



A STUDY TO ASSESS THE EFFECTIVENESS OF SELF INSTRUCTIONAL MODULE ON KNOWLEDGE REGARDING SELF CARE ACTIVITIES OF DIABETES MELLITUS AMONG DIABETES PATIENT IN A SELECTED DIABETIC CLINIC, AGARTALA, TRIPURA.

Nursing

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ABSTRACT

Introduction: Diabetes mellitus is a chronic metabolic disorder characterized by hyperglycemia due to defects in insulin secretion, insulin action, or both. It affects millions globally, posing a significant public health burden. Effective management of diabetes relies heavily on self-care practices, including regular blood glucose monitoring, medication adherence, diet modification, physical activity, and stress management. This study aims to assess the effectiveness of a self-instructional module on improving knowledge regarding self-care activities of diabetes mellitus among diabetic patients in a selected clinic in Agartala. **Methodology:** The study employed a pre-experimental, one-group pre-test and post-test design conducted at a selected diabetic clinic in Agartala, Tripura. The population consisted of patients with diabetes mellitus, with a sample size of 40 participants selected through a convenient sampling technique. A structured questionnaire was used to assess the baseline knowledge of participants (pre-test). Following this, a self-instructional module on diabetes self-care activities was provided as the intervention. The effectiveness of the module was then evaluated by administering the same structured questionnaire in a post-test. **Results:** In the pre-test, 70% of respondents had moderate knowledge, 17.5% had inadequate knowledge, and 12.5% had adequate knowledge. In the post-test, 65% of respondents had adequate knowledge, 35% had moderate knowledge, and 0% had inadequate knowledge. The mean post-test knowledge score (15.46) was higher than the mean pre-test score (12.35), with a mean difference of 3.11. The standard deviation of the post-test score (2.01) was lower than that of the pre-test (2.13). The t-value (11.75) exceeded the critical value (2.02) at the 5% significance level, indicating the module's effectiveness. Chi-square analysis revealed no significant association between pre-test knowledge scores and most demographic variables, except for information about diabetes, which was significant. **Conclusion:** The self-instructional module effectively increased knowledge about diabetes self-care activities among patients, as indicated by the significant paired t-test at the 0.05 level. This module can be an effective teaching strategy to enhance knowledge and practice, motivating patients to improve their self-care.

KEYWORDS

Diabetes, Self-care, Patient education, Knowledge, Self-instructional module, Effective teaching strategy

INTRODUCTION

Diabetes Mellitus is a chronic disease that has become a significant global health burden. According to the International Diabetes Federation, in 2021, approximately 537 million adults were living with diabetes, and this number is expected to rise to 643 million by 2030 (IDF, 2021). Diabetes self-care is a critical aspect of diabetes management, which includes self-monitoring of blood glucose, physical activity, healthy eating, medication adherence, and problem-solving (ADA, 2017). Therefore, it is essential to assess the effectiveness of self-instructional modules in improving diabetes patients' knowledge regarding self-care activities.

In India, the prevalence of diabetes has risen significantly over the past few decades, reaching approximately 77 million cases in 2023. Tripura, a northeastern state of India, reflects this trend with a rising burden of diabetes among its population, contributing to the broader national statistics. Globally, diabetes affects over 400 million people, a number projected to rise to 700 million by 2045 if current trends persist. This escalating burden underscores the critical need for effective diabetes management strategies, including patient education and self-care initiatives. This study focuses on assessing the effectiveness of a self-instructional module aimed at enhancing diabetes mellitus patients' knowledge and practice of self-care activities in a selected diabetic clinic in Agartala, Tripura.

The findings of this study are expected to inform healthcare practices in similar settings and contribute to the development of tailored educational programs aimed at enhancing diabetes care and management strategies.

Diabetes cannot be cured, but can be controlled. Clients with Diabetes must incorporate a complicated regimen of self management in to their lives that is, taking medication, adherence of diet, exercise and also recognition of symptoms associated with glycosuria and hypoglycemia.

Objectives Of The Study:

1. To assess the pre existing knowledge of diabetes mellitus patient regarding self care activities.
2. To evaluate the effectiveness of self instructional module on knowledge regarding self-care activities on patient with diabetes mellitus.
3. To determine the association between the pre test and post test knowledge score of diabetic patient regarding self care activities

with selected demographic variable.

Hypothesis:

- H1:** There is significant difference between pre-test and post-test knowledge score regarding self care activities of diabetes mellitus among diabetes patient.
- H2:** There is significant association between pre-test knowledge scores of diabetes patients with their selected demographical variables.

Research Methodology:

Research Approach: Quantitative research approach.

Research Design: Pre-experimental one group pre-test post-test without control group design.

Variables:

- **Independent Variable:** Self-instructional module.
- **Dependent Variable:** Knowledge of diabetes patients.
- **Demographic Variables:** Age, gender, educational status, occupation, lifestyle, duration of disease, any diabetic family history, previous exposure to diabetes educational programs.

Setting of the Study:

- **Pilot Study:** Diabetic clinic in Agartala.
- **Final Study:** Diabetic clinic in Agartala.

Population: Patients diagnosed with diabetes mellitus.

Sampling Criteria:

- **Inclusion Criteria:** Patients with diabetes mellitus who can read and write Bengali, available, and willing to participate.
- **Exclusion Criteria:** Patients unable to read and write Bengali or unavailable during the study period.

Sample: 40 patients with diabetes mellitus from selected diabetic clinics in Agartala, Tripura.

Sampling Technique: Convenient sampling technique.

Research Tools:

- **Section A:** Demographic Performa (8 items).
- **Section B:** Self-administered structured knowledge questionnaire (27 items).

Data Collection Procedure:

- Obtained formal administrative permission.
- List of patients provided by Dr. Angshuman Kamal Bhattacharjee.
- Explanation of study purpose and assurance of confidentiality.
- Pre-test conducted on day 1 followed by module delivery.
- Post-test conducted on day 7 using the same questionnaire.
- Consent obtained from participants.

Reliability Testing: The reliability of the structured knowledge questionnaire in assessing diabetes mellitus patients' understanding was evaluated using the test-retest method. This involved administering the questionnaire to the same group of participants on two separate occasions. The reliability coefficient, calculated using Karl Pearson Correlation Coefficient, yielded a robust value of 0.95 (r).

Pilot Study: Prior to the main study, a pilot study was conducted at Kadamtali Diabetic Clinic in Agartala, Tripura, under the authorization of Dr. Sandipan Saha Roy, Clinical Diabetologist. From 2nd April to 9th April 2018, a sample of 14 clinically diagnosed diabetes patients participated in the pilot study, selected through convenient sampling. The pilot study confirmed the effectiveness and feasibility of the questionnaire and study procedures, supporting their implementation in the subsequent main study.

Ethical Considerations:

- Permissions obtained from institutional ethical committee, principal, and clinical diabetologist.
- Written informed consent obtained from participants.

RESULTS:

Demographic key findings of the study:

The demographic profile of 40 diabetes mellitus patients at a clinic in Agartala, Tripura. The majority of patients were aged between 35-45 years (50%), with a slightly higher representation of females (57.5%). Educational qualifications varied, with 45% being graduates, and occupations predominantly included employees (45%) and business owners (32%). Most patients reported a moderate lifestyle (55%) and had been diagnosed with diabetes for 2-3 years (47.5%). A significant proportion had a family history of diabetes (35%), while a quarter had no prior information about diabetes. This table offers key insights into the demographic characteristics of the study sample, crucial for understanding the context and implications of the research findings on self-care knowledge enhancement among diabetes patients.

Table 1 Assessment of pre-test knowledge and post-test knowledge score regarding self care activities of diabetes mellitus.

Level of knowledge	Pre-test		Post-test	
	F	%	F	%
Inadequate	7	17.5%	0	0%
Moderate	28	70 %	14	35%
Adequate	5	12.5%	26	65%

Table 2 shows that in pre-test majority of respondent 70% have moderate knowledge, 17.5% have inadequate knowledge, 12.5% have adequate knowledge. In post-test 65% of respondents have adequate knowledge, 35% have moderate knowledge and 0% have inadequate knowledge.

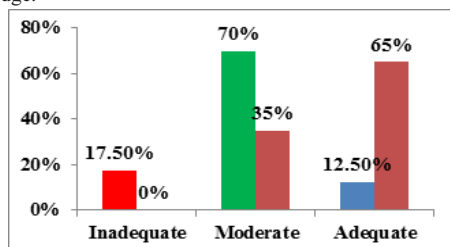


Figure 1: Pre-test and Post-test knowledge score regarding self care activities of diabetes mellitus with bar diagram.

Table 2: Findings related to the effectiveness of self instructional module regarding self care activities of diabetes mellitus with paired t-test.

Level of Knowledge	Mean	SD	Mean difference	Paired t test
Pretest	12.35	2.13	3.11	11.75*
Posttest	15.46	2.01		

The data presented in Table 2 reveals that the mean post-test knowledge score (15.46) was significantly higher than the mean pre-test knowledge score (12.35), resulting in a mean difference of 3.11. Furthermore, the standard deviation of the post-test knowledge score (2.01) was lower compared to the standard deviation of the pre-test knowledge score (2.13). The calculated t-value (11.75) at a 5% level of significance with 40 degrees of freedom exceeded the tabulated t-value (2.02). Therefore, the null hypothesis was rejected, confirming the acceptance of the research hypothesis. These findings strongly suggest the effectiveness of the self-instructional module in improving knowledge regarding self-care activities for diabetes mellitus patients.

Regarding the association between selected demographic variables and the level of knowledge

Chi-square tests were conducted to assess the association between pre-test and post-test knowledge scores regarding self-care activities of diabetes mellitus among diabetic patients across various demographic variables. Table 4 summarizes these associations. The results indicated that there was no significant association between pre-test knowledge scores and demographic variables at the 0.05 significance level for age ($\chi^2 = 2.17$, df = 4), gender ($\chi^2 = 4.9$, df = 2), educational qualification ($\chi^2 = 4.81$, df = 4), occupation ($\chi^2 = 11.56$, df = 8), lifestyle ($\chi^2 = 1.05$, df = 6), duration of disease ($\chi^2 = 0.65$, df = 4), presence of diabetic family members ($\chi^2 = 3.6$, df = 2), and previous information about diabetes self-care ($\chi^2 = 10$, df = 2). These findings suggest that demographic variables did not significantly influence the knowledge levels of diabetic patients regarding self-care activities related to diabetes mellitus based on their pre-test scores.

CONCLUSION:

The study demonstrated that the self-instructional module significantly improved knowledge about diabetes self-care activities among patients at a diabetic clinic in Agartala, Tripura. The mean post-test knowledge score (15.46) was notably higher than the pre-test score (12.35), with a mean difference of 3.11. The standard deviation of the post-test score (2.01) was lower than that of the pre-test score (2.13). The paired t-test value (11.75) exceeded the critical value (2.02) at the 0.05 significance level, confirming the module's effectiveness. This self-instructional module can serve as an effective teaching strategy, enhancing both knowledge and practice of self-care among diabetes patients. Furthermore, no significant association was found between pre-test knowledge scores and most demographic variables, except for prior information about diabetes, highlighting the module's broad applicability.

DISCUSSION

The study's findings underscore the significant impact of self-instructional modules on improving knowledge about diabetes self-care activities among patients. The substantial increase in mean knowledge scores from the pre-test to the post-test highlights the module's effectiveness. The mean post-test score (15.46) being significantly higher than the pre-test score (12.35), with a mean difference of 3.11, demonstrates that structured and focused educational interventions can significantly enhance patient understanding of essential self-care practices. These results support the use of self-instructional modules as a viable and effective educational tool in diabetes care, promoting better self-management and potentially improving clinical outcomes for diabetic patients.

Competing Interests: Authors have declared that no competing interests exist.

REFERENCES

- Christian, A., & Nagar, K. (2021). Understanding Patients Experiences Living with Diabetes Mellitus: A Qualitative Study, Gujarat, India. *Journal of Pharmaceutical Research International*, 33(58A), 464–471 <https://doi.org/10.9734/jpri/2021/v33i58A34139>
- Diabetes mellitus, available from: https://en.wikipedia.org/wiki/Diabetes_mellitus
- Diabetes mellitus, available from: <https://www.diapedia.org/introduction-to-diabetes-mellitus/1104085113>
- Diabetes mellitus in India, available from: <https://www.diabetes.co.uk/global-diabetes/diabetes-in-india.html>
- Diabetes mellitus according to WHO: <http://www.healthcommunities.com/understanding-diabetes/diabetes-incidence-prevalence.shtml>
- Saurabh RamBihari Lal Shrivastava, Prateek Saurabh Shrivastava. Role of self-care in management of diabetes mellitus. *Journal of Diabetes & Metabolic Disorders* <https://doi.org/10.1186/2251-6581-12-14>
- Gesare, D, Shrivastava, R, Ramasamy, A, Saurabh, W. Role of self-care in management of diabetes mellitus, *Journal of Diabetes & Metabolic Disorders*, 2007, VOL.12, NO:14, P.34