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Analysis of the Effect of Outpatient Nursing Intervention on Hypoglycemic Treatment Effect and Psychological Emotions of Diabetic Patients

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Abstract: *Objective:* To explore the effect of outpatient nursing interventions on the hypoglycemic treatment and psychological emotions of diabetic patients. *Methods:* 148 patients who came to our hospital for outpatient treatment from February 2022 to October 2023 were selected and divided into a control group and an observation group, with 74 cases per group, according to the random number table method. The control group received routine nursing intervention, and the observation group received outpatient nursing intervention based on the control group. The two groups were observed for their effects of hypoglycemic treatment and psychological and emotional improvement before and after outpatient nursing intervention. *Results:* The health behavior scores of the control group were lower than that of the observation group; the post-intervention fasting blood glucose, 2h postprandial blood glucose, anxiety self-rating scale (SAS), and the depression self-rating scale (SDS) of the control group were significantly higher than that of the observation group, and the difference was statistically significant ($P < 0.01$). *Conclusion:* Outpatient nursing intervention encouraged patients to comply with healthy behaviors and helped control blood sugar levels. Patients' anxiety, depression, and other adverse psychological states were also improved hence the outpatient nursing intervention is worthy of further promotion.

Keywords: Outpatient nursing intervention; Diabetes; Hypoglycemic effect; Psychological emotion

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1. Introduction

Diabetes is a common chronic disease and a global health issue, with increasing incidences each year. China is no different, where more and more individuals are being affected at a young age [1]. Treatment and management of diabetes pose important implications for patients' health and quality of life. However, many patients face challenges such as blood sugar fluctuations and hypoglycemic reactions during anti-diabetic treatment, leading to reduced confidence in treatment and increased psychological pressure. As a comprehensive nursing measure, outpatient nursing intervention plays an important role in managing diabetic patients [2]. This article explores the impact of outpatient nursing intervention on the effect of hypoglycemic treatment and psychological emotions of diabetic patients to promote the further development of diabetes care.

2. Materials and methods

2.1. General information

148 patients who came to our hospital for outpatient treatment from February 2022 to October 2023 were selected as the research subjects and were divided into a control group and an observation group with 74 cases each, according to the random number table method. There were 44 males and 30 females in the control group, with an average age of (57.28 ± 4.58) years; in the observation group, there were 41 males and 33 females, with an average age of (56.12 ± 4.32) years. The comparison of baseline data between the two groups was statistically insignificant ($P > 0.05$). Inclusion criteria: (1) The patient's clinical diagnosis complied with the World Health Organization's diagnostic standards for diabetes; (2) the patient's clinical information was complete, was conscious, and signed an informed consent form. Exclusion criteria: (1) Acute diabetic complications; (2) presence of malignant tumors.

2.2. Method

The control group received routine nursing intervention. Posters regarding correct medication use and reasonable diet plans for diabetic patients were posted, and any relevant knowledge and regular follow-up visits were explained to the patients.

The observation group received various outpatient nursing interventions based on the control group: (1) Patients were guided on the correct use of hypoglycemic drugs according to their condition and the doctor's advice. At the same time, the drugs' side effects and precautions were explained to the patients to ensure the safety and effectiveness of the medication. (2) The patient's psychological condition was monitored and psychological support and guidance were provided. Support was provided to help patients understand about the disease, and increase their confidence and treatment compliance. (3) Patients were provided with professional nutritional consulting services, and personalized diet plans were formulated based on the patient's condition and dietary needs. (4) Health lectures were held and promotional materials were distributed to enhance the patient's basic knowledge of diabetes, dietary adjustments, the importance of exercise, and other aspects. Patients were encouraged to establish a healthy lifestyle and improve self-management capabilities. (5) A follow-up management system was established to check up on patients regularly and identify any changes in the patient's condition and effects of the treatment. Based on the follow-up results, treatment plans, and nursing interventions were adjusted promptly to ensure that patients receive utmost effective treatment and care.

2.3. Observation indicators

The various observation indicators in this study are shown in **Table 1.**

Table 1. Observation indicators

Observation indicators	Item	Standard
Health score sheet	1) Healthy diet 2) Self-monitoring 3) Follow the doctor's instructions 4) Moderate exercise 5) Regular review	Each item corresponds to 25 questions, with a total score of 100 points. The higher the score, the better the patient's compliance.
Blood sugar level	1) Fasting blood sugar 2) Blood sugar 2 hours after meal	
Anxiety self-rating scale (SAS scale)		The full score is 100 points; the higher the score, the higher the anxiety level.
Depression self-rating scale (SDS scale)		The full score is 100 points; the higher the score, the greater the depression.

2.4. Statistical methods

SPSS 20.0 statistical software was used for data processing. Measurement data were consistent with normal distribution and expressed as mean ± standard deviation, and an independent-sample *t*-test was used to compare data. Results were considered statistically significant when $P < 0.05$.

3. Results

3.1. Comparison of health behavior scores between the two groups of patients before and after intervention

As shown in **Table 2**, it was observed that the health behavior scores of the control group were lower than those of the observation group, and the difference was statistically significant ($P < 0.01$).

Table 2. Comparison of health behavior scores between the two groups of patients before and after intervention

Health behavior indicators	Control group (n = 74)	Observation group (n = 74)	t	P
Healthy diet	81.58 ± 3.25	92.28 ± 4.23	15.387	0.000
Self-monitoring	80.59 ± 4.24	93.57 ± 4.06	19.021	0.000
Follow medical instructions	80.17 ± 4.21	90.39 ± 3.99	15.157	0.000
Moderate exercise	83.27 ± 4.07	91.67 ± 4.58	11.793	0.000
Regular review	82.63 ± 3.99	93.56 ± 4.31	16.009	0.000

3.2. Comparison of blood glucose levels between the two groups of patients before and after nursing intervention

As shown in **Table 3**, it was observed that the fasting blood glucose and 2h postprandial blood glucose of the two groups of patients after the intervention were lower than before the intervention. The control group's postintervention fasting blood glucose and 2h postprandial blood glucose was significantly higher than the observation group. The difference was statistically significant ($P < 0.01$).

Table 3. Comparison of blood glucose levels before and after nursing intervention between the two groups of patients

Blood sugar indicator		Control group (n = 74)	Observation group (n = 74)	t	P
Fasting blood glucose	Before intervention	8.62 ± 1.85	8.58 ± 1.78	0.134	0.894
	After intervention	7.69 ± 1.80	6.51 ± 1.52	4.309	0.000
Blood sugar 2 hours after meal	Before intervention	11.51 ± 2.26	11.63 ± 2.19	0.328	0.743
	after intervention	9.56 ± 1.82	8.12 ± 1.57	5.154	0.000

3.3. Comparison of SAS and SDS scores between the two groups of patients before and after nursing intervention

As shown in **Table 4**, it was observed that after the intervention, the SAS scores and SDS scores of the two groups of patients decreased, and the SAS scores and SDS scores of the control group after the intervention were significantly higher than those of the control group; the difference was statistically significant ($P < 0.01$).

Table 4. Comparison of SAS and SDS scores of two groups of patients before and after nursing intervention

Indicator		Control group (n = 74)	Observation group (n = 74)	t	P
SAS score	Before intervention	65.28 ± 7.24	66.57 ± 7.05	1.098	0.274
	After intervention	52.68 ± 4.53	46.90 ± 3.25	8.918	0.000
SDS score	Before intervention	62.87 ± 6.41	63.12 ± 6.33	0.239	0.812
	After intervention	48.89 ± 5.16	41.31 ± 5.01	9.066	0.000

4. Discussion

Diabetes is a common chronic endocrine and metabolic disease, mainly characterized by elevated blood sugar levels. It is caused by insufficient insulin secretion or damage to insulin receptors, which leads to a reduction in the utilization of glucose by various tissues in the body, resulting in the rise of blood sugar levels, and the occurrence of glycosuria after exceeding the levels of the renal glucose threshold. The typical symptoms of diabetic patients are polyuria, polydipsia, polyphagia, and weight loss, [3]. However, many patients may only find elevated blood sugar during physical examination with no obvious symptoms during the early stages of diabetes. Long-term hyperglycemia may lead to a variety of complications, such as cardiovascular disease, retinopathy, kidney disease, etc., which adversely affect the patient's health and quality of life. Therefore, the implementation of appropriate nursing intervention is important [4–6].

As a comprehensive nursing measure, outpatient nursing intervention includes drug guidance, psychological counseling, nutritional consultation, health education, follow-up management, and many other aspects. Outpatient nursing intervention has many advantages for the care of diabetic patients. First, outpatient nursing interventions can help patients better control their blood sugar. Through regular blood sugar monitoring, dietary guidance, exercise suggestions, etc. [7], patients are assisted in adjusting their lifestyle, improving their self-management ability, and thus have overall better control of their blood sugar. Outpatient nursing intervention can also detect blood sugar fluctuations in time and provide corresponding treatment measures to avoid complications caused by excessively high or low blood sugar [8].

In this study, after outpatient nursing intervention, the blood sugar level of the observation group dropped significantly as compared to that of the control group. Secondly, outpatient nursing interventions can assist patients in better managing their medication intake. Doctors can develop personalized drug treatment plans based on the patient's conditions and provide appropriate medication guidance and supervision. This ensures that patients use the drugs correctly to avoid adverse reactions such as drug allergies. At the same time, problems in drug treatment can be discovered in time, and drug dosages can be adjusted or replaced promptly. Diabetes is a chronic disease that requires long-term management and control [9], so patients are prone to negative emotions such as anxiety and depression. Outpatient nursing intervention can provide patients with psychological support to increase the patient's confidence and treatment compliance. In this study, the psychological emotions of the two groups of patients before and after the intervention were evaluated based on the Anxiety Self-Rating Scale (SAS) and the Depression Self-Rating Scale (SDS). It was found that after the intervention, the observation group's SAS and SDS scores were significantly lower than those of the control group. This showed that outpatient nursing intervention can improve anxiety, depression, and other negative emotions. In addition, outpatient nursing interventions can help patients improve their self-management skills. Through health education and other methods, patients can increase their understanding of diabetes and self-

management skills to establish a healthy lifestyle [10]. Patients are also encouraged to follow a reasonable diet plan and undergo appropriate exercise, etc., to manage their disease better and promote the recovery and control of the disease.

In addition to lowering blood sugar and improving negative emotions such as anxiety and depression, outpatient nursing intervention also has other positive effects on diabetic patients. Tao et al. [11] believed that outpatient nursing intervention could improve the quality of life of elderly patients with diabetes; Luo [12] believed that outpatient nursing intervention could not only improve patient's quality of life but also improve their cognitive level; Jiang [13] believed that outpatient nursing intervention can effectively improve patient prognosis.

There are limitations to this research. Firstly, the sample size was relatively small, which may affect the generalizability and reliability of the results. Secondly, this study mainly focused on the patient's conditions during outpatient care but lacked long-term follow-up data. This may limit the study results and prevent a comprehensive assessment of the actual effects of ambulatory care interventions. Therefore, follow-up data collection and a bigger sample size should be considered in future studies.

Disclosure statement

The author declares no conflict of interest.

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