Intervention Effect of Continuous Nursing on Self-management Level of Elderly Diabetic Patients in Shaoyang Urban Area

Juan Lin[1], Fenfang Lei[1], Lvjun Zhang[2], Xin Ning[3], Yejun Yang[*]

[1] School of Nursing, Shaoyang University, Shaoyang, Hunan, China

[2] The Second Affiliated Hospital of Shaoyang University, Shaoyang, Hunan, China

[3] The First Affiliated Hospital of Shaoyang University, Shaoyang, Hunan, China

[*] Pediatric Department, Shaoyang Central Hospital, Shaoyang, Hunan, China

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Abstract: Objective: To evaluate the intervention effect of continuous nursing on self-management level of elderly diabetic patients in Shaoyang urban area, and to provide empirical evidence for constructing continuous nursing model of elderly diabetic patients in community. Methods: A total of 154 diabetic patients aged ≥60 years old were selected from six community health service centers in Shaoyang City, 77 cases in each control group and 77 cases in each intervention group. Patients in the control group were given routine nursing measures, and patients in the intervention group were given continuous nursing services on the basis of routine nursing.Patients in both groups filled in questionnaires (general information questionnaire, Diabetes self-Management Behavior Scale (DSCS)) before the experiment, and were given questionnaires again after 3 months of the experiment to compare the differences in the self-management level of patients in the two groups. Results: Before the experiment, the self-management level of the two groups was medium, the highest score was medication management, and the lowest score was blood glucose monitoring. Three months after the experiment, the score rate of self-management in all dimensions of the intervention group increased, and the total score of self-management in the intervention group was higher than that in the control group, with statistical significance (P<0.05). Conclusion: Continuous nursing has a positive effect on the self-management level of elderly patients with diabetes.

***Keywords*:** continuous nursing,diabetes mellitus, self-management

1. Introduction

Diabetes is a lifelong disease. Many patients after discharge due to the lack of effective disease management, often lead to poor blood sugar control, often premature serious complications. The emergence of continuous care makes the management of diabetes patients extend from hospital to home, and nurses can provide continuous care services to patients. However, there are few professionals in community diabetes nursing, and it is more difficult to implement continuous nursing in community hospitals by relying solely on community nurses. The purpose of this study is to explore the intervention effect of continuous care on the self-management level of elderly diabetic patients in the community through team members to carry out continuous care for elderly diabetic patients in the community in Shaoyang urban area, and to provide reference for optimizing the continuous care model for diabetic patients in the community.

2. Object and Method

2.1 Object

A total of 154 diabetic patients aged ≥60 years old in six community health service centers in Shaoyang City were selected by regional stratification and simple randomization method, and 77 patients in each control group and intervention group were selected. After 3 months of intervention, 8 patients (2 in the control group and 6 in the intervention group) were lost to follow-up, with a loss rate of 5.19%. 146 samples were recovered with an effective recovery rate of 94.80%. There was no difference in the general data of the two groups by statistical analysis.

2.2 Research Method

2.2.1 Control group

Patients were given routine nursing measures.

2.2.2 Experimental group

Continuous nursing services were provided to patients in the intervention group. Patients in the intervention group were mainly treated with medication, diet, exercise, blood glucose monitoring and guidance, and psychological counseling. The details are as follows.

Table 1. Contents of continuous nursing intervention

Items	The content of career guidance
Instruction in drug use	Ask the patient to take the drug strictly according to the doctor's advice, do not change the drug without authorization, do not increase or decrease the type and dosage of the drug at will, do not miss taking the drug, in case of missing taking the drug can take the correct remedial measures. Instruct patients to master insulin storage and injection.
Dietary instruction	In addition to teaching patients to calculate food calories, strengthen guidance on food selection, diversification and collocation, eating habits, and dietary contraindications. Inform patients that when their blood sugar fluctuates, they should contact their doctor to control their blood sugar by adjusting their diet or medication.
Movement Instruction	Help patients to determine the amount of exercise, guide patients to correctly choose the exercise mode and calculate the exercise time, and learn to judge the exercise effect by themselves. Patients remember the precautions before, during and after exercise.
Blood glucose monitoring guide	Inform the importance of blood glucose monitoring. Guide patients to master the operation and precautions of blood glucose meter. Can judge high and low blood sugar and can correctly handle high and low blood sugar.
Psychological counseling	Strengthen communication with patients, timely find patients' bad emotions, help patients correctly understand the disease, neither blindly optimistic, nor pessimistic to give patients emotional support. Strengthen communication with family members, create a good family atmosphere, reduce adverse stimuli, provide family support, and enhance patient confidence in treatment.
Periodic review	Inform the patient of the importance of regular review, as required, regular review, specialist health assessment.

Table 2. Intervention methods of continuous care

Means of intervention	Time	Main content and purpose
Outpatient return visit	The first visit was made in the first month of the experiment, and the second visit was made in the third month of the experiment if the blood glucose was stable.	Mainly carried out disease assessment, including HbA1c, fasting blood glucose, BMI, etc., timely understand the health status of patients, give insulin measurement, diet adjustment and exercise guidance.
Health education talk	It is held every 4 weeks	Help patients understand the dangers of diabetes; Learn the basic skills and knowledge to effectively manage diabetes.
Wechat group, QQ group	Untime	Invite patients and one family member to join, and provide patients with nursing information in various forms: regularly invite specialist doctors to wechat or QQ videos every two weeks to increase doctor-patient and nurse-patient communication; Issue event notice and release information; Push health education pictures or videos; Supervise patients' self-management clock; Answer patients' questions by video or voice and provide professional guidance.
Patient exchange meeting	Month 1 of the experiment	Encourage patients to know each other from online to offline, exchange treatment experience and experience, help patients increase self-confidence, improve enthusiasm, establish rehabilitation goals, and reduce complications.
Home visit	Second month of experiment	In-depth understanding of patients' self-management status and psychological state, answer patients' questions, and provide health guidance according to patients' own conditions.

2.3 Statistical method

SPSS 22.0 software was used for statistical analysis of the data. Quantitative data were expressed as mean ± standard deviation X±S, independent design two-sample t test or non-parametric test was used, classification data and grade data were expressed as percentage (%), and X2 test was used. $P < 0.05$ indicated statistically significant differences.

3. Results

3.1 Comparison of self-management scale scores between control group and intervention group before intervention

There was no significant difference in the scores of the self-management Scale (DSCS) before intervention between the two groups. See Table 3.

Table 3. Comparison of DSCS scores between control group and intervention group before intervention

Items	Control group（n=75）	Intervention group（n=71）	t	P
Exercise	12.82±1.81	12.81±1.93	0.428	0.966
Food and Beverage Management	20.48±2.30	20.51±2.55	0.099	0.921
medication management	11.45±1.66	11.52±1.58	0.345	0.730
blood sugar monitoring	12.16±1.89	11.95±1.91	0.884	0.378
foot care	16.65±2.18	16.62±2.14	0.111	0.912
Management of high and low blood sugar	13.84±2.01	13.82±1.99	0.080	0.937
Self-management score	87.36±5.19	87.23±4.68	0.210	0.834

3.2 Comparison of DSCS scores between control group and intervention group 3 months after intervention

Two groups of patients in the 3 months after the intervention of self-management scale (DSCS) score comparison, the results showed that the item score difference was statistically significant. See Table 4.

Table 4. Comparison of DSCS scores between the control group and the intervention group 3 months after intervention

Items	Control group（n=75）	Intervention group（n=71）	t	P
Exercise	13.15±1.79	16.11±1.83	13.080	0.000
Food and Beverage Management	21.21±2.34	24.87±2.26	12.715	0.000
medication management	11.76±1.59	12.87±1.52	5.702	0.000
blood sugar monitoring	12.76±2.09	14.97±1.99	8.653	0.000
foot care	16.86±1.87	19.33±2.15	9.823	0.000
Management of high and low blood sugar	14.19±1.93	16.37±1.83	9.261	0.000
Self-management score	89.93±4.77	104.52±4.89	24.161	0.000

4. Discussion

4.1 Analysis of self-management level of elderly diabetic patients before intervention

The total score of self-management behavior ranges from 26 to 130 points, and the lower the score, the lower the level of self-management. In this study, the self-management level of both the intervention group and the control group before intervention was at a moderate level[1], indicating the need for knowledge education and behavioral intervention for the six dimensions of self-management of elderly diabetic patients.Among these six dimensions, the dimension with the highest score rate is medication management and treatment of high and low blood glucose, followed by diet management, and the dimension with the lowest score rate is blood glucose monitoring.Drug treatment is the most basic treatment in the treatment of diabetes, and it is generally believed that taking medicine as prescribed by the doctor after illness is the most basic task for patients. In addition, the operation of taking medicine is simple, symptoms improve quickly after taking hypoglycemic drugs, drug advertising and publicity are also very common, and family members often remind elderly patients to take medicine, so elderly patients have relatively good medication compliance.

The scoring rate of high and low blood glucose management was second only to medication management in this study. The cornerstone of diabetes treatment is diet care, but the level of diet management in the two groups of patients before discharge is general, in the continuity of care after the process found that many elderly people do not attach importance to diet management at the beginning, think that eating hypoglycemic drugs are enough, diet control is optional, lack of awareness of the importance of diet control. And quite a few elderly people find it difficult to change their long-term bad eating habits in a short time.

Diabetic foot generally occurs in the later stages of diabetes, and many patients often take it lightly and do not pay attention to it in the early stages of the disease[2]. A study showed that the education level of DF patients affected the level of self-management, and the higher the education level of patients, the higher the level of self-management. Most of the patients in this study had low education, and the low score of foot care before discharge may be related to these reasons.Exercise is one of the effective treatments for diabetes. However, the exercise management level of patients before intervention in this study was poor, second only to blood glucose monitoring. Many patients do not dare to exercise for fear of causing hypoglycemia. In addition, many patients will not determine their own amount of exercise and exercise methods

according to their own different conditions such as age, physical strength, illness and complications. Some patients can not do exercise step by step and long-term adherence[3].

Blood glucose monitoring had the lowest score among all dimensions of self-management. It may have something to do with patients' misperceptions and finances. Blood glucose measurement is an invasive and complicated operation for the elderly, and studies have shown that most patients do not measure blood glucose because they are afraid of pain or do not have a good grasp of blood glucose monitoring technology. Some patients think that it is not necessary to monitor blood sugar without obvious discomfort, and some patients can not monitor blood sugar according to the requirements of doctors because of the economic pressure of monitoring blood sugar.

4.2 The influence of continuous care on self-management in elderly patients with diabetes

The results of this study showed that there was no statistically significant difference in the total score of self-management between the two groups before intervention ($P>0.05$). At 3 months after intervention, the total score of self-management in the intervention group was 104.52±4.89 points, while that in the control group was 89.93±4.77 points. The self-management score of the intervention group was higher than that of the control group ($P<0.05$).

This indicates that continuous nursing intervention has a significant effect on improving the self-management ability of elderly patients with diabetes.The main reason is that all the patients in this study participated in the experiment voluntarily, and they showed strong willingness and cooperation during the experiment. They obtained disease-related knowledge from the continuous care measures, changed their bad lifestyle, corrected their cognitive errors in self-care under the intervention of the continuous care team, and improved their self-management ability.

Although 37.50% of the patients in this study had primary school education or below, the researchers mainly used dialects to communicate according to the situation, ensuring smooth communication among all patients. The health education knowledge pushed on the wechat platform is mainly video and audio, so as to minimize the impact caused by the difference in education level and visual impairment. All patients are residents of the city or permanent residents of the city, which also ensures that patients are more convenient to participate in health lectures, patient friends and other activities provided by the continuous care team. Although there were a large number of patients with diabetes hospitalization experience (90.63%), there were very few patients who participated in patient organizations or wechat (10.16%). Activities such as patient meetings held by continuous care teams and the establishment of wechat groups were widely welcomed by patients and their families, which improved patients' enthusiasm to participate in self-management and patients' satisfaction was also improved.

Before intervention, the score rate of the 6 dimensions of self-management in the intervention group was between 60% and 80% except blood glucose monitoring, and the self-management level of these 5 dimensions was medium. The score rate of blood glucose monitoring was 58.25%, which belonged to poor self-management. Three months after the intervention, the score rates of exercise, diet management, medication management and treatment of high and low blood glucose were all >80%, indicating that the management ability of these four dimensions had reached a good level, while the score rates of blood glucose monitoring and foot care were still <80% three months after discharge, still belonging to the medium level. However, after 3 months of intervention, the score of blood glucose monitoring and foot care increased by 16.57% and 13.67%, respectively, compared with that before intervention, indicating that continuous care can improve the level of blood glucose monitoring and foot management, but not reach a good level after 3 months of intervention. It may be related to the patients' lack of attention to blood glucose monitoring and foot care before intervention and the short intervention time, indicating that the improvement of blood glucose monitoring and foot care needs a longer intervention time, and there is still a lot of room for development.

5. Conclusion

The self-management level of elderly diabetic patients in community was low. Continuous nursing intervention can significantly improve the self-management ability of elderly patients with diabetes. Help patients to change bad lifestyle, improve disease-related knowledge, improve treatment compliance.

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References

[1] Li M. Relationship between muscle attenuation and diabetes self-management behavior in elderly patients with type 2 diabetes [D]. Peking Union Medical College,2024.

[2] Liu Sufang, Ling Qiuping, Tang Fang. Investigation and analysis of complications in elderly patients with diabetes [J]. Nursing Practice and Research,2018,15(10):22-23. (in Chinese)

[3] Feng Jiayue. Study on improving self-management ability of elderly diabetic patients under the theory of knowledge, belief and action [D]. Jilin Agricultural University,2024.