

The impact of nursing care on patient outcomes in patients with diabetes mellitus

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Abstract. Diabetes mellitus (DM) is one of the most common chronic diseases, posing a major challenge to health systems worldwide. Effective management of DM requires not only drug therapy but also a comprehensive approach that includes educational programs and support from health care providers. This study aims to evaluate the impact of nursing care on the clinical outcomes of patients with diabetes mellitus as well as their quality of life. The study included a sample of 200 patients diagnosed with type 2 diabetes mellitus treated at an endocrinology center. Patients were divided into two groups: one group received standard treatment, while the second group additionally had access to nursing care, which included regular counseling, self-management education, and psychological support. Study methods included analysis of glycated hemoglobin (HbA1c) levels, questionnaires to assess quality of life and treatment adherence. The main results showed that patients who received nursing care achieved a significant reduction in HbA1c levels (1.7% on average) compared to the control group. In addition, the level of treatment satisfaction in this group of patients was 85%, significantly higher than in the control group (60%). These findings emphasize the importance of nurses' active participation in the treatment process, which contributes not only to improving clinical outcomes but also to improving patients' quality of life. The findings of the study support the need to integrate nursing care into the standards of diabetes care to achieve optimal outcomes and improve the overall health of patients with diabetes mellitus.

Keywords: Diabetes mellitus, nursing care, HbA1c, quality of life, diabetes management, medical support, self-management, treatment satisfaction, chronic disease, endocrinology, research, clinical outcomes, diabetic patients, health care providers, educational programs.

Introduction. Diabetes mellitus (DM) is one of the most common chronic diseases, affecting millions of people worldwide. According to the World Health Organization (WHO), the number of people with diabetes exceeded 537 million in 2021, and this number is expected to increase to 783 million by 2045. This trend places a significant burden on healthcare systems, requiring the implementation of effective disease management strategies. Effective diabetes management requires a multifactorial approach that includes not only drug therapy, but also educational and supportive programs for patients. Studies show that patients' active participation in the treatment process, including education on self-management and lifestyle changes, significantly improves clinical outcomes and quality of life (Gonzalez et al., 2020; Smith & Johnson, 2021). In this context, nursing care plays a key role by providing not only medical care but also emotional support, which contributes to better treatment adherence.

Nursing care includes a wide range of interventions such as monitoring blood glucose levels, educating patients about nutrition, physical activity and self-management, and providing

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psychological support. According to a study conducted by Lee et al (2019), patients receiving nursing care have lower HbA1c levels and higher treatment satisfaction scores compared to patients receiving standard care. Despite the importance of nursing care, many patients do not receive the necessary support, which can lead to poorer glycemic control and increased risk of complications. Thus, there is a need to systematically study the impact of nursing care on clinical outcomes in patients with diabetes mellitus.

The aim of this study is to evaluate the impact of nursing care on patient outcomes in patients with diabetes mellitus. To achieve this goal, the following objectives were set: To determine the level of glycemic control in patients receiving nursing care using HbA1c score. To assess patient satisfaction with treatment using questionnaires aimed at eliciting opinions on quality of care and level of support. Analyzing treatment adherence, including the use of self-monitoring diaries and regular visits to the physician. This study aims to identify the relationship between the quality of nursing care and clinical outcomes, which may contribute to improving the standard of care for patients with diabetes mellitus. The relevance of the study of the impact of nursing care on the health outcomes of patients with diabetes mellitus is due to several factors. First, the increasing incidence of diabetes mellitus is a global problem that requires attention from the medical community and health care systems. According to WHO, the incidence of diabetes continues to rise, resulting in an increase in complications associated with the disease such as cardiovascular disease, nephropathy and neurological disorders. This creates a need to develop effective disease management strategies, including improving the quality of nursing care. Secondly, studies show that active involvement of nurses in the treatment process significantly affects adherence to therapy and the level of glycemic control in patients.

Nursing care provides not only medical care but also emotional support, which helps to increase patients' motivation to adhere to treatment recommendations and make lifestyle changes. This is particularly important in an increasingly strained health care system where lack of resources and time may limit physicians' abilities. Third, although the importance of nursing care has been recognized, there is a dearth of systematic research on its impact on clinical outcomes in patients with diabetes mellitus. Many previous studies have focused on drug therapy and its efficacy, whereas the role of nursing care remains understudied. This study aims to fill this lacuna and provide new data that can be used to optimize treatment approaches for patients with diabetes. Thus, the relevance of the research topic stems from the need to improve the quality of nursing care as one of the key factors contributing to the successful management of diabetes mellitus and improving the quality of life of patients.

Materials and Methods. The study was conducted in an endocrinology center and included a sample of 200 patients with type 2 diabetes mellitus. The participants were randomly divided into two groups: the first group (control) received standard treatment and the second group (experimental) additionally received nursing care. This allowed us to evaluate the effect of nursing care on clinical outcomes and quality of life of the patients. Patients aged 18 to 75 years, diagnosed with type 2 diabetes mellitus for at least one year, who agreed to participate in the study and signed informed consent. 100 patients receiving standard treatment including drug therapy (oral hypoglycemic agents) and recommendations for diet and physical activity. 100 patients receiving standard treatment as well as additional nursing care services, which included self-management education, support for lifestyle changes, and regular health monitoring. Standardized questionnaires to assess quality of life and treatment satisfaction, such as the Diabetes Quality of Life Scale (DQOL) and the Diabetes Treatment

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Satisfaction Questionnaire (DTSQ), were used. The questionnaires were completed by participants at the beginning of the study and after 6 months. This allowed assessment of changes in perceived quality of life and treatment satisfaction.

Purpose: To determine the impact of nursing care on patients' subjective perception of their condition and the quality of care received.

Results. The following results were obtained during the study, which demonstrate the effect of nursing care on clinical and subjective health indicators of patients with type 2 diabetes mellitus. The results showed that patients who received nursing care had an HbA1c level of $6.5 \pm 0.8\%$, significantly lower than the $8.2 \pm 1.0\%$ in the control group ($p < 0.01$). These findings support those of Gonzalez et al. (2020), who showed that nurses' involvement in the treatment process contributes to improved glycemic control. Reduced HbA1c levels were associated with greater self-monitoring and adherence to treatment recommendations, which was achieved with additional support from nurses. The level of satisfaction with treatment in the group with nursing care was 85%, compared to only 60% in the control group ($p < 0.05$). These results are consistent with Smith & Johnson (2021) who emphasize the importance of emotional support and educational interventions provided by nurses. Treatment satisfaction is an important indicator that affects patients' adherence to therapy and consequently their clinical outcomes. Treatment adherence in the group with nursing care was 75%, compared to only 50% in the control group ($p < 0.05$). These findings support the findings of Lee et al. (2019), who emphasize that regular monitoring and support from nurses promote patient ownership of their health. The use of self-monitoring diaries and regular discussions of results with nurses helped patients to become more aware of the importance of treatment adherence and its impact on their health.

The obtained results confirm the hypothesis that nursing care has a positive effect on clinical and subjective health indicators of patients with type 2 diabetes. The implementation of the nursing care system can become an important element in the diabetes management strategy, which requires further study and implementation in clinical practice.

Conclusion. Nursing plays a key role in diabetes management, providing not only medical care but also support that improves the overall health of patients. The results of this study highlight the importance of integrating nursing care into comprehensive diabetes care to achieve better clinical outcomes and improve patients' quality of life.

Importance of Nursing Care

-Improved Glycemic Control: Results showed that patients who received nursing care demonstrated significantly lower HbA1c levels compared to the control group. This confirms other studies that indicate that active involvement of nurses in the treatment process contributes to more effective blood glucose control. Support from nurses includes teaching patients self-monitoring, which allows them to take a more conscious approach to their treatment.

- Increased treatment satisfaction: The high level of treatment satisfaction in the nursing group (85%) indicates that patients value the support and attention they receive from nurses. Satisfaction is an important factor influencing adherence to therapy, which in turn can reduce the risk of complications and improve overall treatment outcomes.

- Compliance with treatment: The results of the study showed that patients who received nursing care were more likely to comply with the treatment regimen. This is due to the fact that nurses not only educate patients, but also motivate them by providing the necessary emotional support. Data from

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self-monitoring diaries confirm that regular monitoring and discussion of results with nurses contribute to increasing patients' responsibility for their health.

Recommendations. Based on the findings, it is recommended that the following strategies be implemented into nursing practice to improve outcomes for patients with diabetes:

-Educational programs: Develop and implement educational programs to teach patients the basics of self-monitoring, proper nutrition, and physical activity. These programs should be tailored to the individual needs of patients and include practical training.

-Psychological support: Incorporating elements of psychological support into nursing care to help patients cope with the emotional and psychological aspects of the disease. Psychological support may include group sessions, individual consultations, and support from nurses.

-Interdisciplinary approach: Collaboration of nurses with other specialists, such as endocrinologists, dietitians, and psychologists, to create a comprehensive treatment plan that takes into account all aspects of the patient's health. Thus, nursing care is an integral part of effective diabetes management. The introduction of educational programs and psychological support into nursing practice can significantly improve treatment outcomes, increase the quality of life of patients, and reduce the risk of complications. Further research in this area can help in the development of more effective strategies and approaches to diabetes management.

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