



Effectiveness of Information Booklet on Knowledge Regarding Self-Care Management among Diabetes Patients in Selected Hospitals of Rajsamand District.

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ABSTRACT :

Introduction: Diabetes mellitus requires continuous self-care to maintain glycaemic control and reduce the risk of complications. Knowledge of diet, physical activity, medication adherence, blood glucose monitoring, foot care, and recognition of hypo- and hyperglycaemia is an important component of effective self-management. This pilot study was undertaken to assess the feasibility of an Information Booklet and its preliminary effect on knowledge regarding diabetes self-care management. **Material and Methods:** A quantitative evaluative approach with a pre-experimental one-group pre-test and post-test design was used. Thirty diabetic patients fulfilling the eligibility criteria were selected by non-probability convenience sampling at RK Hospital, Rajsamand. A 30-item structured knowledge questionnaire was used before the intervention and again seven days after administration of the Information Booklet. Content validity was established through expert review and reliability was assessed by the split-half method ($r = 0.86$). Data were analyzed using frequency, percentage, mean, standard deviation, and paired t-test. **Results:** The mean pre-test knowledge score was 10.73 ± 2.19 , while the mean post-test score increased to 23.33 ± 2.02 . The mean gain was 12.60 points. The paired t-test value was 13.33 with $p < 0.001$, indicating a statistically significant increase in knowledge after the intervention. On a 30-point scale, the mean score increased from 35.8% at pre-test to 77.8% at post-test. **Conclusion:** The pilot findings demonstrate a substantial improvement in knowledge following administration of the Information Booklet and indicate that the intervention, questionnaire, and data-collection procedure were feasible. Because this was a small, single-group pilot study without a control group, the findings should be interpreted as preliminary and used to support a larger definitive study.

Keywords: Diabetes mellitus; self-care management; Information Booklet; patient education; knowledge; pilot study; Rajsamand.

1. INTRODUCTION

Diabetes mellitus is a growing global health issue, which may cause complications such as diabetic foot disorders. Foot complications can be very life threatening and can cause infection, ulcers, loss of quality of life and amputation of limbs in advanced cases. Most of the problems of diabetic foot are preventable, but happen due to poor self-care and ignorance of the patient. Preventive foot care includes regular checks of the feet, good hygiene, wearing the right footwear and seeing a doctor if anything is wrong. Patient knowledge and willingness to undertake these measures are influenced by education, occupation, home and access to reliable health information. Healthcare professionals have an important role in teaching and supporting people with diabetes to perform good self-care. Interventions to prevent diabetic foot complications can be guided by looking at sociodemographic, patient understanding and professional support.

Type 2 diabetes is a chronic metabolic disease with increasing prevalence, and associated with complications over time. It is a major public health problem in many parts of the world. We encourage patients to take an active role in their own self-care in an effort to manage this disease including good nutrition, activity, blood glucose monitoring, medication adherence, and foot care. This will help them to control their diabetes, prevent complications and have a better quality of life. There are clear benefits to self-care, but not everyone does it, particularly those with low income or limited access to health care. Age, education, income, marital status, and marital status may also be factors in the inability to maintain regular self-care. Therefore, it is important to assess how self-care and factors that contribute to its effectiveness when a person has diabetes and reducing the complications associated with diabetes are to be able to plan interventions to assist in managing diabetes and preventing complications from developing.

2. SIGNIFICANCE & NEED OF THE STUDY

Diabetes mellitus is a major public health problem in India, with over 70 million people affected and increasing prevalence and association with complications such as neuropathy, nephropathy, retinopathy and diabetic foot disorders. Self-care measures are important to maintain glycemic control

and reduce the risk of complications. These include healthy eating, regular physical activity, adherence to prescribed medicines and appropriate foot care. But most people with type 2 diabetes don't do all of these things all of the time. In the present study, prior to intervention 45.2% of the subjects were in the action stage for regular physical activity and 26.8% reported recommended foot-care practices. Lack of awareness was a major barrier to dietary modification and foot care. Limited perceived need and physical limitations affected participation in exercise. A systematic diabetic self-management education (DSME) program reported a 31.2% increase in foot-care practice and a 5% improvement in food and physical-activity habits. The findings show large gaps in diabetes self-management and point to the need for targeted, patient-centered education in primary health care to enhance self-care habits, overcome barriers to adherence and prevent diabetes-related comorbidities.

Diabetes mellitus is an increasing health problem in the world contributing to illness, death, disability and health-care costs. Previous global estimates have indicated that there are some 346 million people with diabetes, a figure projected to double by 2030 if effective prevention measures are not put in place. Almost 80 per cent of deaths from diabetes are in low- and middle-income countries. Approximately 32 million people are affected in India with a projected number of nearly 79.4 million by 2030. India has taken a considerable share of this burden. Pharmacological treatment is important but to manage diabetes effectively requires patients to be active in their own self-care, including monitoring blood glucose levels, eating healthily, being physically active, sticking to their medication, caring for their feet and taking other measures to reduce risk. These practices can help you maintain blood glucose, reduce the risk of complications and improve your quality of life. Despite this, compliance with treatment and self-management remains low in many patients. Studies have shown that only around 30% of patients comply consistently with the recommended treatment and self-management protocols and that socially and economically disadvantaged patients are often less compliant. The gap between recommended and provided care underscores the need for an assessment of self-care and the determinants of self-care to inform the development of appropriate educational and behavioral interventions.

3. PROBLEM STATEMENT

Effectiveness of Information Booklet on Knowledge Regarding Self-Care Management among Diabetes Patients in Selected Hospitals of Rajsamand District.

4. OBJECTIVES OF THE STUDY

1. To evaluate the pre-test knowledge scores of self-care management in patients with diabetes mellitus.
2. To develop and administered an information booklet on self-care management for patients with diabetes mellitus.
3. To evaluate the effectiveness of information booklet on knowledge regarding self-care management among diabetes mellitus patients.
4. To find out the association between pre-test knowledge scores with selected socio demographic variables.

5. HYPOTHESES

- **H₁:** There is a significant difference between knowledge score of pre-test and post-test on self-care management of patients with diabetes mellitus after administration of information booklet.
- **H₂:** There will be a significant association between the mean pre-test knowledge score with selected socio-demographic variables regarding self-care management of patients with diabetes mellitus.

6. OPERATIONAL DEFINITIONS

- **Assess** – In this study it means to evaluate the knowledge of lifestyle modification on diabetes mellitus.
- **Effectiveness** - In this study refers to the increase of knowledge about lifestyle modification of diabetes mellitus. Knowledge questionnaire score is analyzed
- **Information Booklet** – In this study it is a small written hand book with picture and written material regarding self-care management of patients with diabetes mellitus.
- **Knowledge** - In this study is the amount of information the person with diabetes mellitus has on self-care management. It is explored by knowledge questionnaire.
- **Self-Care Management**- In this study it refers to patient's ability to self-administer injection, self-care management of blood glucose, diet, exercise and ability to identify hypoglycemia and hyperglycemia.
- **Diabetic Patients** - In this study the male and female persons who are diagnosed for diabetes mellitus within a year and attending medical outpatient department of RK Hospital Rajsamand & Shri Goverdhan Govt. Nathdwara Hospital.

7. THEORETICAL FRAMEWORK

The present study based on the General System Theory (GST) proposed by Ludwig von Bertalanffy in 1968, which shifted the focus from reductionist methods to a holistic understanding of systems. GST does not look at individual elements in isolation, but rather emphasizes that systems, whether biological organisms, organizations, or social structures, work as integrated wholes, with components that are interdependent and in continuous interaction. This view recognizes that the behavior and the results of any system cannot be understood by looking at the individual parts of the system, but by understanding the relationships, feedback loops and dynamic exchanges that occur within the system. GST's identification of principles such as interdependence, adaptability and equilibrium set a general framework that has informed multiple disciplines since, including biology, psychology, sociology, management and nursing science.

The present study entitled "Effectiveness of Information Booklet on Level of Knowledge Regarding Self Care Management of Diabetic Patients in Selected Hospitals of Rajsamand District" based on General Systems Theory proposed by Ludwig von Bertalanffy. The theory says that any system is made of interacting parts which are connected together to produce a desired result. The theory is centered on four main components: input, throughput (process), output and feedback. In present study, diabetic patients are considered as system and information booklet as educational intervention to increase their knowledge regarding self-care management.

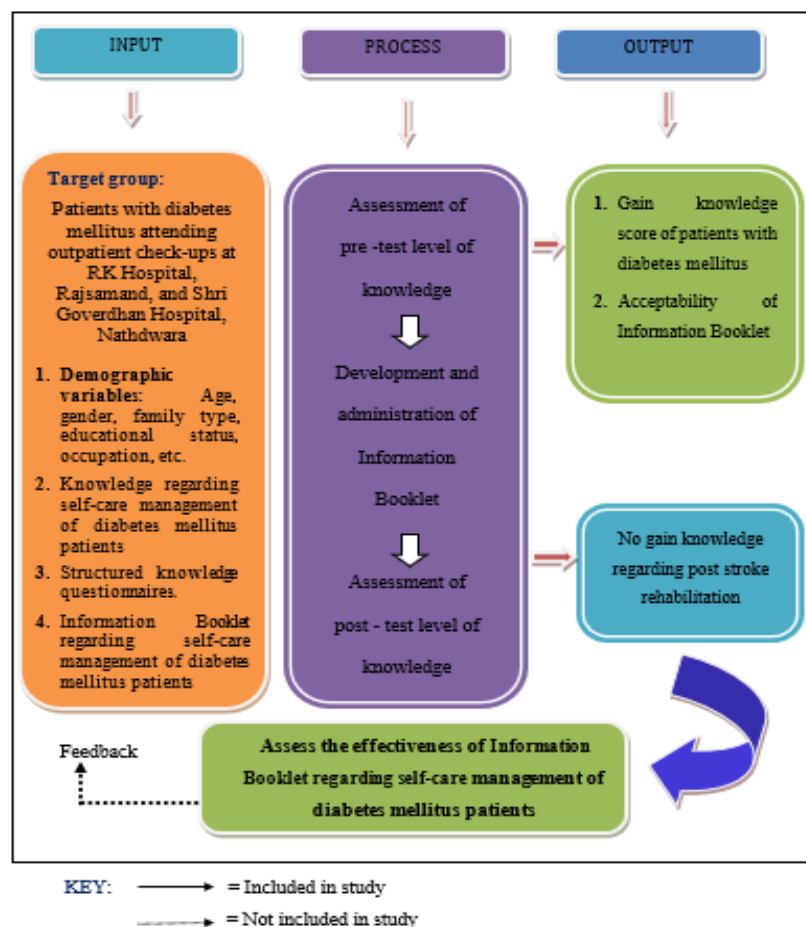


Figure.1.1 Modifying conceptual framework based on the general system theory by Ludwig von Bertalanffy (1968)

8. Materials and Methods

8.1 Research Approach and Design:

A quantitative evaluative research approach was adopted. A pre-experimental one-group pre-test and post-test design was used: $O_1 - X - O_2$, where O_1 represented the pre-test assessment, X represented administration of the Information Booklet, and O_2 represented the post-test assessment. The design was selected for the pilot to examine feasibility and the preliminary change in knowledge within the same participants.

8.2 Study Setting and Participants:

The pilot study was conducted at RK Hospital, Rajsamand, Rajasthan. Thirty diabetic patients who fulfilled the inclusion criteria were selected by non-probability convenience sampling. The pilot sample was used to assess feasibility and was distinct from the planned larger study sample.

8.3 Eligibility Criteria:

Participants were eligible if they had been diagnosed with diabetes mellitus, were willing to participate, were available during the data-collection period, could read and understand Hindi or English, and were attending the selected hospital. Patients who were critically ill, had severe cognitive impairment or psychiatric illness, had recently participated in a similar educational programme, or were unwilling to participate were excluded.

8.4 Study Tool:

A structured self-administered knowledge questionnaire was developed from the literature, expert opinions, professional discussions, clinical experience, and relevant books and journals. The 30-item questionnaire covered meaning and causes of diabetes, signs and symptoms, blood glucose monitoring, medication adherence, diet management, exercise, foot care, prevention of complications, and recognition of hypoglycaemia and hyperglycaemia. The blueprint contained 21 knowledge items and 9 application items. Each correct response received one mark and each incorrect response received zero. The maximum possible score was 30.

Knowledge scores were interpreted as inadequate below 50%, moderately adequate at 51–75%, and adequate above 75%. Content validity of the questionnaire and Information Booklet was established through review by experts in Medical-Surgical Nursing, Community Health Nursing, medicine/diabetology, and nursing research. Reliability was established by the split-half method using Karl Pearson's correlation followed by the Spearman-Brown prophecy formula; the coefficient was $r = 0.86$.

8.5 Intervention:

Immediately after the pre-test, the Information Booklet on Self-Care Management of Diabetes Mellitus was distributed. The booklet contained practical information on diet, physical activity, medication adherence, blood glucose monitoring, foot care and prevention and recognition of diabetes-related complications. The participants were given instructions regarding the use of the booklet and its contents.

8.6 Data Collection Procedure:

Ethical permission was obtained from the Office of Research and Development Cell, Nirwan University, Jaipur. Written informed consent was obtained from the participants and confidentiality and anonymity were maintained. Before the intervention, a pre-test was conducted. The Information Booklet was given out and the structured knowledge questionnaire was re-administered after 7 days as a post-test.

8.7 Statistical Analysis:

Descriptive statistics such as mean and standard deviation were used to give a summary of the knowledge scores. Paired t-test was performed to compare the scores before and after test. Statistical significance was accepted at a significance level of $p < 0.05$.

8.8 Sampling Criteria: -

Inclusion and exclusion criteria ensure that only *relevant and eligible participants* are selected. This increases the validity of findings and avoids bias from irrelevant participants.

- **Inclusion Criteria:** - The study included diabetic patients who:

- ❖ Were diagnosed with diabetes mellitus.
- ❖ Were willing to participate in the study.
- ❖ Were available during the data collection period.
- ❖ Could read and understand Hindi or English.
- ❖ Were attending selected hospitals in Rajsamand District.

- **Exclusion Criteria:** - The study excluded diabetic patients who:

- ❖ Were critically ill.
- ❖ Had severe cognitive impairment or psychiatric illness.

- ❖ Had participated in similar educational programs recently.
- ❖ Were unwilling to participate.

9. Results

All 30 participants completed the pilot pre-test and post-test assessments. The pilot data demonstrated a clear increase in knowledge following administration of the Information Booklet.

Table 1. Comparison of Pre-test and Post-test Knowledge Scores in the Pilot Study (N = 30)

Assessment	Mean	SD	Mean Difference	Paired t
Pre-test	10.73	2.19	12.60	13.33*
Post-test	23.33	2.02		

Note: * $p < 0.001$.

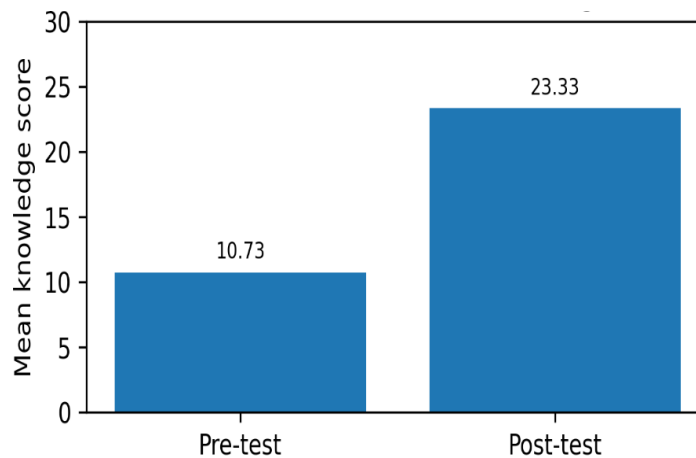


Figure 1. Comparison of Pre-test and Post-test Knowledge Scores

Table & Figure 1: Show that the mean pre-test knowledge score was 10.73 ± 2.19 , whereas the mean post-test score was 23.33 ± 2.02 . The mean gain was 12.60 points. Because the questionnaire had a maximum score of 30, the mean score increased from approximately 35.8% of the maximum score before the intervention to approximately 77.8% after the intervention. The paired t-test value of 13.33 was statistically significant at $p < 0.001$, demonstrating a significant within-participant increase in knowledge following the Information Booklet.

10. DISCUSSION

The pilot study demonstrated a substantial increase in knowledge after administration of the Information Booklet. The pre-test mean of 10.73 indicated that the participants, on average, were below the 50% threshold used for adequate knowledge, whereas the post-test mean of 23.33 was above the 75% threshold. The mean gain of 12.60 points and paired t-value of 13.33 ($p < 0.001$) provide preliminary evidence of an immediate educational effect.

The findings are consistent with the broader evidence summarized in the literature. Bains et al. reported that diabetes self-management is associated with important health outcomes, while Chrvala et al. found evidence supporting diabetes self-management education as an intervention for improving diabetes-related outcomes. [5,6] More recent evidence reviewed in the present thesis indicates that culturally tailored diabetes self-management education can improve knowledge, self-efficacy and self-management behaviours. [4] A recent Indian study also reported improvement in diabetes-related knowledge and self-care domains after structured patient education.

The content of the Information Booklet directly addressed areas that are central to daily diabetes self-care, including diet, exercise, medication adherence, glucose monitoring and foot care. This is relevant because systematic evidence from India indicates that several self-care domains remain suboptimal, particularly physical activity, glucose monitoring and risk-reduction practices. A standardized booklet may therefore serve as a practical reinforcement tool alongside routine clinical counselling.

The pilot findings should nevertheless be interpreted cautiously. The study included only 30 participants, used convenience sampling, was conducted at a single hospital for the pilot, and did not include a control group. The post-test was performed after seven days, so the findings demonstrate short-term

knowledge change rather than sustained retention or change in actual self-care behaviour. The results support feasibility and provide preliminary evidence for proceeding to a larger definitive evaluation rather than establishing effectiveness for the wider diabetic population.

11. CONCLUSION

The 30-participant pilot study found a statistically significant improvement in knowledge regarding diabetes self-care management after administration of the Information Booklet. The mean score increased from 10.73 ± 2.19 to 23.33 ± 2.02 , with a mean gain of 12.60 points and a paired t-value of 13.33 ($p < 0.001$). The pilot also indicated that the research design, questionnaire, intervention and data-collection procedure were feasible, with no major modifications required. These findings provide preliminary support for evaluating the Information Booklet in a larger study using a more rigorous design.

12. RECOMMENDATIONS

The findings suggest that nurses and other healthcare professionals can use concise written educational materials to reinforce verbal diabetes education during outpatient care. Future studies should include larger and more diverse samples, preferably with a comparison or control group, longer follow-up periods, and assessment of actual self-care behaviours and clinical outcomes in addition to knowledge.

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