

Application Effect of Health Management in Community Diabetic Population

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Abstract

Objective: This study aims to improve the health level of patients with diabetes in the community through health management measures under the concept of health management. **Methods:** Community residents were selected to detect, collate and analyze the social demographic information, body mass index, fasting blood glucose and blood lipid level of diabetic patients before and after health management. **Results:** The study showed that after the implementation of health management education in the community, the detection rate of diabetes patients increased, but the population was no longer mainly elderly patients, but mainly people under 60 years old. The levels of body mass index, fasting blood glucose, triglyceride (TG), total cholesterol (TC) and low-density lipoprotein (LDL) were significantly decreased (all $P < 0.05$), and tended to be normal. **Conclusion:** Through the investigation of patients before and after health management in residential communities, this study shows that the correct implementation of health management can effectively improve the physiological indicators of diabetes patients, improve the level of health quality, and provide a reference for the prevention and treatment of diabetes patients in communities.

Keywords

Community Management, Diabetes Mellitus, Health Education, Influencing Factor

1. Introduction

Diabetes mellitus is a chronic metabolic disease characterized by an abnormal rise of blood sugar levels in the body, which is mainly caused by many factors such as congenital genetic inheritance and acquired environmental habits [1]. In China,

diabetes patients are mostly manifested as type 2 diabetes with insufficient insulin secretion or insulin resistance. With the increasing development of the social economy, the living standard of residents is also constantly improving, and the aging process of China's population is intensifying, the incidence of diabetes patients is also increasing [2]. Modern medical research shows that many serious complications will occur in the later stage of diabetes, resulting in serious heart, brain and kidney damage. In addition, diabetes has the characteristics of prolonged and irreversible, long course of disease, etc., which has a serious impact on the quality of life of residents. Therefore, under the concept of health management, this study aims to carry out health management education and propaganda for community diabetic patients, and carry out health management during this period, in order to achieve a good improvement of the health level of patients [3] [4].

2. Method

2.1. Study Patient

In this study, 4638 diabetic patients registered in a community in Lu'an City, Anhui Province were selected to conduct a socio-demographic survey, and 50 patients were randomly selected to analyze the changes of various biochemical indicators before and after the implementation of health management measures for one year, so as to evaluate the effectiveness of health management among diabetic patients in this community.

Patient inclusion criteria

Inclusion criteria

- 1) Age \geq 18 years old;
- 2) Residents who have lived in the community for more than 12 months;
- 3) Patients who have been clinically diagnosed with diabetes;
- 4) Clear thinking, informed consent and complete follow-up records;

Exclusion criteria

- 1) Patients with more serious complications requiring clinical treatment;
- 2) People with obvious cognitive impairment;
- 3) Unwilling to participate in this study after consultation and explanation.

2.2. Health Management and Monitoring Indicators

During the study, the health management of diabetic patients includes health education, diet control (according to the standard diet of diabetic patients), and health exercise. It is recommended that the cumulative exercise time should be more than 3 h per week, and patients should be instructed to use drugs according to the doctor's advice. If blood sugar fluctuates significantly, medication should be adjusted under the doctor's guidance and blood sugar should be monitored daily. Portable blood glucose monitors are available. At the beginning and end of this study, the socio-demographic profiles of all patients with diabetes were investigated, and body mass index (BMI), fasting blood glucose and lipid levels of patients with health management were randomly selected and tested for quantitative analysis.

2.3. Data Analysis

The data in this study were sorted in Excel, analyzed by SPSS 27.0, and plotted by Prism 8.0. The experimental results were all expressed as Mean \pm SD, and the comparison was conducted by t-test, with $\alpha = 0.05$ as the test level.

3. Result

3.1. Overview of Detection of Diabetic Patients

The results showed that before the implementation of health management, a total of 543 diabetic patients were documented in this community, and the age group was mainly concentrated in the population above 60. After the implementation of health management, 747 diabetic patients were detected, the detection rate increased, and the age distribution was mainly in the population below 60 years old, as shown in **Table 1**.

3.2. Body Mass Index and Fasting Blood Glucose in Diabetic Patients

A retest was conducted on 50 people who implemented health management, and the results showed that compared with before the implementation of health management, the body mass index (BMI) and fasting blood glucose (FBG) levels of the patients were significantly reduced (both $P < 0.05$), as shown in **Table 2**.

3.3. Blood Lipid Levels in Diabetic Patients

A retest was conducted on 50 people who implemented health management, and the results showed that compared with before the implementation of health management, serum triglyceride (TG), total cholesterol (TC) and low-density lipoprotein (LDL) levels of diabetic patients were significantly decreased (all $P < 0.05$), as shown in **Figure 1**.

Table 1. Detection and age distribution of diabetic patients.

item		Before health management	After health management
cases(n)	/	543	747
age(y)	18 - 44	173 (31.86%)	283 (37.88%)
	45 - 59	135 (24.86%)	272 (36.41%)
	≥ 60	235 (43.28%)	192 (25.71%)

Table 2. Changes of BMI and FBG in diabetic patients before and after health management.

index	Before health management	After health management
BMI (kg/m ²)	25.9 \pm 1.5	22.5 \pm 1.7*
FBG (mmol/L)	7.8 \pm 0.9	5.9 \pm 0.9*

Compared with the group before health management, * $P < 0.05$.

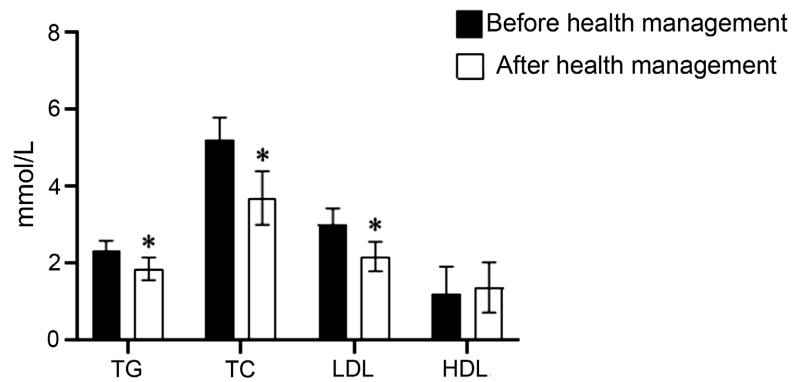


Figure 1. Changes of blood lipid levels in diabetic patients before and after health management. Compared with the group before health management, * $P < 0.05$.

4. Discussion

It is reported that as of 2023, there are about 537 million diabetic patients in the world, and the number of diabetic patients in China is 141 million, with an incidence rate of 12.8%, ranking first in the world, and the incidence of diabetes is mainly in middle-aged and elderly people [5] [6] [7], which is consistent with the findings of this study in the community. At the onset of diabetes patients, most patients have no obvious symptoms that can be detected, which will seriously affect the prevention and control of the disease, so regular screening for residents can effectively improve the detection rate of diabetes, play early detection, early prevention, early treatment effect [8] [9]. In this study, health education was carried out in the community to publicize the related risk factors and prevention knowledge of diabetes, and residents were urged to strengthen self-management and detection, which increased the detection rate of diabetes in the community and effectively reduced missed diagnosis. In addition, the disease status of elderly patients was effectively improved through one-year health management.

The damage to health and economic burden caused by diabetes ranks third after cancer and cardiovascular and cerebrovascular diseases. Studies on its pathogenesis suggest that overweight and obesity are the main risk factors. Dyslipidemia in obese patients can lead to fatty liver disease, which acts on the metabolic system and makes the body produce insulin resistance. In addition, the abnormal rise of triglycerides and cholesterol in the blood will accumulate in the vascular endothelium and lead to atherosclerosis, exacerbating the risk of cardiovascular and cerebrovascular diseases [10] [11] [12]. In this study, health management such as diet control, health exercise, instructing patients to follow the doctor's advice to use drugs and daily monitoring of blood sugar was carried out in community diabetic patients, which can effectively reduce the body weight and fasting blood sugar level of patients, improve the blood lipid level, alleviate the risk of obesity of patients and slow down the disease process of patients, which is of great significance in the prevention and treatment of diabetes [13] [14].

In addition, this study also suggests that in the future integrated management

of the diabetes community, the management of patients' exercise patterns should be strengthened, and the exercise patterns of patients should be supervised and enriched through online and offline group interaction, and patients should be encouraged to perform a combined exercise. As for the deficiencies and limitations in the development of this study, they mainly focus on the short time, and the whole study may be a little hasty and limited, such as the lack of guidance and policy support from the government [15]. Therefore, it is hoped that in future research and improvement, the health management measures implemented at this stage can be further strengthened, and the training on the withdrawal skills and behaviors of tobacco and alcohol and other bad habits can be sought, the medication supervision and guidance for patients can be strengthened, and medication compliance can be improved, so as to provide more in-depth discussion and research for the health management of diabetic patients.

5. Conclusion

This study carried out health management in diabetic patients in the community, investigated the patients before and after the implementation of health management, and found that the correct implementation of health management can effectively improve the physiological indicators of diabetic patients, improve the level of health quality, and provide a reference for the prevention and treatment of diabetic patients in the community. It is hoped that in future research, the advanced concept of health management can be better used to provide effective protection for the health of diabetic patients.

Conflicts of Interest

Author contributions in this study have been reflected in the attribution order and there is no conflict of interest.

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