

# The Application Effect of Whole-Course Health Education Model in Type 2 Diabetes Care

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**Abstract:** *Objective:* To observe the effect of applying the whole-course health education model in type 2 diabetes (T2DM) care. *Methods:* The research subjects were 92 T2DM patients diagnosed and treated in our hospital from October 2024 to October 2025. According to the patient's "order of treatment" (46 cases), they were divided into a reference group and an observation group. During the study period, routine care and whole-course health education models were adopted, respectively. The baseline data of each group were collected and the differences in observation indicators were analyzed, such as nursing compliance, disease awareness level, and blood sugar level. *Results:* The observation group's compliance and illness perception questionnaire (CIPQ-R) scores were at a higher level, and blood sugar was at a lower level. The differences in each index were statistically significant compared with the reference group ( $P < 0.05$ ). *Conclusion:* Carrying out a whole-course health education model based on the characteristics of T2DM patients can help patients comprehensively understand the disease, improve care compliance, and reduce blood sugar levels, and is of great significance in mitigating disease damage.

**Keywords:** Whole-course health education model; Type 2 diabetes; Nursing compliance; Disease awareness; Blood sugar level; Nursing effect

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## 1. Introduction

The United Nations designated diabetes mellitus (DM) as the first non-communicable disease epidemic in the 21st century. Common types are type 1 and type 2, with the latter being the most common clinically. Studies have found that in recent years, with the aging of the population and changes in diet and lifestyle habits, the incidence of T2DM has continued to increase, with the clinical proportion as high as over 95%. There are many causes of T2DM, which are mainly related to insulin resistance, insufficient insulin secretion, and lack of activity. After the onset, the main symptoms are weight loss, polydipsia, polyuria, and polyphagia. The disease itself does not cause serious damage to the body. However, if the blood sugar level remains high for a long time, it can easily damage the eyes, kidneys, and other organs, thereby endangering life safety<sup>[1]</sup>. Most T2DM patients are elderly with limited education and incomplete knowledge of the disease. This results in significant negative emotions and poor overall cooperation, making it difficult to achieve ideal blood sugar control. Based on the above background, it is of great significance to carry out effective and scientific health guidance for T2DM patients. Among them, the whole-course health education model can provide patients with continuous health guidance after

diagnosis, and has a significant effect on improving cognitive levels and reducing disease damage<sup>[2]</sup>. In order to clarify the impact of the whole-course health education model on T2DM patients, this article included 92 patients for the following study. The process and results are as follows.

## 2. Materials and methods

### 2.1. General information

A total of 92 T2DM patients included in the diagnosis and treatment of our hospital were divided into the reference group and the observation group according to the “order of treatment” (46 cases). The analysis of the data found that the age range of the reference group was 42–80 ( $61.00 \pm 3.15$ ) years old; the BMI range was 20–31 ( $25.50 \pm 1.75$ ) kg/m<sup>2</sup>; male:female = 26:20. The BMI in the observation group ranged from 21–30 kg/m<sup>2</sup>, with a mean value of  $25.50 \pm 1.62$  kg/m<sup>2</sup>; the age range was 44–78 ( $61.00 \pm 3.64$ ) years old; male:female = 28:18. All data were entered into SPSS 23.0 software for comprehensive analysis, and no difference was confirmed ( $P > 0.05$ ).

### 2.2. Research standards

Inclusion criteria: The research complies with hospital ethics; all enrolled subjects have complete clinical data and gave informed consent to the research content; all are clearly diagnosed with T2DM and further diagnosed based on the *Instructions for the Preparation of Guidelines for the Prevention and Treatment of Type 2 Diabetes in China*.

Exclusion criteria: combined with other chronic metabolic diseases; malignant tumors; severe organic diseases; combined with DM-related complications; psychiatric diseases.

### 2.3. Methods

The reference group implemented routine care. After diagnosis, the patients were informed of the causative factors, hazards, and treatment measures of T2DM, and were instructed to self-test their blood sugar and were instructed to take hypoglycemic drugs as directed by the doctor. For those with poor blood sugar control, insulin treatment could be used as directed by the doctor. During the diagnosis and treatment period, we pay attention to environmental intervention, patiently answer patients’ relevant questions, inform them of timely review after discharge, and do a good job in health file management to ensure dynamic management of the condition.

The observation group carried out a whole-course health education model, specifically: (1) Establishing an education team. A health education group was jointly established by the attending doctor (one), department head nurse (one), responsible nurse (two), and key nurses (four), and systematic training was carried out for the group to better master T2DM-related knowledge and health education skills. (2) Disease knowledge education. After admission, comprehensively understand the patient’s basic information (gender, name, age, education level, etc.) and condition (sickness time, blood sugar level, etc.), and formulate an appropriate health education plan based on the actual situation. Optional education programs include one-on-one explanations, distributing health manuals, playing videos, building a WeChat education platform, etc., to provide health education based on patient characteristics, and clearly explain the dangers, causative factors, treatment measures, complications, precautions, etc. of T2DM, so that they can understand the effectiveness of blood sugar testing and control, and promote patient care compliance. (3) Medication education. Drugs are of great significance in hypoglycemic treatment. Nursing staff need to explain the importance of drug treatment, usage methods, dosage, etc., to patients in detail to help standardize drug use. It can help patients download medication record-related software on the mobile platform, register their account according to the software prompts, and guide patients and their families to record their medication in detail to ensure that doctors can dynamically understand changes in their condition. If insulin treatment is required, nursing staff must instruct the patient on the correct injection to ensure compliance with the doctor’s instructions and avoid abnormal blood sugar levels. In addition, patients and family members need to be instructed on the correct use of blood glucose meters, monitor and record blood glucose, and provide guidance on

medication plans. (4) Mental health education. Affected by factors such as repeated attacks of T2DM, adverse reactions, long-term medication, etc., patients are prone to anxiety, irritability, and other emotions, and their mental health quality is poor. Nursing staff need to pay attention to the intervention of patients' mental health, strengthen communication to help them understand the impact of negative emotions on the disease, help build a positive and optimistic awareness, and guide family members to care for the patients so that they can feel cared for and understood, and maintain physical and mental happiness. (5) Dietary intervention. Research shows that high-fat and high-calorie foods are important factors in causing DM. Nursing staff need to instruct patients to eat more low-calorie and low-fat foods, as well as foods that are easy to digest and rich in dietary fiber to ensure adequate intake of protein, minerals, etc. (6) Exercise intervention. Conduct a comprehensive assessment of the patient's physical condition and formulate a scientific exercise plan. It is recommended to carry out walking, Tai Chi, jogging, and other exercises at least 5 times a week, 20–30 minutes each time. Pay attention to family members accompanying during exercise to avoid accidents.

## 2.4. Observation indicators

- (1) Nursing compliance. Using the self-control scale (100 points, reliability, validity, and Cronbach's alpha coefficients are 0.822 and 0.828, respectively), scores of 0–59, 60–89, and 90–100 represent non-compliance, general compliance, and complete compliance.
- (2) Disease awareness level. The assessment tool is the Illness Perception Questionnaire (CIPQ-R). The score is directly proportional to the cognitive level, and the time is before and after care.
- (3) Blood sugar level. The main indicators are fasting blood glucose (FBG), 2h postprandial blood glucose (2hFBG), and glycated hemoglobin (HbA1c). FBG and 2hFBG are detected by glucose oxidase method, and HbA1c is detected by high-pressure liquid chromatography.

## 2.5. Statistical processing

In the study, the count data were expressed by [ $n$  (%)] and tested by  $\chi^2$ , and the measurement data were expressed by mean  $\pm$  standard deviation (SD) and tested by  $t$ -test. The data were all processed with SPSS 23.0 software.  $P < 0.05$  indicates that the difference is significant.

## 3. Results

### 3.1. Nursing compliance analysis

In **Table 1**, the nursing compliance of the observation group was higher than that of the reference group, and the difference was significant ( $P < 0.05$ ).

**Table 1.** Nursing compliance analysis [ $n$  (%)]

Group	Noncompliance	General compliance	Complete compliance	Total compliance
Observation group ( $n = 46$ )	2(4.35)	13(28.26)	31(67.39)	44(95.65)
Reference group ( $n = 46$ )	8(17.39)	16(34.78)	22(47.83)	38(82.61)
$\chi^2$	--	--	--	4.039
$P$	--	--	--	0.044

### 3.2. Analysis of disease awareness level

There was no difference in the CIPQ-R scores before nursing between the groups ( $P > 0.05$ ), see **Table 2**; after nursing, the CIPQ-R scores of each group increased significantly, and the observation group was higher than the reference group ( $P < 0.05$ ). See **Table 3**.

**Table 2.** Analysis of disease awareness level before nursing (mean  $\pm$  SD, points)

Group	Sports	Diet	Basic knowledge	Medication	Self-test	Complications
Observation group ( $n = 46$ )	2.16 $\pm$ 0.45	2.28 $\pm$ 0.34	2.06 $\pm$ 0.23	2.36 $\pm$ 0.42	1.86 $\pm$ 0.29	1.72 $\pm$ 0.28
Reference group ( $n = 46$ )	2.17 $\pm$ 0.42	2.30 $\pm$ 0.31	2.03 $\pm$ 0.25	2.38 $\pm$ 0.43	1.82 $\pm$ 0.31	1.75 $\pm$ 0.27
<i>t</i>	0.110	0.294	0.598	0.225	0.639	0.523
<i>P</i>	0.912	0.768	0.550	0.822	0.524	0.602

**Table 3.** Analysis of disease cognitive level after nursing (mean  $\pm$  SD, points)

Group	Sports	Diet	Basic knowledge	Medication	Self-test	Complications
Observation group ( $n = 46$ )	4.53 $\pm$ 0.64	4.78 $\pm$ 0.55	4.39 $\pm$ 0.56	4.67 $\pm$ 0.57	4.68 $\pm$ 0.52	4.09 $\pm$ 0.65
Reference group ( $n = 46$ )	4.17 $\pm$ 0.56	4.34 $\pm$ 0.59	3.96 $\pm$ 0.52	4.26 $\pm$ 0.54	4.23 $\pm$ 0.54	3.56 $\pm$ 0.61
<i>t</i>	2.871	3.699	3.816	3.541	4.071	4.032
<i>P</i>	0.005	0.000	0.000	0.000	0.000	0.000

### 3.3. Blood glucose level analysis

There was no difference in blood sugar levels between the groups before nursing ( $P > 0.05$ ); after nursing, the blood sugar levels of each group were significantly reduced, and the observation group was lower than the reference group ( $P < 0.05$ ).

**Table 4.****Table 4.** Blood glucose level analysis (mean  $\pm$  SD)

Group	FBG (mmol/L)		2hFBG (mmol/L)		HbA1c (%)	
	Before nursing	After nursing	Before nursing	After nursing	Before nursing	After nursing
Observation group ( $n = 46$ )	9.85 $\pm$ 1.62	6.38 $\pm$ 0.73	11.89 $\pm$ 2.55	7.19 $\pm$ 0.78	8.08 $\pm$ 1.25	6.07 $\pm$ 0.69
Reference group ( $n = 46$ )	9.82 $\pm$ 1.42	7.07 $\pm$ 0.76	11.86 $\pm$ 2.62	7.68 $\pm$ 0.83	8.07 $\pm$ 1.24	6.54 $\pm$ 0.67
<i>t</i>	0.094	4.440	0.055	2.917	0.038	3.314
<i>P</i>	0.925	0.000	0.955	0.004	0.969	0.001

## 4. Discussion

T2DM is a chronic lifelong disease. After diagnosis, long-term medication is required to control blood sugar and reduce the damage of the disease. T2DM is common in middle-aged and elderly people. It has the characteristics of high incidence and long illness duration. If blood sugar is not controlled within the ideal range for a long time, it can easily lead to related complications such as heart, kidney, large blood vessels, and neuropathy, and eventually lead to serious conditions such as lower limb amputation, blindness, and end-stage renal disease [3]. Currently, there is no effective clinical plan to cure T2DM, which mainly relies on comprehensive therapy of drugs, diet, and exercise. However, during the actual treatment process, patients lack an accurate understanding of the disease, which leads to poor compliance and is not conducive to disease control. Based on the above situation, effective nursing intervention for T2DM patients based on conventional hypoglycemic programs can help cultivate good living habits and is of great significance in improving treatment compliance and lowering blood sugar [4].

In this article, after the intervention of the whole-course health education model, the nursing compliance of the observation group was as high as 95.65%, which is more valuable than the reference group (82.61%) ( $P < 0.05$ ). The data

preliminarily show that the whole-course health education model can promote the improvement of care compliance of T2DM patients. The main reasons are: the whole-course health education model takes “health education” as the main line and carries out diversified management for patients. By constructing an education group, the scientific and systematic nature of the education content can be fully guaranteed [5]. Strengthening health education on disease, psychology, and diet for patients can help patients understand T2DM-related knowledge and help improve nursing compliance. In this article, the CIPQ-R score of the observation group after nursing was higher than that of the reference group, and the difference was  $P < 0.05$ . The main reason for the analysis is that traditional nursing measures are passive and random, and have limited effects in patients with T2DM. The whole-course health education model is more flexible, and high-quality health education can be fully guaranteed by standardizing the content and methods of education through health groups [6]. Taking disease, psychology, diet, medication, exercise, and other approaches as the leading approaches, patients can be given comprehensive health education, which can promote the improvement of patients’ cognitive level, further highlighting the advantages of this education model [7]. In this article, the blood sugar level of the observation group after care was lower than that of the reference group, and the difference is significant ( $P < 0.05$ ). Comprehensive analysis shows that the whole-course health education model can provide patients with systematic and continuous nursing intervention. During the intervention period, the patient’s condition is the basis, and body functions can be regulated in a targeted manner, which fundamentally reduces the factors that affect blood sugar fluctuations and contributes to good control of blood sugar levels [8].

## 5. Conclusion

In summary, a whole-course health education model based on the characteristics of T2DM patients can help patients comprehensively understand the disease, help improve care compliance and reduce blood sugar levels, and is of great significance in mitigating disease damage.

## About the author

Lv Ningning (1991-), female, Han nationality, Wuxi, Jiangsu, bachelor's degree, current title of supervisor nurse, working at Hudai Town Health Center, research direction is related to clinical nursing.

## Disclosure statement

The author declares no conflict of interest.

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