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# Application Research on the Intervention of Chronic Disease Management Platform Combined with Traditional Chinese Medicine for Elderly Type 2 Diabetes Mellitus

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**Abstract: Objective:** To explore the effects of integrating a chronic disease management platform with traditional Chinese medicine interventions on glycemic control, self-management ability, and psychological health status in elderly patients with type 2 diabetes. **Methods:** A total of 180 elderly patients with type 2 diabetes who visited the endocrinology outpatient clinic of Sheyang County Hospital of Traditional Chinese Medicine from September 2024 to September 2025 were selected. Patients were randomly divided into a control group and an experimental group using computer-generated random numbers. The control group received routine outpatient care and traditional Chinese medicine treatment, while the experimental group received additional information support interventions via the chronic disease management platform on top of the control group's treatment. Glycemic control indicators, self-management ability, and psychological health status were compared between the two groups before and after the intervention. **Results:** The experimental group showed superior outcomes in glycemic control, self-management ability improvement, and alleviation of anxiety and depression compared to the control group ($P < 0.05$). **Conclusion:** The integration of a chronic disease management platform with traditional Chinese medicine interventions can effectively improve glycemic control, enhance self-management ability, and ameliorate psychological health status in elderly patients with type 2 diabetes.

**Keywords:** Chronic disease management platform; Traditional Chinese Medicine intervention; Elderly; Type 2 diabetes; Blood glucose control

## Introduction

Type 2 diabetes mellitus is a chronic metabolic disease. With the accelerating aging of the population, the number of elderly patients with type 2 diabetes continues to rise. Elderly patients often present with multiple complications and relatively weak self-management abilities, making traditional medical models inadequate for long-term management. In recent years, chronic disease management platforms have emerged as innovative health management tools, demonstrating significant potential in the management of chronic conditions. Traditional Chinese medicine (TCM), as an essential component of China's traditional medical system, has accumulated extensive experience in the prevention and treatment of diabetes [1]. This study aims to explore the application value of integrating chronic disease management platforms with TCM interventions in the management of elderly patients with type 2 diabetes, providing a scientific basis for clinical practice.

## 1. Materials and Methods

### 1.1 General Information

A total of 180 elderly patients with type 2 diabetes who visited the endocrinology outpatient department of Sheyang County Hospital of Traditional Chinese Medicine from September 2024 to September 2025 were selected. They were randomly divided into a control group and an experimental group, with 90 patients in each group, using computer-generated random numbers. The control group consisted of 48 males and 42 females, with an age range of 60–78 years and an average age of (68.4 ± 5.2) years. The experimental group consisted of 46 males and 44 females, with an age range of 61–79 years and an average age of (67.9 ± 4.8) years. There were no statistically significant differences in baseline characteristics between the two groups ($P > 0.05$), indicating comparability. Inclusion criteria: meeting the diagnostic criteria for type 2 diabetes with a disease duration of more than six months. Exclusion criteria: presence of severe organ dysfunction or mental illness; communication barriers or inability to perform self-care; concurrent acute diabetic complications or infectious diseases. This study was approved by the Ethics Committee of Sheyang County Hospital of Traditional Chinese Medicine. All patients provided written informed consent after fully understanding the study's purpose, methods, potential risks, and benefits.

### 1.2 Methods

Control group: Patients in the control group established health records on the chronic disease management platform but did not receive any intervention information. They received both routine outpatient care and traditional Chinese medicine (TCM) treatments. Routine care included: disease knowledge education, personalized dietary guidance, appropriate exercise recommendations, standardized medication instructions, self-monitoring of blood glucose training, and skin care. TCM treatments involved: auricular acupressure (using vaccaria seeds applied to specific points such as Stomach Gate, Pancreas, and Endocrine points, with pressing performed several times daily for 3-5 minutes each session), acupuncture therapy (targeting acupoints including Zusanli (ST36), Qihai (CV6), and Shenque (CV8)), as well as traditional Chinese exercise therapy—Baduanjin practice.

Experimental Group: In addition to the control group, patients in the experimental group received a 12-week information support intervention via a chronic disease management platform. (1) The platform establishes health records for patients, links contact information, automatically collects basic details such as name and age, as well as medical history including diabetes diagnosis time and medication history. It records monitoring data such as fasting blood glucose and glycated hemoglobin, generating dynamic trend charts. Patients' mobile phones and WeChat accounts are linked to ensure timely receipt of important health information through multiple notification methods including SMS, WeChat, and app alerts. (2) The platform regularly sends diabetes-related nursing information, covering professional knowledge such as dietary care, exercise guidance, medication instructions, skin care, and precautions for traditional Chinese medicine treatments. Based on individual patient conditions, personalized health content will be customized, including daily meal pairing suggestions, recommended types and intensity of suitable exercises, medication timing and precautions, and skin cleansing and moisturizing techniques. The content is presented in a text and pictures format with video tutorials to enhance patient understanding and acceptance. Content is send according to different times of the day: morning

reminders for blood glucose monitoring and breakfast suggestions, noon exercise guidance, and evening dinner recommendations and pre-sleep precautions. Seasonal adjustments are made to the content, such as emphasizing warmth and cold protection in winter, and heatstroke prevention and adjusted blood glucose monitoring frequency in summer. (3) Patients and caregivers are invited to join WeChat communication groups, providing health education materials and consultation channels. A professional team including endocrinologists and nutritionists is formed to offer online instructor, regularly conduct health lectures, and encourage patients to share management experiences. A feedback mechanism is established to compile common questions into a knowledge base for easy patient access. (4) The platform sends personalized blood glucose monitoring reminders, setting monitoring frequency and times based on the patient's condition and treatment plan—for example, newly diagnosed patients are advised to monitor 4-7 times daily. It sends standard operating procedures for monitoring, provided blood glucose recording templates, and guides patients to record information standard. The system automatically issued alerts for abnormal blood glucose levels, offering recommendations for medical visits or lifestyle adjustments.

### 1.3 Observation Indicators

(1) Glycemic control indicators: fasting plasma glucose (FPG), glycated hemoglobin (HbA1c), low-density lipoprotein cholesterol (LDL-C).

(2) Self-management ability indicators: Assessed using the Diabetes Self-Management Activities Questionnaire, covering five dimensions including dietary habits, physical activity behavior, blood glucose monitoring, foot care, and medication adherence, with a total of 13 items. Patients are asked about the number of days they engaged in each activity over the past 7 days, with the number of days serving as the item score (range 0-7). The score rate is calculated as (actual score / highest possible score) × 100%.

(3) Mental health indicators: Anxiety status is assessed using the Generalized Anxiety Disorder Scale (GAD-7), which includes 7 items, each scored from 0 to 3, with a total score range of 0-21. Depression status is assessed using the Patient Health Questionnaire-9 (PHQ-9), which includes 9 items, each scored from 0 to 3, with a total score range of 0-27.

### 1.4 Statistical Methods

Data were processed using SPSS 26.0. Count data (expressed as percentages (%)) and measurement data (conforming to normal distribution, expressed as mean ± standard deviation) were analyzed using $\chi^2$ and t-tests, respectively. A $P$-value < 0.05 indicated a statistically significant difference.

## 2. Results

### 2.1 Comparison of Blood Glucose Control Effects

The experimental group showed lower levels of FPG, HbA1c, and LDL-C compared to the control group ($P$ < 0.05), as shown in **Table 1**.

**Table 1.** Comparison of blood glucose control indicators between the two groups of patients ($\overline{x} \pm s$)

| Group | $n$ | FPG (mmol/L) | HbA1c(%) | LDL-C (mmol/L) |
|---|---|---|---|---|
| Control group | 90 | 8.42±1.23 | 7.85±0.89 | 3.21±0.67 |
| Experimental group | 90 | 7.15±0.98 | 6.92±0.71 | 2.68±0.52 |
| $t$-value | - | 7.342 | 7.289 | 5.987 |
| $p$-value | - | 0.000 | 0.000 | 0.000 |

### 2.2 Comparison of Self-Management Abilities

The self-management ability score rate of the experimental group was higher than that of the control group ($P$ < 0.05), as shown in **Table 2**.

**Table 2.** Comparison of self-management ability score rates between the two groups of patients (%)

| Group | $n$ | Diet management | Sports Management | Blood Glucose Monitoring | Foot care | Medication adherence | Overall score rate |
|---|---|---|---|---|---|---|---|
| control group | 90 | 52.3±8.7 | 48.6±9.2 | 45.8±10.1 | 50.2±8.9 | 54.1±7.8 | 50.2±8.6 |
| Experimental group | 90 | 78.4±6.5 | 75.2±7.1 | 76.8±6.9 | 77.3±7.2 | 80.5±5.4 | 77.6±6.4 |
| $t$-value | - | 19.234 | 19.876 | 19.452 | 19.123 | 22.456 | 22.341 |
| $P$-value | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

### 2.3 Comparison of Mental Health Status

The total GAD-7 and PHQ-9 scores of the experimental group were lower than those of the control group ($P < 0.05$), as shown in **Table 3**.

**Table 3.** Comparison of Mental Health Indicators Between Two Groups of Patients ($\overline{x} \pm S$)

| Group | *n* | GAD-7 Total Score | PHQ-9 Total Score |
|---|---|---|---|
| Control group | 90 | 12.4±3.2 | 13.8±3.6 |
| Experimental group | 90 | 7.2±2.1 | 8.1±2.3 |
| *t*-value | - | 12.847 | 12.956 |
| *P*-value | - | 0.000 | 0.000 |

## 3. Discussion

Chronic disease management platforms, as a product of integrating information technology with healthcare, offer new solutions for managing chronic conditions. By leveraging technologies such as big data analytics and artificial intelligence, these platforms enable precise management and personalized services for patients. For elderly patients with type 2 diabetes, chronic disease management platforms provide the following significant advantages:

First, the platforms ensure continuity of healthcare services. Traditional medical models primarily rely on outpatient visits, leaving gaps in patient management between appointments. Chronic disease management platforms address this issue by delivering timely health information, blood glucose monitoring reminders, and other functions, ensuring patients receive continuous attention and guidance throughout their management cycle. This continuous care helps maintain stable treatment outcomes and reduces blood glucose fluctuations.

Second, the platforms enhance the relevance and effectiveness of health education [2]. Traditional health education often adopts a one-size-fits-all approach, which struggles to meet individual needs. Chronic disease management platforms, however, can deliver personalized health education content—including dietary guidance, exercise recommendations, and medication reminders—based on each patient's specific condition. This tailored approach better addresses patient needs, increasing their engagement and adherence.

Moreover, the platforms facilitate convenient communication between patients and healthcare providers. Through features such as WeChat groups and online consultations, patients can seek advice from medical professionals at any time and receive expert guidance. This real-time communication mechanism helps identify and resolve issues promptly, preventing management errors caused by information asymmetry. Additionally, interactions among patients foster a supportive peer environment.

The data collection and analysis capabilities of these platforms provide strong support for clinical decision-making [3]. By recording patients' blood glucose data, medication usage, lifestyle habits, and other information, the platforms generate detailed health reports that help healthcare providers gain a comprehensive understanding of patients' health status and develop more rational treatment plans. This data-driven management model contributes to improved healthcare quality and efficiency.

The results of this study indicate that patients in the experimental group showed significant improvements in blood glucose control, self-management ability, and mental health status compared to the control group ($P < 0.05$). These findings suggest that the integrated management model, based on a chronic disease management platform combined with traditional Chinese medicine (TCM) interventions, offers significant advantages in the management of elderly patients with type 2 diabetes.

In terms of glycemic control, the experimental group exhibited significantly lower levels of fasting blood glucose, glycated hemoglobin, and low-density lipoprotein cholesterol than the control group. This indicates that the integrated intervention model can more effectively improve patients' metabolic status. The underlying reasons may be attributed to the following aspects: first, the continuous supervision and guidance provided by the chronic disease management platform enabled patients to better adhere to dietary control and exercise plans; second, TCM interventions improved insulin sensitivity and glucose-lipid metabolism by regulating the overall physiological functions of the

body; third, personalized health information pushed through the platform enhanced patients' disease awareness and self-management consciousness.

Regarding self-management ability, the experimental group demonstrated significantly higher scores across all dimensions—including dietary management, exercise management, blood glucose monitoring, foot care, and medication adherence—compared to the control group. This reflects the effectiveness of the integrated intervention model in enhancing patients' self-management capabilities. The chronic disease management platform stimulated patients' initiative and encouraged active participation in disease management through features such as timed reminders, health education, and peer communication. Meanwhile, TCM interventions improved patients' overall health status, thereby enhancing their physical capacity and confidence in self-management [4].

Another important finding of this study is the improvement in mental health. The experimental group showed significantly reduced anxiety and depression scores, indicating that the integrated intervention model positively influenced patients' psychological well-being. The social support and peer interaction provided by the chronic disease management platform helped alleviate patients' feelings of loneliness and helplessness; TCM interventions improved physical conditions by regulating qi and blood and balancing yin and yang, thereby indirectly promoting mental health; and continuous professional guidance and support strengthened patients' confidence in treatment, reducing their fear and anxiety related to the disease.

In summary, the management model for elderly patients with type 2 diabetes, which integrates a chronic disease management platform with traditional Chinese medicine interventions, holds significant clinical value and social importance. This approach not only effectively improves patients' physiological indicators but also enhances their self-management capabilities and mental health, providing comprehensive, continuous, and personalized health management services for elderly individuals with diabetes.

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