



# “A STUDY TO ASSESS THE EFFECTIVENESS OF A STRUCTURED TEACHING PROGRAMME ON DIABETES SELF-CARE MANAGEMENT AMONG DIABETIC PATIENTS IN A SELECTED RURAL AREA OF JIND, HARYANA”

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## Abstract:

**Background:** Diabetes mellitus is a chronic metabolic disorder that requires lifelong management to prevent complications and improve quality of life. Effective diabetes self-care management, including adherence to diet, exercise, medication, blood glucose monitoring, and foot care, plays a vital role in achieving optimal glycaemic control. However, inadequate knowledge regarding self-care practices remains a major challenge among diabetic patients, particularly in rural areas. Structured teaching programmes are effective educational interventions that enhance patients' knowledge and promote better self-management practices.

**Objectives:** To assess the effectiveness of a structured teaching programme on diabetes self-care management among diabetic patients in a selected rural area of Jind, Haryana.

**Methodology:** A quantitative research approach with a pre-experimental one-group pre-test post-test design was adopted. Sixty diabetic patients were selected using a non-probability convenience sampling technique from selected rural areas of Jind, Haryana. Data were collected using a structured knowledge questionnaire before and after the administration of a structured teaching programme. Descriptive statistics (frequency, percentage, mean, and standard deviation) and inferential statistics (paired *t*-test and Chi-square test) were used for data analysis.

**Results:** The pre-test findings revealed that 53.3% of participants had poor knowledge, 33.3% had average knowledge, and 13.4% had good knowledge regarding diabetes self-care management. Following the structured teaching programme, 71.7% of participants achieved good knowledge, while only 3.3% remained in the poor knowledge category. The mean knowledge score increased significantly from  $12.10 \pm 3.50$  (40.33%) in the pre-test to  $23.80 \pm 2.40$  (79.33%) in the post-test. The calculated paired *t*-value (18.42) was statistically significant ( $p < 0.05$ ), confirming the effectiveness of the structured teaching programme. Significant associations were found between post-test knowledge scores and age, educational status, and duration of diabetes.

**Conclusion:** The structured teaching programme was highly effective in improving the knowledge of diabetic patients regarding diabetes self-care management. The findings highlight the importance of structured health education as a nursing intervention to promote effective self-care practices and prevent diabetes-related complications among rural diabetic patients.

**Keywords:** Effectiveness; Structured Teaching Programme; Knowledge; Diabetes Self-Care Management; Diabetic Patients; Rural Population.

## I. INTRODUCTION

Diabetes mellitus is one of the most common chronic non-communicable diseases and a major global public health concern. It is a metabolic disorder characterized by persistent hyperglycaemia resulting from impaired insulin secretion, insulin action, or both. According to the International Diabetes Federation, approximately 589 million adults aged 20–79 years were living with diabetes in 2024, and this number is projected to reach 853 million by 2050. India has one of the largest populations of people with diabetes, with an estimated 89.8 million adults affected, placing a substantial burden on the healthcare system.

Effective diabetes management depends largely on patients' ability to perform appropriate self-care activities, including adherence to a healthy diet, regular physical activity, medication compliance, blood glucose monitoring, foot care, and routine medical follow-up. Consistent self-care practices improve glycaemic control, reduce the risk of diabetes-related complications, and enhance quality of life. However, diabetic patients in rural areas often have inadequate knowledge and poor self-care practices because of limited health literacy, poor socioeconomic conditions, and restricted access to healthcare services. These challenges contribute to poor disease control and an increased risk of preventable complications.

Health education is a key component of diabetes management, and structured teaching programmes have been shown to improve patients' knowledge, self-management skills, and adherence to recommended self-care practices. Nurses play a vital role in delivering patient education and empowering individuals to actively participate in the management of their condition.

During clinical postings, the investigator observed that many diabetic patients in the selected rural areas of Jind, Haryana, had inadequate knowledge regarding diabetes self-care management, particularly related to diet, exercise, medication adherence, blood glucose monitoring, and foot care. This highlighted the need for a structured educational intervention. Therefore, the present study was undertaken to assess the effectiveness of a structured teaching programme on diabetes self-care management among diabetic patients in selected rural areas of Jind, Haryana.

## 1.1. PROBLEM STATEMENT

“A Study to Assess the Effectiveness of a Structured Teaching Programme on Diabetes Self-Care Management Among Diabetic Patients in a Selected Rural Area of Jind, Haryana”

## 1.2. OBJECTIVES

- To assess the pre-test knowledge regarding diabetes self-care management among diabetic patients.
- To evaluate the effectiveness of a structured teaching programme on knowledge regarding diabetes self-care management among diabetic patients.
- To compare the pre-test and post-test knowledge scores regarding diabetes self-care management among diabetic patients.
- To determine the association between post-test knowledge scores regarding diabetes self-care management and selected demographic variables among diabetic patients.

## 1.3. HYPOTHESES

- **H<sub>1</sub> (Research Hypothesis):** There will be a statistically significant difference between the pre-test and post-test knowledge scores regarding diabetes self-care management among diabetic patients following the administration of the structured teaching programme.
- **H<sub>0</sub> (Null Hypothesis):** There will be no statistically significant difference between the pre-test and post-test knowledge scores regarding diabetes self-care management among diabetic patients following the administration of the structured teaching programme.

## 1.3. ASSUMPTIONS

- Diabetic patients may have inadequate knowledge regarding diabetes self-care management.
- A structured teaching programme may improve the knowledge of diabetic patients regarding diabetes self-care management.
- Improved knowledge through educational intervention may promote positive self-care practices among diabetic patients.

## 1.4. CONCEPTUAL FRAMEWORK

The conceptual framework of the present study is based on Ludwig von Bertalanffy's General System Theory (1968), which explains that every system functions through four interrelated components: input, process, output, and feedback.

In the present study, the input consists of the demographic characteristics of diabetic patients (age, gender, education, and duration of diabetes) along with their pre-test knowledge regarding diabetes self-care management.

The process involves the administration of a structured teaching programme, which provides planned health education on various aspects of diabetes self-care management, including the meaning and causes of diabetes, dietary management, the importance of regular exercise, medication adherence, blood glucose monitoring, foot care, prevention of complications, lifestyle modification, and regular health check-ups.

The output is reflected in the improvement of post-test knowledge regarding diabetes self-care management, which is expected to enhance patients' self-care practices and contribute to better glycaemic control and prevention of diabetes-related complications.

The feedback component evaluates the effectiveness of the structured teaching programme by comparing the pre-test and post-test knowledge scores. The findings provide evidence for improving future health education programmes and strengthening nursing interventions for diabetic patients in rural communities.

## 1.5. VARIABLES

A variable is a characteristic or attribute that varies among the study participants and can be measured or observed during the research.

- **Independent Variable:** In the present study, the independent variable is the Structured Teaching Programme on Diabetes Self-Care Management.
- **Dependent Variable:** In the present study, the dependent variable is the knowledge regarding diabetes self-care management among diabetic patients.
- **Demographic Variables:** In the present study, the selected demographic variables are age, gender, educational status, and duration of diabetes.

## 1.6. DELIMITATIONS

- The study was limited to diabetic patients residing in the selected rural areas of Jind, Haryana.
- The study included only diabetic patients who were available during the data collection period and willing to participate.
- The sample size was limited to 60 diabetic patients selected through a non-probability convenience sampling technique.
- The study was limited to assessing the knowledge regarding diabetes self-care management following the structured teaching programme.

## II. MATERIALS AND METHOD

**2.1. Research Approach:** A quantitative research approach was adopted for the present study to assess the effectiveness of a structured teaching programme on knowledge regarding diabetes self-care management among diabetic patients using numerical data and statistical analysis.

**2.2. Research Design:** A pre-experimental one-group pre-test post-test research design was used for the study to evaluate the effectiveness of the structured teaching programme by comparing the knowledge scores before and after the intervention.

**2.3. Sample:** The sample consisted of 60 diabetic patients residing in the selected rural areas of Jind, Haryana, who fulfilled the inclusion criteria.

**2.4. Sampling Technique:** The samples were selected using a non-probability convenience sampling technique.

### 2.5. Criteria for Sample Selection

#### Inclusion Criteria

- Diabetic patients residing in the selected rural areas of Jind, Haryana.
- Patients who were willing to participate in the study.
- Patients who were available during the period of data collection.
- Patients who were able to understand and communicate in Hindi or English.

#### Exclusion Criteria

- Seriously ill diabetic patients.
- Patients with communication difficulties or cognitive impairment.
- Patients who were unwilling to participate in the study.

**2.6. Setting:** The study was conducted in the selected rural areas of Jind District, Haryana, where diabetic patients were available and permission was obtained from the concerned authorities to conduct the study.

**2.7. Population:** The target population comprised all diabetic patients residing in rural areas, while the accessible population consisted of diabetic patients available in the selected rural areas of Jind, Haryana, during the data collection period.

**2.8. Description of the Tool:** The data collection tool consisted of two parts.

**Part A: Demographic Variables:** This section included demographic characteristics such as:

- Age
- Gender
- Educational status
- Duration of diabetes

**Part B: Structured Knowledge Questionnaire:** This section consisted of a structured multiple-choice questionnaire developed to assess the knowledge regarding diabetes self-care management. The questionnaire included items related to:

- General Information
- Diet Management
- Exercise
- Medication
- Foot Care
- Complications

Each correct response carried one mark, whereas an incorrect response carried zero marks. The total knowledge score was categorized as:

- Poor knowledge
- Average knowledge
- Good knowledge

**2.9. Ethical Considerations:** Ethical clearance was obtained from the Institutional Ethics Committee of the concerned nursing institution. Permission to conduct the study was obtained from the concerned village authorities and local health officials of the selected rural areas of Jind, Haryana. Written informed consent was obtained from all participants before data collection. Confidentiality and anonymity of the participants were maintained throughout the study. Participation was voluntary, and participants had the freedom to withdraw from the study at any stage without any consequences.

**2.10. Plan for Data Analysis:** The collected data were analyzed according to the objectives of the study using descriptive and inferential statistics.

#### **Descriptive Statistics**

- Frequency and percentage were used to describe the demographic characteristics of the participants.
- Mean and standard deviation were used to summarize the pre-test and post-test knowledge scores regarding diabetes self-care management.

#### **Inferential Statistics**

- Paired *t*-test was used to determine the effectiveness of the structured teaching programme by comparing the pre-test and post-test knowledge scores.
- Chi-square test was used to determine the association between post-test knowledge scores and selected demographic variables.
- The level of statistical significance was set at  $p < 0.05$ .

**III. RESULTS**

The data obtained are divided into sections for easy and accurate interpretation of data. The data finding has organized under the following section:

**Section – I:** Distribution of Diabetic Patients Based on Their Demographic Variables.

**Section – II:** Assessment of Pre-Test and Post-Test Knowledge Regarding Diabetes Self-Care Management.

**Section-III:** Comparison of Pre-test and Post-test Knowledge Scores Regarding Diabetes Self-care Management.

**Section – IV:** Association Between Post-test Knowledge Scores and Selected Demographic Variables.

**SECTION – I: Distribution of Diabetic Patients Based on Their Demographic Variables:****Table-1: Distribution of diabetic patients according to demographic variables**

N = 60

S. No.	Demographic Variable	Category	Frequency (N)	Percentage (%)
1	Age (Years)	30–40 Years	10	16.7
		41–50 Years	18	30.0
		51–60 Years	22	36.7
		Above 60 Years	10	16.6
2	Gender	Male	35	58.3
		Female	25	41.7
3	Educational Status	Illiterate	15	25.0
		Primary Education	18	30.0
		Secondary Education	19	31.7
		Graduate and Above	8	13.3
4	Duration of Diabetes	Less than 5 Years	20	33.3
		5–10 Years	25	41.7
		More than 10 Years	15	25.0

**Table-1** presents the demographic characteristics of the 60 diabetic patients included in the study. Among them, 22 (36.7%) belonged to the 51–60 years age group, followed by 18 (30.0%) in the 41–50 years age group, while 10 (16.7%) and 10 (16.6%) belonged to the 30–40 years and above 60 years age groups, respectively.

With regard to gender, 35 (58.3%) participants were male and 25 (41.7%) were female.

Regarding educational status, 19 (31.7%) participants had secondary education, 18 (30.0%) had primary education, 15 (25.0%) were illiterate, and 8 (13.3%) were graduates or above.

Based on the duration of diabetes, 25 (41.7%) participants had been diagnosed with diabetes for 5–10 years, 20 (33.3%) had diabetes for less than 5 years, and 15 (25.0%) had diabetes for more than 10 years.

Overall, the findings indicate that the majority of participants were middle-aged males with secondary education and had been living with diabetes for 5–10 years.

**SECTION – II: Assessment of Pre-Test and Post-Test Knowledge Regarding Diabetes Self-Care Management:****Table-2: Assessment of Pre-Test and Post-Test Knowledge Levels Regarding Diabetes Self-Care Management**

N = 60

Knowledge Level	Pre-Test Frequency (N)	Pre-Test Percentage (%)	Post-Test Frequency (N)	Post-Test Percentage (%)
Poor	32	53.3	2	3.3
Average	20	33.3	15	25.0
Good	8	13.4	43	71.7
<b>Total</b>	<b>60</b>	<b>100</b>	<b>60</b>	<b>100</b>

**Table-2** presents the comparison of pre-test and post-test knowledge levels regarding diabetes self-care management among diabetic patients. Before the administration of the structured teaching programme, the majority of the participants, 32 (53.3%), had poor knowledge, 20 (33.3%) had average knowledge, and only 8 (13.4%) had good knowledge. Following the administration of the structured teaching programme, a marked improvement in knowledge was observed, with 43 (71.7%) participants demonstrating good knowledge, 15 (25.0%) having average knowledge, and only 2 (3.3%) remaining in the poor knowledge category. These findings indicate that the structured teaching programme was effective in improving the knowledge regarding diabetes self-care management among diabetic patients.

**Table-3: Comparison of Area-wise Mean Percentage of Pre-Test and Post-Test Knowledge Scores Regarding Diabetes Self-Care Management**

N = 60

S. No.	Knowledge Area	Maximum Score	Pre-Test Mean Score	Pre-Test Mean (%)	Post-Test Mean Score	Post-Test Mean (%)
1	General Information	5	2.8	56	4.5	90
2	Diet Management	5	2.1	42	4.4	88
3	Exercise	5	2.0	40	4.2	84
4	Medication	5	2.4	48	4.3	86
5	Foot Care	5	1.8	36	4.1	82
6	Complications	5	2.0	40	4.4	88

**Table-3** presents the comparison of area-wise mean percentage scores of knowledges regarding diabetes self-care management before and after the administration of the structured teaching programme. During the pre-test, the highest mean percentage score was observed in General Information (56%), while the lowest mean percentage score was found in Foot Care (36%), indicating inadequate knowledge in this area. Following the structured teaching programme, a considerable improvement was observed across all knowledge domains. The highest post-test mean percentage score was recorded in General Information (90%), followed by Diet Management and Complications (88% each). Although Foot Care had the lowest post-test mean percentage (82%), it also demonstrated substantial improvement compared to the pre-test score. Overall, the findings indicate that the structured teaching programme effectively enhanced diabetic patients' knowledge regarding all domains of diabetes self-care management.

### SECTION-III: Comparison of Pre-test and Post-test Knowledge Scores Regarding Diabetes Self-care Management:

**Table-4: Comparison of mean pre-test and post-test knowledge scores**

N = 60

Test	Mean	Mean (%)	SD	Mean Difference	Mean Difference (%)	df	Paired t-Test	Inference (P Value = 0.05)
Pre-test	12.10	40.33	3.50	11.70	39.00	59	18.42	S** (2.00)
Post-test	23.80	79.33	2.40					

**Table-4** shows that the mean pre-test knowledge score was 12.10 (40.33%) with a standard deviation of 3.50, whereas the mean post-test knowledge score increased to 23.80 (79.33%) with a standard deviation of 2.40. The mean difference between the pre-test and post-test knowledge scores was 11.70 (39.00%). The calculated paired t-test value was 18.42, which was greater than the table value (2.00) at the 0.05 level of significance. Therefore, the structured teaching programme was found to be effective in improving knowledge regarding diabetes self-care management among diabetic patients, and the research hypothesis ( $H_1$ ) was accepted.

### SECTION – IV: Association Between Post-test Knowledge Scores and Selected Demographic Variables:

**Table-5: Association of Post-Test Knowledge Scores Regarding Diabetes Self-Care Management with Selected Demographic Variables**

N = 60

S. No.	Demographic Variable	Calculated $\chi^2$ Value	Table $\chi^2$ Value	Inference
1	Age	8.25	7.81	Significant
2	Gender	1.15	3.84	Not Significant
3	Educational Status	10.82	7.81	Significant
4	Duration of Diabetes	8.74	5.99	Significant

Level of Significance:  $p < 0.05$ 

**Table-5** presents the association between post-test knowledge scores regarding diabetes self-care management and selected demographic variables among diabetic patients. The findings revealed that age ( $\chi^2 = 8.25$ ), educational status ( $\chi^2 = 10.82$ ), and duration of diabetes ( $\chi^2 = 8.74$ ) had a statistically significant association with post-test knowledge scores at the 0.05 level of significance. However, gender ( $\chi^2 = 1.15$ ) did not show a statistically significant association with post-test knowledge scores. These findings suggest that age, educational status, and duration of diabetes significantly influenced the knowledge gained following the structured teaching programme, whereas gender had no significant effect.

## IV. DISCUSSION

The present study was conducted to assess the effectiveness of a structured teaching programme on diabetes self-care management among diabetic patients residing in selected rural areas of Jind, Haryana. The demographic findings revealed that the majority of the participants (36.7%) belonged to the 51–60 years age group, 58.3% were male, 31.7% had secondary education, and 41.7% had been living with diabetes for 5–10 years. The pre-test findings indicated that more than half of the participants (53.3%) had poor knowledge regarding diabetes self-care management, 33.3% had average knowledge, and only 13.4% had good knowledge,

highlighting the inadequate baseline knowledge among diabetic patients. Following the administration of the structured teaching programme, a marked improvement in knowledge was observed, with 71.7% of participants achieving good knowledge, 25.0% demonstrating average knowledge, and only 3.3% remaining in the poor knowledge category. Area-wise analysis also showed substantial improvement across all domains of diabetes self-care management, with the highest post-test mean percentage score observed in General Information (90%), followed by Diet Management and Complications (88% each), while Foot Care improved from 36% in the pre-test to 82% in the post-test. The effectiveness of the structured teaching programme was confirmed by the significant increase in the mean knowledge score from  $12.10 \pm 3.50$  (40.33%) during the pre-test to  $23.80 \pm 2.40$  (79.33%) during the post-test, with a mean difference of 11.70 (39.00%). The calculated paired *t*-value (18.42) was greater than the table value (2.00) at the 0.05 level of significance, indicating that the structured teaching programme was highly effective in improving knowledge regarding diabetes self-care management. Hence, the research hypothesis ( $H_1$ ) was accepted, and the null hypothesis ( $H_0$ ) was rejected. Furthermore, a statistically significant association was found between post-test knowledge scores and age, educational status, and duration of diabetes, whereas gender showed no significant association. These findings suggest that structured health education is an effective nursing intervention for enhancing knowledge regarding diabetes self-care management among diabetic patients and can play an important role in promoting self-care practices, improving glycaemic control, and preventing diabetes-related complications, particularly among rural populations.

## V. CONCLUSION

In conclusion, the study that the structured teaching programme was effective in significantly improving the knowledge of diabetic patients regarding diabetes self-care management. The educational intervention enhanced participants' understanding of essential self-care practices, highlighting the importance of structured health education in promoting effective diabetes management and preventing complications among rural diabetic patients.

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