

Effectiveness Of Nurse Led Dietary Intervention On Self Care Activities In Lowering Blood Sugar Level Among Type 2 Diabetes Mellitus Patients Residing In A Selected Urban Community Area.

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<https://doie.org/10.65985/JBSE.2026584839>

ABSTRACT

Introduction: “Enhancing patients’ self-care practices through organized dietary interventions brings optimal blood glucose control in Type 2 diabetes.”^{1,2} **Aim:** is to assess self-care activities in lowering blood sugar levels. **Research Methodology:** The present study adopted a quantitative experimental approach. Total 60 (30 in each experimental and control groups) Type 2 DM Patients were selected through non-convenient sampling technique. **Objectives:** To assess the self-care activities in lowering blood sugar levels among patients with Type 2 Diabetes Mellitus. To assess effectiveness of Nurse Led Dietary Intervention on self-care activities in lowering blood sugar levels among patients with Type 2 Diabetes Mellitus. To find out association between post test result of experimental group with selected demographic variables. **Result:** Final result shows, only 79.3% demonstrated effective self-care activities in Experimental group and a 59% in Control group. The association between self-care practices and demographic variables were examined using chi-square. There was no significant association with age ($\chi^2 = 1.95$, $p = 0.377$) or gender ($\chi^2 = 0.98$, $p = 0.612$). Significant associations were found between occupation ($\chi^2 = 6.70$, $p = 0.035$), duration of diabetes ($\chi^2 = 8.44$, $p = 0.015$), education ($\chi^2 = 9.02$, $p = 0.011$) & treatment ($\chi^2 = 7.18$, $p = 0.028$). **Conclusion:** The structured education and continued exposure to diabetes management plays a critical role in improving blood sugar.³

Keywords: Nurse Led Dietary Intervention, Self-care activities, Blood sugar levels, Type 2 diabetes mellitus.

INTRODUCTION

Diabetes is a chronic disease that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces.³

Type 2 diabetes mellitus is a growing public health problem, especially in urban areas, due to unhealthy diet, physical inactivity, stress, and lifestyle changes.¹

Poor control of blood glucose leads to serious complications such as heart disease, kidney damage, nerve problems, vision loss, and reduced quality of life. Dietary management is essential in controlling diabetes, but many patients lack adequate knowledge, positive attitude, and healthy dietary practices, particularly due to frequent intake of fast and processed foods.³ Higher intakes of total cereal, and fruit fibres are associated with a lower risk of T2D and a more favorable metabolic profile, with the gut microbiome.²

Metabolic control can be considered the cornerstone of diabetes management. Following goals of nutrition therapy which applies to adults with diabetes:

1. To promote and support healthful eating patterns, emphasizing a variety of nutrient dense foods in appropriate portion sizes, in order to improve overall health.
2. To address individual nutrition needs based on personal and cultural preferences.
3. To maintain the pleasure of eating by providing positive messages about food choices.
4. To provide the individual with diabetes with practical tools for day-to-day meal planning rather than focusing on individual macronutrients, micronutrients, or single foods.⁶

Diabetes Mellitus (DM) is a disease characterized by increased blood glucose levels and cannot be cured so it requires self-care by consisting of good diet, physical exercise, medication, and education to control blood sugar levels and prevent complications of type 2 DM.¹⁰

A nurse-led dietary intervention is a collaborative care model where registered nurses take primary responsibility for managing and improving a patient's nutritional health which includes ongoing counseling, education, and personalized meal planning.¹²

NEED OF STUDY

The global diabetes prevalence in 20–79 year olds in 2021 was estimated to be 10.5% (536.6 million people), rising to 12.2% (783.2 million) in 2045.⁷

Its prevalence has increased substantially in recent decades, particularly in urban areas, due to rapid lifestyle changes marked by sedentary behaviour, unhealthy dietary patterns, and rising rates of obesity. Urban populations are therefore at higher risk of developing T2DM and experiencing the associated long-term complications, including cardiovascular diseases, neuropathy, nephropathy, and retinopathy.¹

Diabetes is a lifestyle disease which requires a multipronged approach for its management, wherein patient has an important role to play in terms of self-care practices, which can be taught to them by educational programs.¹¹

For people living with diabetes, a healthy and balanced diet that includes all major food groups is important to keep blood glucose levels within the target range and delay or avoid diabetes-related complications.⁴

Evidence indicates that structured dietary care pathways—comprehensive, evidence-based dietary guidance tailored to patient needs—can improve patients' understanding of diabetes nutrition, foster positive attitudes toward food choices, and encourage healthier eating behaviours. Structured dietary care pathways involve assessment, individualized planning, culturally appropriate diet advice, counselling, follow-up, and evaluation.²

For living well with diabetes, simple recipes would be healthier by skipping “Diabetic food” which increases high cost and low labour.⁵ A healthy eating plan contains many of the foods and beverages one usually eats or drink. Foods fit together like puzzle pieces to meet one's health needs without going over calorie limits.¹⁵

Therefore, developing Nurse Led Dietary interventions on self-care activities among Type 2 Diabetes Mellitus patients residing in urban community areas is essential in lowering their blood sugar levels. The findings will help healthcare professionals plan appropriate nursing interventions to enhance self-management skills and improve the quality of life among diabetic patients.

AIM

This study aims to assess the effectiveness of a Nurse Led dietary intervention on self-care activities toward diet in lowering blood sugar levels among patients with T2DM residing in an urban area.

OBJECTIVES OF THE STUDY

1. To assess the self-care activities in lowering blood sugar levels among patients with Type 2 Diabetes Mellitus.
2. To assess effectiveness of Nurse Led Dietary Intervention on self-care activities in lowering blood sugar levels among patients with Type 2 Diabetes Mellitus.
3. To find out association between post test result of experimental group with selected demographic variables.

HYPOTHESIS

Null Hypothesis H₀: There will be no significant improvement in self-care activities in lowering blood sugar levels among type 2 diabetes patients living in urban areas after following a Nurse Led Dietary Intervention.

Research Hypothesis H₁: There will be significant improvement in self-care activities in lowering blood sugar levels among type 2 diabetes patients living in urban areas after following a Nurse Led Dietary Intervention.

RESEARCH METHODOLOGY

Research Design

The present study adopted a quantitative experimental approach. A study was used to assess the effectiveness of self-care activities in lowering blood sugar levels among Type 2 DM Patients.

Research Setting

The study was conducted in an urban community area, Chota Sion Dharavi, located within a metropolitan city.

Population and Sample

The target population comprised patients diagnosed with Type 2 Diabetes Mellitus residing in the selected urban community area. A total of seven (60) patients diagnosed with Type 2 Diabetes Mellitus were included in the study. The purposive sampling technique was employed to select participants based on predefined inclusion and exclusion criteria.

Inclusion Criteria

- Patients diagnosed with Type 2 Diabetes Mellitus.
- Age above 35 years.
- Duration of diagnosis less than two years.
- Patients who were willing to participate in the study.

Exclusion Criteria

- Patients with comorbid illnesses such as cardiovascular diseases, renal failure, etc.
- Critically ill patients.
- Patients with irreversible complications of diabetes.

Data Collection Procedure

Data were collected by the investigator through a semi-structured interview schedule using standardized and validated tools to assess self-care activities. The purpose of the study was clearly explained to each participant, and written informed consent was obtained prior to data collection. Dietary booklet on lowering blood sugar levels, Food demos and Food exhibition conducted followed by post-test in experimental group. Ethical principles such as confidentiality, anonymity, and voluntary participation were strictly maintained throughout the research process.

Data Collection Tools

- **Socio-Demographic and Clinical Data Sheet:** This tool was used to collect information related to age, gender, education, occupation, duration of illness, and other relevant clinical details.
- **Modified Summary of Diabetes Self-Care Activities (SDSCA) Scale:** This tool evaluated different aspects of self-care practices including dietary management, and blood glucose monitoring.

Data Analysis

The collected data were systematically organized, tabulated, and analyzed using descriptive statistical methods such as frequency, percentage, mean, and standard deviation to summarize and interpret the findings. The results were presented in the form of tables and figures to facilitate better understanding and interpretation.

RESULT

Demographic Data

The demographic data show that most participants (86.16%) were between 41–60 years of age, and the majority were females (70%) and among them (40%) were housewives. Regarding

education, (47.14%) had primary education, while 21.15% had completed higher secondary education. Most participants (56%) were not adhered to any treatment. A large number (80%) reported to be on mixed veg and nonveg diet. Overall, the data indicate that the participants mainly consisted of middle-aged, female, low-to-moderate-income individuals with primary education, not adhered to oral treatment for diabetes.

Part I: Assessment of Self-Care Activities in lowering blood sugar levels among Patients with Type 2 Diabetes Mellitus

Self-care practices in lowering blood sugar levels	Control group				Experimental group			
	Pretest		Posttest		Pretest		Posttest	
	F	%	F	%	F	%	F	%
I check my blood sugar level with care and attention	19	63.33	19	63.33	12	40	29	96.67
I take my diabetes medication on time	18	60	17	56.67	8	26.67	21	70
I consume my meals on time and in limited amounts	10	33.33	12	40	18	60	24	80
I record my blood sugar level regularly	18	60	19	63.33	23	76.67	25	83.33
I strictly follow my diet prescribed by doctor	17	56.67	17	56.67	18	60	22	73.33
I tend to avoid diabetes-related doctors appointment	18	60	20	66.67	20	66.67	23	76.67
Occasionally, I consume lots of sweets and food rich in carbohydrates	26	86.67	25	83.33	18	60	26	86.67
I don't do regular exercise to reduce my blood sugar level	8	26.67	10	33.33	13	43.33	21	70
I tend to skip the planned activity for controlling sugar	14	46.67	17	56.67	19	63.33	24	80
I don't practice foot care to prevent further complications	15	50	21	70	17	56.67	23	76.67

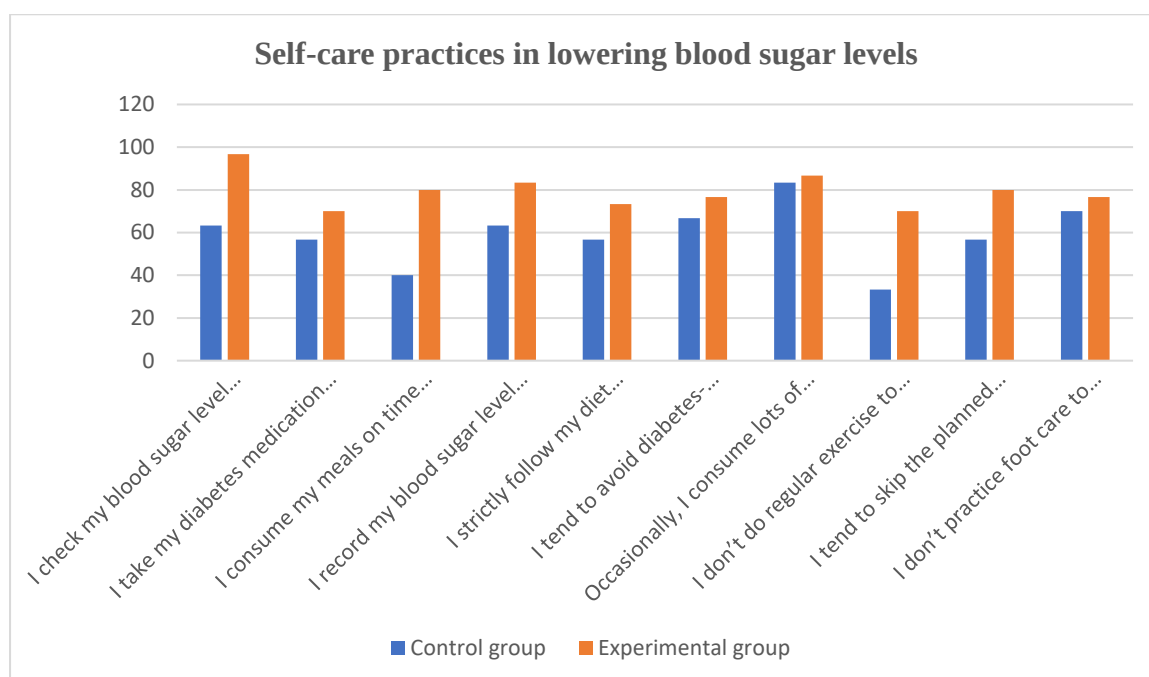


Table no 1 & Fig no 1: During the assessment of self-care activities in lowering blood sugar levels, only 79.3% demonstrated effective self-care activities in Experimental group and a 59% in Control group.

Part II: Association Between Self-care activities and Selected Demographic Variables

SN	Demographic variables	χ^2 values	p- value	Significance
1	Age	1.95	0.377	Not Significant
2	Sex	0.98 0	0.612	Not Significant
3	Occupation	6.70	0.035	Significant
4	Education	9.02	0.011	Significant
5	Adherence to treatment	7.18	0.028	Significant
6	Type of Diet	1.36	0.506	Not Significant

Table no 2 shows association between self-care activities and selected demographic variables. The association between diabetes management practices and demographic variables was examined using chi-square analysis.

The findings revealed that practice scores were not significantly associated with age ($\chi^2 = 1.95$, $p = 0.377$) or gender ($\chi^2 = 0.98$, $p = 0.612$). This suggests that self-care behaviours were not dependent on these demographic characteristics.

Significant associations were found between practice and occupation ($\chi^2 = 6.70$, $p = 0.035$), educational qualification ($\chi^2 = 9.02$, $p = 0.011$), and treatment adherence ($\chi^2 = 7.18$, $p = 0.028$). Participants who were more educated, had longer disease experience, adhered to medication, and accessed reliable information sources demonstrated healthier diabetes management practices.

No significant association was observed between practice and dietary preference ($\chi^2 = 1.36$, $p = 0.506$).

The study analysis indicates that self-care activities in lowering blood sugar levels regarding Type 2 Diabetes Mellitus are significantly influenced by education level, occupation, medication adherence, and access to health information. Age, gender, and dietary preference do not show a significant influence.

DISCUSSION

The final study findings revealed that self-care practice scores were not significantly associated with age ($\chi^2 = 1.95$, $p = 0.377$) or gender ($\chi^2 = 0.98$, $p = 0.612$). This suggests that self-care behaviours were not dependent on these demographic characteristics.

Significant associations were found between self-care practice and occupation ($\chi^2 = 6.70$, $p = 0.035$), educational qualification ($\chi^2 = 9.02$, $p = 0.011$), and treatment adherence ($\chi^2 = 7.18$, $p = 0.028$). Participants who were more educated, had longer disease experience, adhered to medication, and accessed reliable information sources demonstrated healthier diabetes management practices. No significant association was observed between self-care practice and dietary preference ($\chi^2 = 1.36$, $p = 0.506$).

These findings emphasize that structured education and continued exposure to diabetes management play a critical role in improving patient awareness and behaviour. Since statistically significant associations were observed, the null hypothesis is rejected and the research hypothesis is accepted.

Similar findings were reported in Sheeba S, et al, in (2017), conducted study to assess the knowledge and self-care practices among patients with type 2 diabetes mellitus. The result shows positive relationship ($r=0.09$) between level of knowledge and self-care practice of the subjects and no significant association between knowledge level and selected sociodemographic variables.⁹ Vice versa in other study done by Dr. Balvinder Singh, et al, on Knowledge, Attitude, and Practices Toward the Role of Diet and Exercise in Preventing and Managing Diabetes Among Young Students in Ghaziabad. The findings indicate intermediate knowledge and positive attitudes, their practices related to diabetes prevention remain weak,

highlighting a critical gap between awareness and action.¹³ Manoj Kumar, Niraj Pandit, conducted non randomized community-based trial in Gujrat The final result revealed that knowledge, attitude and practice score were increased among counselling group in comparison to traditional treatment group in both urban and rural area.¹⁴

CONCLUSION

Globally, diabetes has emerged as a major public health concern due to its increasing prevalence and long-term complications.¹⁶ In conclusion, the findings of this study highlight significant challenges faced by patients with Type 2 Diabetes Mellitus (T2DM) in managing their condition, particularly in urban community settings. The analysis emphasizes that Nurse Led Dietary Intervention play a critical role in improving patient awareness and behaviour. Since statistically significant associations were observed, the null hypothesis is rejected and the research hypothesis is accepted. The result of the study is limited due to short duration of follow-up and limited sample size. These findings emphasize the urgent need for structured interventions aimed at improving both psychological and behavioral aspects of diabetes management. By considering psychological factors, it is possible to improve diabetes self-management and, ultimately, the long-term health outcomes for individuals living with Type 2 Diabetes Mellitus.

The study recommends replication in rural areas. Multi-centre or longitudinal studies can be carried out. As Diabetes mellitus is vast subject therefore comparative studies with other interventions or studies focusing on family-based interventions can be carries out in the future.

Conflict of Interest: The authors certify that they have no involvement in any organization or entity with any financial or non-financial interest in the subject matter or materials discussed in this paper.

Funding Source: There is no funding Source for this study.

Acknowledgement: I most sincerely convey my deep sense of gratitude to my guide Prof. Dr. Heera Jayasheela, Dean, Nursing Faculty of Pravara Institute of Medical Sciences University, DU, Loni for her remarkable guidance and academic support during this study.

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