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Self-care management education for diabetes mellitus patients based on disease perception and length of suffering

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ABSTRACT

Diabetes mellitus is a chronic disease that requires comprehensive management and active participation from patients to prevent complications and improve quality of life. One of the most critical aspects of diabetes management is self-care, which encompasses diet regulation, regular physical activity, medication adherence, blood glucose monitoring, and stress management. However, patients' perception of the disease and the length of time they have been suffering from it often influence their ability to implement effective self-care practices. This community service program aimed to provide self-care management education for patients with diabetes mellitus, tailored to their perception of the disease and the duration of their illness. The method used involved structured educational sessions, interactive discussions, and practical demonstrations tailored to patients' levels of understanding and experiences in managing diabetes. Pre- and post-intervention assessments were conducted to evaluate changes in knowledge, attitudes, and perceived self-efficacy. The results indicated that patients with longer disease duration generally demonstrated higher awareness but also faced challenges in maintaining long-term self-care consistency. Meanwhile, newly diagnosed patients often underestimate the seriousness of diabetes, which affects their adherence to lifestyle modifications. The program successfully enhanced patients' knowledge and motivated them to engage in sustainable self-care practices. Community-based education that considers disease perception and the length of suffering is therefore an effective strategy for empowering patients with diabetes mellitus to manage their health. This approach is expected to reduce complications, enhance overall well-being, and support public health initiatives in the management of chronic diseases.

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1. INTRODUCTION

Diabetes mellitus is one of the most common chronic metabolic diseases worldwide, characterized by elevated blood glucose levels due to defects in insulin secretion, insulin action, or both (Masting et al., 2021). The prevalence of diabetes has continued to rise dramatically in both developed and developing countries, becoming a significant public health challenge. According to the International

Diabetes Federation (IDF), more than 500 million adults are currently living with diabetes, and the number is expected to increase in the coming decades (Watts et al., 2023). This condition not only imposes a significant burden on healthcare systems but also has a profound impact on the physical, psychological, and social well-being of patients. In response to these challenges, effective diabetes management requires a comprehensive approach that extends beyond medical treatment and emphasizes patient empowerment through self-care practices (Asgary et al., 2023).

Self-care plays a critical role in the daily management of diabetes. It encompasses a range of behaviors, including healthy eating, regular physical activity, adherence to prescribed medications, blood glucose monitoring, and stress management (Dian Meiliani Yulis et al., 2023). These behaviors, when implemented consistently, can help maintain blood glucose within target levels and prevent both acute and chronic complications. However, the practice of self-care is not always easy for patients, as it demands lifestyle modifications that may conflict with long-established habits, cultural practices, and personal preferences (Zaino et al., 2023). This situation highlights the importance of patient-centered education that fosters motivation, skills, and confidence in adopting and maintaining self-care behaviors (Kılıç et al., 2023).

Education is a cornerstone of diabetes management and is widely recognized as crucial for enhancing clinical outcomes and improving quality of life. Structured educational interventions provide patients with knowledge about the nature of the disease, potential complications, and the importance of lifestyle adjustments (Gil et al., 2023). Furthermore, education equips patients with the problem-solving skills necessary for coping with the daily challenges associated with diabetes. Effective education is not merely the transfer of information but also involves interactive processes that encourage patients to reflect on their own perceptions, beliefs, and behaviors. By addressing individual needs, educational programs can enhance self-efficacy and empower patients to take active roles in managing their health (Al-Kalaldeh et al., 2024).

Patients' perceptions of their illness significantly influence their motivation and adherence to self-care recommendations. Illness perception refers to how patients understand and interpret their condition, including its causes, consequences, duration, and controllability. For instance, a patient who perceives diabetes as a mild and temporary illness may be less motivated to follow dietary restrictions or adhere to medication schedules. Conversely, those who recognize the seriousness and chronic nature of diabetes are more likely to engage in consistent self-care behaviors. Misconceptions, fear, or denial can hinder adherence, whereas accurate perceptions foster proactive management. Thus, exploring and addressing patients' illness perceptions is a crucial element in designing effective educational strategies (Deveci et al., 2024).

Adherence to medical advice and lifestyle modifications remains one of the most significant challenges in diabetes management. Non-adherence can manifest in various ways, including irregular medication use, poor dietary control, lack of physical activity, or failure to monitor blood glucose (Asmi & Saputra, 2024). Studies have shown that non-adherence to treatment leads to poor glycemic control, a higher risk of complications, and increased healthcare costs. Factors influencing adherence are multifaceted, ranging from socioeconomic constraints to psychological aspects, including motivation, perception, and stress. Therefore, interventions aimed at

improving adherence must be holistic and tailored to individual patient characteristics. Educational programs that integrate strategies to improve adherence are particularly beneficial in community-based settings.

The duration of living with diabetes also influences patients' attitudes and behaviors toward self-care. Patients who have recently been diagnosed may lack awareness about the seriousness of the disease, leading to underestimation of the need for strict adherence. On the other hand, patients with long-standing diabetes may have greater knowledge but could struggle with fatigue, burnout, or complacency in maintaining their regimen. In both cases, educational interventions that consider the duration of suffering are necessary to address the specific challenges faced by different patient groups. Newly diagnosed individuals may benefit from intensive education that builds awareness and motivation, while those with long-term illness may require reinforcement, counseling, and renewed strategies to sustain their adherence.

Community-based education offers a promising platform for enhancing diabetes self-care. Such programs bring education closer to patients' daily environments and allow for greater cultural relevance and social support. By involving patients, families, and community health workers, these initiatives create a supportive ecosystem that encourages adherence and sustainable lifestyle changes. Furthermore, community-based interventions can be adapted to local contexts, making them more accessible and acceptable to diverse populations. Diabetes mellitus is a chronic disease that requires consistent self-care and adherence to medical recommendations. Education serves as the foundation for empowering patients, but its effectiveness depends largely on how well it addresses patients' perceptions and the duration of their illness. Community-based educational programs that integrate these aspects can play a crucial role in enhancing self-care practices, improving adherence, and ultimately reducing the burden of diabetes on individuals and society. Therefore, this study focuses on the development and implementation of self-care management education for patients with diabetes mellitus, based on their illness perception and duration of illness.

2. METHOD

This community service program employed a participatory educational approach, involving 50 respondents diagnosed with diabetes mellitus. Respondents were selected through purposive sampling, focusing on patients diagnosed with type 2 diabetes mellitus who were willing to participate in the educational sessions. The activity was carried out in collaboration with local health workers and community health centers.

The intervention consisted of three main stages: assessment, education, and evaluation. In the assessment stage, respondents' baseline knowledge, disease perception, and duration of illness were recorded using structured questionnaires. During the education stage, respondents participated in interactive sessions that included lectures, discussions, and demonstrations. The materials focused on key aspects of self-care management: diet planning, physical activity, medication adherence, blood glucose monitoring, and stress management. To accommodate differences in perception and disease duration, the educational content was adjusted accordingly. Patients who had been living with diabetes for extended periods were given reinforcement on sustaining consistent self-care, while newly diagnosed

patients were provided with fundamental knowledge and motivation to establish healthy habits.

The evaluation stage was conducted through pre-test and post-test questionnaires to measure changes in knowledge and self-care readiness. Data were analyzed descriptively to compare respondents' understanding before and after the intervention. Ethical considerations were maintained by ensuring that informed consent and participant confidentiality were maintained.

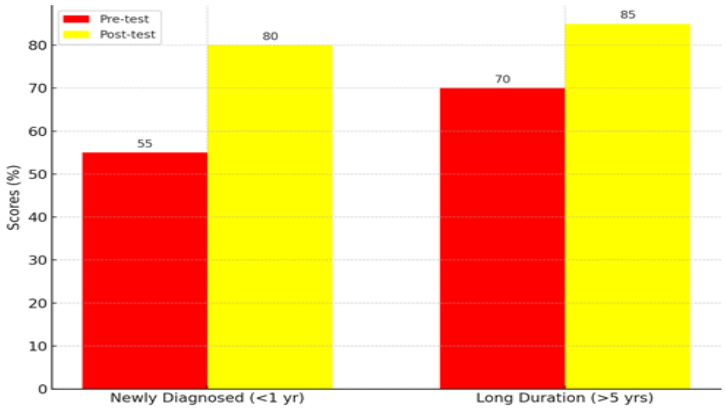
Table 1. Implementation Scheme of the Program

Stage	Activities	Target Group	Method/Approach	Expected Outcome
Preparation	Identification of diabetes patients, assessment of disease perception, review of medical history, and duration of illness.	Diabetes mellitus patients in the community	Survey, interviews, and medical record review	Baseline understanding of patients' perception and illness duration.
Planning	Designing educational modules adjusted to perception levels and the length of suffering.	Patient groups (newly diagnosed & long-term)	Module development, material selection	Contextual and needs-based educational material.
Implementation	Conducting education sessions on self-care management (diet, exercise, medication, blood glucose monitoring, stress control).	All diabetes mellitus patients	Lectures, group discussions, demonstrations, Q&A	Improved knowledge, awareness, and motivation for self-care.
Practice Session	Hands-on training in diet planning, blood glucose monitoring, and exercise routines.	Participating patients	Simulation, peer practice, role play	Increased practical skills and confidence in self-care.
Evaluation	Pre- and post-tests, feedback collection, and monitoring changes in perception and self-efficacy.	All participants	Questionnaire, discussion, observation	Measured improvement in knowledge, perception, and self-care behavior.
Follow-up	Monitoring patient progress and reinforcing periodic visits.	Diabetes mellitus patients	Counseling, follow-up meetings	Sustained self-care practices and reduced risk of complications.

3. RESULT AND DISCUSSION

RESULT

The graph illustrates the level of achievement of five leading indicators in implementing the Health Study Program curriculum review based on the OBE principle, both before and after the activity is carried out.



Bar chart 1. Pre-test and Post-test

The histogram illustrates the comparison of pre-test and post-test scores between two groups of diabetes mellitus patients: newly diagnosed (<1 year) and long duration (>5 years). In the newly diagnosed group, the pre-test score was relatively low (55%), indicating limited baseline knowledge and self-care management skills. After the educational intervention, the score increased significantly to 80%. This improvement highlights that early-stage patients can achieve substantial gains in awareness and adherence when provided with structured self-care education. In the long-duration group, the pre-test score was already higher (70%), reflecting better prior knowledge due to more prolonged exposure to the disease. However, the post-test score only rose modestly to 85%. This suggests that although patients with longer disease duration are more knowledgeable, they may encounter barriers such as fatigue, reduced motivation, or long-term behavioral challenges that limit further improvement. Results indicate that self-care education is effective across both groups, but the impact is most pronounced among newly diagnosed patients. This finding emphasizes the importance of early educational interventions in building strong self-care foundations. For patients with long-term conditions, additional motivational and behavioral support strategies may be required.

DISCUSSION

The present community service program highlights the crucial role of self-care management education for patients with diabetes mellitus (DM), particularly in consideration of two major determinants: patients' perception of the disease and the duration of time they have been living with the condition. Both factors appear to influence the way patients understand, interpret, and implement recommended health behaviors. The discussion below elaborates on these findings in relation to existing literature and provides implications for community-based health interventions.

Disease Perception and Its impact on Self-Care. Perception of disease refers to how patients conceptualize the seriousness, causes, controllability, and consequences of their illness. In this program, patients with low perception of risk, particularly those who had recently been diagnosed, tended to underestimate the importance of lifestyle modification and regular monitoring (Dickson et al., 2024). This finding is consistent with earlier studies suggesting that individuals with limited awareness of the chronic nature of DM are less likely to adhere to treatment regimens or adopt preventive behaviors. Conversely, patients who perceived diabetes as a life-threatening condition were more motivated to engage in daily self-care activities, such as dietary control and medication adherence (Winkler et al., 2025).

This program confirmed that educational interventions play a pivotal role in shaping perception. By providing tailored information, interactive sessions, and practical demonstrations, patients gradually shifted from passive acceptance of their diagnosis to active engagement in disease management (Hijrah et al., 2025). Such changes are in line with health belief models, which emphasize that perceived susceptibility and severity strongly determine preventive health behavior. Therefore, fostering accurate disease perception should remain a key priority in community Education initiatives (Suprapto et al., 2025).

Length of Suffering and Adaptation to Self-Care. The length of time a patient has been living with diabetes also influences self-care behaviors, but in more complex ways. Patients with long-standing DM generally demonstrated higher awareness and knowledge, which is expected given their more prolonged exposure to medical advice and personal experiences (Yousefiazar et al., 2025). However, this group often faced challenges in sustaining motivation over time. Burnout, treatment fatigue, and frustration due to persistent complications were common among these patients. Such issues can reduce adherence despite adequate knowledge, creating a gap between what patients know and what they practice.

On the other hand, newly diagnosed patients often showed enthusiasm but lacked consistent commitment. They tended to believe that short-term efforts were sufficient, underestimating the chronic and progressive nature of diabetes. Without proper guidance, these patients risk developing complacency that may hinder long-term disease management. This indicates that community education should not only provide technical information but also address the psychological and emotional dimensions of adapting to a lifelong illness (Su et al., 2025).

Effectiveness of Community-Based Education. The results of the program demonstrated significant improvement in patients' knowledge, attitudes, and perceived self-efficacy following the educational intervention. This reinforces the idea that community-based programs can complement clinical care by providing accessible, culturally relevant, and practical support. Unlike hospital-based consultations, which are often time-limited, community programs allow more interaction, peer support, and contextual adaptation to patients' daily lives (Yusriyanto & Asran, 2025).

Furthermore, group discussions and peer sharing created a supportive environment where patients could learn from one another's experiences. Patients with long disease duration shared coping strategies, while newly diagnosed individuals offered fresh perspectives. This bidirectional learning process enhanced the overall effectiveness of the program and fostered a sense of community solidarity in managing a chronic disease (Govekar et al., 2025).

Challenges and Limitations. Despite the success, the program also revealed several challenges. First, individual differences in literacy and cognitive ability influenced the extent to which patients absorbed information. Some participants required repeated explanations and ongoing support throughout the process. Second, socioeconomic factors influenced the feasibility of adopting recommended behaviors. For example, dietary advice was not always easy to implement due to financial constraints. These findings align with previous evidence that social determinants of health substantially affect chronic disease management outcomes (Guan et al., 2025). Moreover, sustaining long-term behavioral change remains a challenge. Although post-intervention assessments showed improvements, continuous reinforcement is necessary to prevent relapse into unhealthy practices. This underlines the importance of establishing ongoing community health initiatives rather than one-time interventions (Agus Salim et al., 2025).

The outcomes of this program suggest several recommendations for future community service activities. First, Education should be personalized according to patients' disease perception and length of suffering. Newly diagnosed patients require more emphasis on understanding the seriousness and chronicity of diabetes, while long-standing patients need motivational reinforcement and strategies to cope with treatment fatigue. Second, incorporating family members into educational sessions could enhance adherence, as family support has been shown to influence diabetes management significantly. Third, integrating digital tools such as mobile applications or text message reminders may help sustain motivation beyond face-to-face sessions (Wibowo et al., 2025).

Lastly, collaboration with local health centers and policymakers is essential to ensure continuity and scalability. Community-based education should not function in isolation but rather as part of a broader public health strategy aimed at reducing the burden of diabetes and its complications. Discussion emphasizes that both disease perception and the length of suffering are critical factors that shape self-care practices among patients with diabetes mellitus. Community-based education that addresses these aspects not only improves knowledge and skills but also enhances motivation and long-term adherence. However, continuous reinforcement and integration with broader health systems are necessary to achieve sustainable outcomes. This program demonstrates the importance of tailoring educational interventions to patients' psychosocial contexts, thereby enhancing their ability to manage diabetes effectively and improve their overall quality of life.

4. CONCLUSION

This community service program demonstrated that self-care management education, when tailored to patients' disease perception and duration of suffering, can significantly enhance awareness, motivation, and adherence to diabetes self-management practices. Patients with longer disease duration benefited from reinforcement and motivational strategies to maintain consistency. In contrast, newly diagnosed patients required more intensive education to build an accurate understanding of the seriousness of diabetes. The program emphasized that individualized, perception-based education is crucial for empowering patients to manage their condition effectively and sustainably. Strengthening community-based health education programs can therefore play a crucial role in reducing complications, enhancing quality of life, and supporting broader efforts in chronic disease management.

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CONFLICT OF INTERESTS

All authors declare no conflict of interest in this community service program.

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