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Research on the Application of Family Doctor Nursing Team under the Applied Medical Community for Elderly Patients with Diabetes in the Community

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Abstract: *Objective:* To explore the application value of family doctor nursing teams under the medical community among elderly patients with diabetes in the community. *Methods:* 48 community elderly patients with diabetes admitted to our hospital from May 2024 to May 2025 were selected and divided into a research group and a conventional group, with 24 patients in each group, using the random number table method. The conventional group adopted community routine diabetes care intervention methods, while the research group used the family doctor nursing team intervention model under the medical community, under the premise of routine care. The two groups of patients were compared in terms of blood sugar control level, self-management ability score, and nursing compliance. *Results:* After the intervention, the fasting blood glucose and 2-hour postprandial blood glucose levels of the study group were lower than those of the conventional group, the self-management ability score was higher than that of the conventional group, and the total nursing compliance rate was higher than that of the conventional group ($P < 0.05$). *Conclusion:* The intervention model of family doctor nursing team under the medical community can effectively improve the blood sugar control effect of elderly diabetic patients in the community, improve patients' self-management ability and nursing compliance, and has clinical promotion value.

Keywords: Medical community; Family doctor nursing team; Community elderly patients; Diabetes; Blood sugar control

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1. Introduction

The aging of the population continues to advance, and the prevalence of diabetes among elderly people in the community is increasing year by year. Diabetes is a chronic metabolic disease that requires long-term standardized management and control to stabilize blood sugar levels and reduce the probability of complications [1]. Current community care for elderly patients with diabetes mostly centers on routine health education. It suffers from shortcomings such as a lack of coherence and individualization of intervention, as well as loose coordination between medical and prevention. As a result, some patients have poor blood sugar control and weak self-management abilities. The construction of a medical community provides a new path for the optimization of primary care services and realizes the transfer of high-quality nursing services to the grassroots through the integration of regional medical resources. As the core carrier of the extension of medical community services, the

family doctor nursing team can provide patients with comprehensive and continuous nursing intervention by virtue of team collaboration [2]. Based on the above background, this study attempts to explore the application effectiveness of family doctor nursing teams in the care of elderly patients with diabetes in the community under the medical community model, and provide practical reference for improving the quality of community diabetes care.

2. Materials and methods

2.1. General information

48 community elderly patients with diabetes admitted to our hospital from January 2024 to December 2024 were selected as cases and divided into two groups using the random number table method. The research group included 24 patients, 13 men and 11 men, aged 60 to 82 (70.36 ± 5.12) years old. There were 24 patients selected in the conventional group, 12 men and 12 men, aged 61 to 83 (70.84 ± 5.08) years old. There is no statistical significance in general data comparison, $P > 0.05$.

Inclusion criteria: (1) meet the diagnostic criteria for diabetes and are ≥ 60 years old; (2) live in the community and voluntarily participate in the study; (3) have clear consciousness and can cooperate with nursing intervention.

Exclusion criteria: (1) People with severe cardiovascular and cerebrovascular diseases; (2) People with cognitive dysfunction who cannot communicate normally; (3) People who refuse to participate in this study.

2.2. Method

The regular group implements community-based basic diabetes care intervention, including regularly organizing diabetes health science lectures, distributing health education manuals, conducting blood glucose testing every 3 months, and providing guidance on basic medication.

On the basis of routine care, the research team used the family doctor nursing team to intervene under the medical community model, that is:

(1) Establishing a specialized nursing team. The team is composed of family doctors, community nurses, specialist nutritionists, and rehabilitation therapists, all of whom have participated in special training on diabetes specialist care. The division of responsibilities of each member has been clarified, and a linkage and collaboration mechanism between the upper and lower levels of the medical community has been established. The medical community platform can quickly connect with specialists from higher-level hospitals.

(2) Personalized nursing plan. Team members conduct a comprehensive assessment of the patient and develop a personalized nursing plan based on the patient's blood sugar level, physical condition, living habits, etc. The nursing plan includes specific intervention measures such as diet and exercise.

(3) Continuous health education, continuous intervention in the form of door-to-door follow-up, telephone follow-up, etc., at least once a month for door-to-door follow-up, and once every two weeks by phone, to timely understand the patient's blood sugar control, adjust nursing plans, and answer health-related questions of patients and their families.

(4) Medication guidance. The family doctor optimizes the medication plan based on the patient's blood sugar monitoring results and liver and kidney function status. The community nurse is responsible for guiding the patient to use the medication correctly, including the usage and dosage of the medication, medication time, precautions, etc., and improving the patient's medication accuracy through demonstration and repeated emphasis. Patients who use insulin focus on guiding methods such as insulin injection site rotation and dose adjustment, to avoid adverse events such as hypoglycemia caused by improper medication.

(5) Standardize blood sugar monitoring management, guide patients and their families to use blood glucose meters correctly, standardize blood sugar monitoring processes, require patients to keep blood sugar monitoring records, team members review records regularly, adjust intervention measures according to blood sugar fluctuations, and patients with poor blood sugar control are promptly connected to higher-level hospitals for further diagnosis and treatment.

(6) Complication prevention intervention. Based on the common risks of complications in elderly patients with diabetes, team members regularly conduct foot examinations, fundus screenings, carotid artery B-ultrasounds, etc., and guide patients on foot care, such as soaking their feet in hot water with a suitable temperature every day, choosing appropriate shoes and socks, etc. They also explain the knowledge about identifying early symptoms of complications to improve patients' self-warning capabilities and reduce the risk of complications.

(7) Psychological support intervention. Elderly patients with diabetes are prone to negative emotions such as anxiety and depression due to long-term illness. The nursing team detects patients' emotional changes in a timely manner, uses emotional counseling and psychological comfort methods to alleviate negative emotions, and invites patients with well-controlled disease to share their experiences, enhance patients' confidence in treatment, and improve nursing cooperation.

2.3. Observation indicators

(1) Compare the blood sugar control levels of the two groups before and after intervention, including fasting blood sugar and 2-hour postprandial blood sugar.

(2) Compare the self-management ability scores of the two groups after the intervention, using the Diabetes Self-Management Behavior Scale. The score range of this scale is 0 to 100 points. The higher the score, the stronger the self-management ability.

(3) Compare the cooperation of the two groups after the intervention, and divide the two groups into three categories: complete compliance, partial compliance, and non-compliance. The calculation formula of the total cooperation rate is (number of cases of complete compliance + number of cases of partial compliance) divided by the total number of cases and multiplied by 100.

2.4. Statistical methods

Data were analyzed using SPSS 24.0. Measurement data that conform to normal distribution are expressed as mean plus or minus standard deviation and subjected to t test; count data are expressed as a percentage and subjected to χ^2 test. $P < 0.05$ represents a significant difference.

3. Results

3.1. Comparison of blood sugar control levels between the two groups before and after intervention

After the intervention, the two blood glucose index levels in the study group were lower than those in the conventional group ($P < 0.05$). See **Table 1** for details.

Table 1. Comparison of blood glucose control levels between the two groups before and after intervention (mean ± SD, mmol/L)

Group	Fasting blood glucose (before intervention)	Fasting blood glucose (after intervention)	Blood glucose 2 hours after meal (before intervention)	Blood glucose 2 hours after meal (after intervention)
Regular group ($n = 24$)	9.26 ± 1.34	7.85 ± 1.06	12.58 ± 1.62	10.36 ± 1.24
Research group ($n = 24$)	9.32 ± 1.36	6.54 ± 0.98	12.64 ± 1.65	8.42 ± 1.12
t	0.231	4.446	0.127	5.688
P	0.818	0.000	0.899	0.000

3.2. Comparison of self-management ability scores between the two groups after intervention

After the intervention, the self-management ability score of the research group was higher than that of the conventional group ($P < 0.05$). See **Table 2** for details.

Table 2. Comparison of self-management ability scores between the two groups after intervention (mean ± SD, points)

Group	Self-management ability score
Regular group ($n = 24$)	65.38 ± 6.24
Research group ($n = 24$)	78.65 ± 6.82
t	7.033
P	0.000

3.3. Comparison of nursing compliance between the two groups after intervention

The total nursing compliance rate of the study group was higher than that of the conventional group ($P < 0.05$), see **Table 3** for details.

Table 3. Comparison of nursing compliance between the two groups after intervention [n (%)]

Group	Complete compliance	Partial compliance	Noncompliance	Overall compliance rate
Regular group ($n = 24$)	8 (33.33)	9 (37.50)	7 (29.17)	17 (70.83)
Research group ($n = 24$)	15 (62.50)	9 (37.50)	0 (0.00)	24 (100.00)
χ^2				6.021
P				0.014

4. Discussions

The core goal of building a medical community is to promote medical resources to the grassroots and achieve continuity of medical services. Elderly patients with diabetes have an urgent need for continuous and personalized care services due to declining body functions and weak self-management capabilities. The family doctor nursing team relies on the medical community platform to integrate multidisciplinary resources and can provide comprehensive nursing intervention for elderly patients with diabetes in the community. This model is in line with the current development trend of grassroots chronic disease management and control [3]. The results of this study show that the fasting blood glucose and 2-hour postprandial blood glucose levels of the study group after the intervention were lower than those of the conventional group, indicating that the family doctor nursing team intervention model under the framework of the medical community can effectively improve patients' blood sugar control. The reason is that this nursing model has established a special team including family doctors, community nurses, specialist nutritionists and rehabilitation therapists to conduct comprehensive assessments of patients and formulate personalized care plans through multidisciplinary collaboration, ensuring that the intervention measures are targeted and scientific. Compared with routine care, which only focuses on basic health education, the continuous health management implemented by the research team can timely grasp the patient's blood sugar fluctuations and effectively improve the accuracy of blood sugar control through dynamic adjustment of nursing plans and medication guidance [4]. At the same time, the team used a variety of follow-up methods to strengthen communication with patients, answer patients' questions in a timely manner, and correct bad living habits, further consolidating the effect of blood sugar control. Very importantly, the research team's newly added complication prevention intervention and

psychological support intervention specifically solve the problem of high risk of complications and obvious negative emotions in elderly patients. Complication prevention measures form a complete system from early screening to daily care, which reduces blood sugar fluctuations caused by complications, while psychological support improves patients' initiative in nursing cooperation and indirectly promotes the optimization of blood sugar control effects [5].

After the intervention, the self-management ability score of the study group was higher than that of the conventional group, suggesting that the family doctor nursing team intervention model under the framework of the medical community can significantly improve patients' self-management ability. Self-management ability is a key factor affecting long-term blood sugar control in diabetic patients. Elderly patients often have weak self-management abilities due to their limited cognitive level and lack of awareness of the disease. Health propaganda and education manuals in routine care are difficult to meet the patients' individual cognitive needs. The research team used personalized guidance from a special team to explain diabetes-related knowledge in easy-to-understand language based on the patients' cognitive characteristics, including the importance of diet and medication. At the same time, team members use demonstration teaching to guide patients to correctly operate blood glucose meters and standardize medication, and improve patients' operating skills through repeated intensive training [6]. During the continuous follow-up process, the team promptly recognized the patient's positive behavior and provided targeted guidance to help the patient gradually establish correct disease management concepts and develop good living habits, thereby effectively improving self-management capabilities. In addition, the team also attaches great importance to the guidance of patients' families, and uses the supervision and assistance of family members to further strengthen patients' self-management behaviors and lay the foundation for long-term blood sugar control.

The total nursing compliance rate of the study group was higher than that of the conventional group, indicating that the family doctor nursing team intervention model under the medical community can effectively improve patient nursing compliance. Nursing compliance is directly related to the effectiveness of diabetes nursing intervention. Due to the lack of effective supervision and guidance, elderly patients in the community often have poor compliance such as irregular medication use and poor dietary control. Routine nursing lacks an effective supervision mechanism, making it difficult to ensure that patients effectively implement nursing measures [7]. The research team established a close communication mechanism between doctors and patients by forming a family doctor nursing team. Team members maintain close contact with patients through door-to-door follow-up visits, telephone follow-up visits, etc., and timely grasp the implementation of patient care and implement supervision. For patients with poor compliance, team members conduct an in-depth analysis of the reasons and provide targeted intervention. For example, through case explanations, patients can understand the harm of non-standard care, and through emotional support, they can alleviate patients' resistance. At the same time, the personalized care plan developed by the team fully considers the patient's living habits and physical condition, reducing the difficulty for patients to implement nursing measures and improving patient acceptance. In addition, the support of the medical community platform allows patients to quickly connect to higher-level hospitals when problems arise, which enhances patients' trust in the nursing team and thereby improves nursing compliance [8].

5. Conclusion

Taken together, the family doctor nursing team intervention model under the medical community shows significant advantages in the care of elderly patients with diabetes in the community. It can not only effectively improve patients' blood sugar control effects, but also improve patients' self-management ability and nursing compliance. Team members establish a stable doctor-patient trust relationship with patients during the intervention process. This trust relationship not only helps to improve the effectiveness of current nursing intervention, but also lays the foundation for the subsequent development of other health services and promotes the improvement of the community health management system.

About the author

He Aitao (1978-), female, Han nationality, native of Nanjing, Jiangsu Province, bachelor's degree, currently titled as deputy community chief nurse, working at Zhetang Central Health Center, Lishui District, Nanjing City.

Disclosure statement

The author declares no conflict of interest.

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