.0% or fasting blood glucose 4.4–7.0 mmol/L, take the standard monitoring value.

(2) Health knowledge scores before and after intervention. Use our hospital's self-made "Community Chronic Disease Health Knowledge Questionnaire" to score, 100 points, the higher the score, the better the health knowledge mastery.

(3) Total score of self-management behavior before and after intervention. The "Chronic Disease Self-Management Behavior Scale" is used to evaluate exercise, diet, medication, and monitoring. The total

score is 80 points. The higher the score, the better the management behavior.

2.4. Statistical processing

In SPSS 28.0, ($\bar{x} \pm s$) is used to describe the measurement data, which conforms to the normal distribution, and (n/%) is used to describe the count data. The test is completed through t and χ^2, and $p < 0.05$ constitutes a difference.

3. Results

3.1. Comparison of blood pressure and blood sugar control compliance rates before and after intervention

See **Table 1**. Before intervention, the compliance rates of the two groups were compared ($p > 0.05$). After intervention, the observation group achieved a higher standard rate ($p < 0.05$).

Table 1. Comparison of blood pressure and blood sugar control compliance rates before and after intervention {n (%)}

Group	Blood pressure control compliance rate		Blood sugar control target rate	
	Before intervention	After intervention	Before intervention	After intervention
Control group (n = 44)	26 (59.09)	41 (93.18)[a]	29 (65.91)	42 (95.45)[a]
Observation group (n = 44)	27 (61.36)	32 (72.73)[a]	27 (61.36)	32 (72.73)[a]
χ^2 value	0.0474	6.5096	0.1964	8.4942
p value	0.8275	0.0107	0.6576	0.0035

Compared with the same group before intervention, [a]$p < 0.05$

3.2. Comparison of health knowledge scores before and after intervention

See **Table 2**. Before intervention, the scores of the two groups were compared ($p > 0.05$). After intervention, the observation group scored higher ($p < 0.05$).

Table 2. Comparison of health knowledge scores before and after intervention {$\bar{x} \pm s$, points}

Group	Before intervention	After intervention
Control group (n = 44)	62.65 ± 5.97	89.86 ± 6.05[a]
Observation group (n = 44)	63.15 ± 6.05	81.52 ± 5.75[a]
t value	0.3902	6.6280
p value	0.6973	0.0000

Compared with the same group before intervention, [a]$p < 0.05$

3.3. Comparison of total scores of self-management behaviors before and after intervention

See **Table 3**. Before intervention, the scores of the two groups were compared ($p > 0.05$). After intervention, the observation group scored higher ($p < 0.05$).

Table 3. Comparison of total scores of self-management behaviors before and after intervention $\{\bar{x} \pm s$, points$\}$

Group	Before intervention	After intervention
Control group (n = 44)	45.65 ± 5.96	65.12 ± 6.05[a]
Observation group (n = 44)	46.08 ± 6.11	54.56 ± 5.96[a]
t value	0.3341	8.2480
p value	0.7391	0.0000

Compared with the same group before intervention, [a]$p < 0.05$

4. Discussion

Chronic non-communicable diseases mainly include hypertension and diabetes, which are characterized by long disease course, many risk factors, and long management time. Patients need to take medication for a long time and make lifestyle changes. If they have insufficient health awareness or poor self-discipline, it is easy to miss doses and lack of monitoring, making blood pressure and blood sugar control unstable, and increasing the risk of cardiovascular and cerebrovascular events and target organ damage [4]. Routine management only provides basic education, medication reminders, and regular reviews, and pays less attention to individual risk factors, behavioral changes, and family support [5]. Prevention and control measures are based on risk assessment and integrate health education, lifestyle intervention, medication supervision and continuous follow-up into the management process, thereby strengthening the systematicness and pertinence of the intervention [6]. The management effect is not only related to whether the medical measures are standardized, but also related to the patient's cognition, execution ability, family environment, community support, etc. Therefore, intervention cannot be just a one-time education, but should enable patients to understand the relationship between risk factors and daily life behaviors through continuous evaluation and feedback, so as to develop a management awareness of active monitoring, timely adjustment, and long-term persistence.

The results of this study show that after the intervention, the blood pressure and blood sugar control compliance rates of the observation group were higher than those of the control group ($p < 0.05$). Risk profiling can identify problems such as high-salt and high-sugar diet, lack of exercise, smoking, drinking, and misuse of medications and formulate corresponding control measures. Diet control and exercise can lower blood pressure and blood sugar; medication cards, pill box reminders, and recording indicators can reduce missed doses and arbitrary reductions. Collect data on the condition changes of patients with moderate and severe bronchial asthma every week. If there are abnormal changes, the number of follow-up visits and reexaminations will be increased, so that poorly controlled lesions can be detected early and the implementation of the plan can be ensured [7]. Staged goals can reduce patients' fear of long-term treatment and turn complex tasks into executable daily behaviors. Timely affirmation of effective behaviors during follow-up and guidance for those with deviations can improve self-confidence and avoid negative emotions caused by fluctuations in short-term indicators, thereby enhancing the continuity of the management plan. After the intervention, the health knowledge score of the observation group was higher than that of the control group, indicating that this measure can improve patients' understanding of the disease. Graphic manuals, short videos, and group education can explain risk factors, control standards, and early warning symptoms. Instrument operation demonstrations can turn knowledge into skills, thereby avoiding irregular behaviors caused by cognitive biases [8]. The total score of self-management behavior in the observation

group was higher than that in the control group ($p < 0.05$). Individualized diet and exercise plans give specific paths, and medication, diet, exercise and monitoring records constitute your own supervision system. Managers adjust goals based on the achieved indicators and use psychological support to reduce the fatigue of long-term management. The participation of family members in recording, reminding, and accompanying can strengthen external supervision and make healthy behaviors gradually become stable. The intervention of family members and management personnel can form a support system for diet, exercise accompaniment, medication supervision and abnormal alarm. It is helpful to reduce omissions in independent management of patients and promote healthy behaviors from external supervision to habits.

5. Conclusion

In summary, the implementation of chronic non-communicable disease prevention and control measures can improve blood pressure and blood sugar control compliance rates, enhance health knowledge, and improve self-management behaviors, which has good prevention and long-term control value.

About the author

Chen Yu (1988.08) female; Han nationality, Changzhou, Jiangsu, bachelor's degree, intermediate professional title in public health, Public Health Management Service Center, Changzhou Economic Development Zone, Jiangsu, research direction: control of chronic non-communicable diseases

Disclosure statement

The author declares no conflict of interest.

References

[1] Zhao Y, Gu Z, Zhang X, 2024, Research Progress and Challenges on the Integration of Medical and Prevention of Chronic Non-Communicable Diseases. Chinese General Practice, 27(31): 3953–3957.

[2] Niu Z, 2025, Effect of Health Education During the Prevention and Control of Chronic Non-Communicable Diseases. Smart Healthcare, 11(1): 157–160.

[3] Yang L, Wang F, Wang X, 2025, Application of PBL Teaching Model in the Teaching of the Chronic Non-Communicable Disease Prevention and Control Department of the Centers for Disease Control and Prevention. China Health Industry, 22(11): 193–196.

[4] Lu H, Liang Y, Zhao Y, 2024, Research on the Identification and Prevention Strategies of Chronic Non-Communicable Disease Risk Factors Based on Big Data Analysis. Information Systems Engineering, 2024(5): 111–114.

[5] Ji C, Wen F, He M, et al., 2025, Analysis of the Relationship Between Insomnia and the Risk of Comorbid Chronic Non-Communicable Diseases Such as Cancer Based on the UK Biobank Database. Journal of Harbin Medical University, 59(3): 337–341.

[6] Gu K, Li Y, Tang J, 2025, Review of Research on the Impact of Community Built Environment on Chronic Non-Communicable Diseases. Journal of Suzhou University, 40(3): 40–46.

[7] Wei Y, Gao X, Wang Z, et al., 2023, Research Progress on the Application of Digital Health in the Prevention, Control and Management of Chronic Non-Communicable Diseases. Chinese Journal of General Practitioners, 22(9): 978–982.

[8] Long L, He W, Xie L, 2024, Analysis of Causes of Death from Chronic Non-Communicable Diseases in Bijie City's National-Level Death Cause Surveillance Area from 2016 to 2020. Journal of Qiannan Ethnic Medicine, 37(3): 290–293.

Publisher's note

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.