



“A STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING PREVENTION OF HYPOGLYCEMIA AMONG DIABETICS AT ASRAM HOSPITAL ELURU, ANDHRA PRADESH”.

Medical Surgical Nursing

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ABSTRACT

Background: Hypoglycemia is one of the most serious complications of diabetes mellitus, with a higher risk among elderly patients, those with comorbidities, pregnant women, and children with Type 1 diabetes. In Type 2 diabetes, prolonged disease duration and strict glycemic control also elevate this risk. Hypoglycemia can lead to impaired counter-regulatory responses, unawareness, and increased risk of vascular events or death. Patient education is key to its prevention. **Objectives:** (1) To assess the level of knowledge regarding prevention of hypoglycemia among diabetic patients. (2) To evaluate the effectiveness of a structured teaching programme in terms of gain in knowledge scores. (3) To find the association between post-test knowledge levels and selected demographic variables. **Methods:** A pre-experimental one-group pre-test and post-test design was conducted among 30 diabetic patients admitted to ASRAM Hospital, Eluru, using a purposive sampling technique. A structured questionnaire assessed knowledge before and after the intervention. Data were analyzed using descriptive and inferential statistics. **Results:** In the pre-test, only 3.3% of participants had good knowledge, while 73.3% had average and 23.3% had poor knowledge. In the post-test, 90% showed good knowledge and 10% had average knowledge. Significant associations were observed between post-test knowledge and demographic variables such as age, gender, education, marital status, duration of illness, and dietary habits. **Conclusion:** The structured teaching programme was effective in improving the knowledge regarding prevention of hypoglycemia among diabetic patients. Regular educational interventions can help promote self-care and reduce hypoglycemic episodes.

KEYWORDS

Hypoglycemia, Diabetes mellitus, Knowledge, Structured teaching, Patient education, Glycemic control

INTRODUCTION

Diabetes Mellitus is a metabolic disorder marked by impaired insulin production or utilization, leading to abnormal carbohydrate metabolism. Type 1 diabetes is autoimmune and non-preventable, while Type 2, accounting for 85–95% of cases, is largely preventable.

Globally, over 150 million people are affected, with the highest prevalence in North America (10.2%) and the largest burden in the Western Pacific and Southeast Asia. India, with an estimated 30 million diabetics, ranks first globally, with urban prevalence at 13.5% and rural at 3%.

Diabetes leads to acute and chronic complications including cardiovascular disease, stroke, nephropathy, retinopathy, and neuropathy, contributing to high morbidity and mortality.

Hypoglycemia, common in diabetics, occurs due to excess insulin, missed meals, or illness. Symptoms include sweating, dizziness, confusion, and seizures. Immediate treatment includes oral glucose, IV glucose, or glucagon injections. Long-term care involves dietary management and may include complementary therapies to stabilize blood sugar.

Need For The Study

Hypoglycemia is a frequent and potentially serious complication in diabetes, often caused by excessive insulin, inadequate food intake, or intense physical activity. Studies report that approximately 8.8% of diabetic patients experience hypoglycemic episodes, with a significant number having recurrent events. Patients on insulin or sulfonylureas are at greater risk.

In India, where diabetes prevalence is rapidly rising—reaching up to 13.5% in urban areas—patient awareness remains inadequate. Research from various regions indicates that only about half of diabetic individuals can recognize hypoglycemia symptoms or take appropriate corrective actions.

These gaps in knowledge and self-care highlight the urgent need for structured educational interventions to enhance awareness and prevent hypoglycemic episodes among diabetic patients.

Statement Of The Problem

A study to assess the effectiveness of structured teaching programme on knowledge regarding prevention of hypoglycemia among diabetics at ASRAM hospital.

Objectives:

- 1) To assess the level of knowledge regarding prevention of

hypoglycemia among diabetic patients.

- 2) To evaluate the effectiveness of structured teaching programme in terms of gain in knowledge scores
- 3) To find the association between post test knowledge levels of with selected demographic variables.

Hypothesis:

- 1) **H1**-There will be significant difference between pretest posttest knowledge scores on prevention of hypoglycemia among diabetics.
- 2) **H2**-There will be a significant association between posttest knowledge on prevention of hypoglycemia among diabetics with the selected demographic variables.

Methodology

Research Approach: An evaluative research approach was used to assess the effectiveness of a structured teaching program on preventing hypoglycemia among diabetic patients.

Research Design: A pre-experimental one-group pre-test post-test design was employed to evaluate the intervention's impact.

Research Setting: The study was conducted in **ASRAM Hospital, Eluru**. The hospital has a 1200-bedded super-specialty setup and was selected due to accessibility, feasibility, and cooperation from the hospital authorities and patients.

Population: The target population of the study consisted of diabetic patients attending ASRAM Hospital, Eluru.

Sample: The sample comprised **30 diabetic patients** selected from ASRAM Hospital, Eluru.

Sampling Technique

The sampling technique used was **non-probability purposive sampling**.

Criteria For Sample Selection

Inclusion Criteria:

- Diabetic patients who were available during the time of data collection.
- Diabetic patients who were willing to participate in the study.

Exclusion Criteria:

- Non-diabetic patients.
- Patients who are not cooperating for data collection.

Variables

Independent Variable: Structured teaching programme on prevention of hypoglycemia.

Dependent Variable: Knowledge score of diabetic patients.

Demographic Variables: Age, gender, education, income, dietary habits, duration of illness, family history of diabetes, marital status, and religion.

Development and Description of the Tool

The tool used for data collection was a **structured knowledge questionnaire** developed after an extensive review of literature and consultation with experts in the field.

The Tool Consisted Of Two Sections:

- **Section I:** Demographic variables (10 items).
- **Section II:** 25 multiple choice questions to assess knowledge regarding prevention of hypoglycemia. Each correct answer was awarded 1 mark. The total score was 25.

Scoring Interpretation

- **Good knowledge:** 18–25
- **Average knowledge:** 9–17
- **Poor Knowledge:** 0–8

Data Collection Procedure

Formal permission was obtained from the Medical and Nursing Superintendent of ASRAM Hospital, Eluru. The purpose of the study was explained to the participants and written consent was taken. The **pre-test** was conducted using the structured knowledge questionnaire. After the pre-test, a **structured teaching programme** on prevention of hypoglycemia was administered. The **post-test** was conducted 7 days later using the same tool.

Plan For Data Analysis

Descriptive Statistics:

- Frequency and percentage distribution for demographic data and level of knowledge.
- Mean, mean percentage, and standard deviation for knowledge scores.

Inferential Statistics:

- **Chi-square test** to find the association between knowledge scores and selected demographic variables.

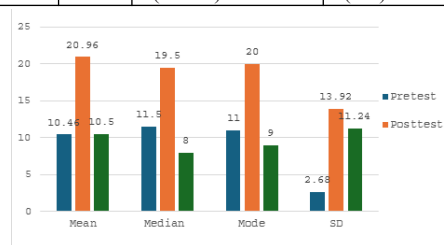
Table 1: Frequency and percentage distribution of demographic variables. n=30

S.NO	Demographic Variables	Frequency(f)	Percentage (%)
1	Age in years		
	a) 21–30	7	23.4
	b) 31–40	9	30.0
	c) 41–50	8	26.6
	d) 51 and above	6	20.0
2	Gender		
	a) Male	18	60.0
	b) Female	12	40.0
3	Religion		
	a) Hindu	19	63.3
	b) Muslim	2	6.6
	c) Christian	9	30.0
	d) Others	0	0.0
4	Marital Status		
	a) Married	21	70.0
	b) Unmarried	5	16.6
	c) Divorced	4	13.4
5	Educational Status		
	a) Non-illiterate	7	23.3
	b) Primary education	12	40.0
	c) Secondary education	8	26.6
	d) Degree and above	3	10.0
6	Occupation		
	a) Sedentary worker	3	10.0
	b) Daily labour	20	66.6
	c) Business	7	23.3
	d) Others	0	0.0

7	Family Income (per month)		
	a) ₹5000 and below	15	50.0
	b) ₹5001–10,000	8	26.6
	c) ₹10,001–15,000	6	20.1
	d) ₹15,001 and above	1	3.3
8	Family History of Diabetes		
	a) Yes	8	26.7
	b) No	22	73.3
9	Food Habits		
	a) Vegetarians only	0	0.0
	b) Non-vegetarians only	0	0.0
	c) Both	30	100.0
10	Duration of Illness		
	a) Below 5 years	20	66.6
	b) 6–10 years	7	23.3
	c) 11–15 years	1	3.0
	d) 15 years and above	2	6.6

Table-2: comparison between pretest and posttest knowledge level n=30

Level of Knowledge	Score Range	Pre-Test Frequency (%)	Post-Test Frequency (%)
Good	18–25	1 (3.33%)	27 (90%)
Average	9–17	22 (73.3%)	3 (10%)
Poor	0–8	7 (23.3%)	0 (0%)



Comparison Between Pretest And Post Test, Mean, Median, Sd, And Regarding Diabetic Patients N=30

Association Between Post Test Level Of Knowledge And Demographic Variables Of Diabetic Patients.

The findings in table 4 show that the computed Chi-Square values at df (6) for age were (48.91), Gender at df (2) (59.45). Religion at df (4) (14.00) marital status at df (4) = (4.63) Educational status at df (6) = (48.18) Occupation at df(6) = (17.8) family income per month df(6) = (11.96) family history of D.M at f(2) = (18.64) Dietary pattern at df (4) = (0.) and duration of illness at df (6) = (8.38) Association between pretest levels with demographic variables like Age in years, Gender, Educational status, Religion, Occupation were found to be significant while other variables like Marital status, Family income, Family history of DM, Food habits and duration of illness were not significant.

Findings Of The Study:

The study aimed to assess the effectiveness of a structured teaching program (STP) on the knowledge regarding the prevention of hypoglycemia among diabetic patients at ASRAM Hospital, Eluru. The findings revealed a significant improvement in the knowledge levels of diabetic patients after the intervention.

- **Pre-test Knowledge:** The mean pre-test knowledge score was **10.46**, indicating a relatively low level of understanding about the prevention of hypoglycemia among diabetic patients.
- **Post-test Knowledge:** After the structured teaching program, the mean post-test score increased to **20.96**, demonstrating a **gain of 10.5 points**, which represents a **50% increase** in knowledge.
- The computed **t-value** of 20.96 exceeded the table value at the 0.05 significance level, confirming that the improvement in knowledge was statistically significant.

The findings indicate that the structured teaching program was **effective** in significantly improving the knowledge of diabetic patients regarding the prevention of hypoglycemia.

Hypothesis 1:

- The mean post-test knowledge scores were significantly higher than the pre-test scores of diabetic patients regarding hypoglycemia prevention.

The hypothesis is **accepted**, proving that the structured teaching program led to a statistically significant improvement in knowledge.

Hypothesis 2:

- The association between post-test knowledge levels and selected demographic variables (age, gender, marital status, education, income, etc.) was analyzed using the chi-square test.
- Significant associations were found with demographic variables like **age, education, and marital status** at a 0.05 level, whereas no significant associations were found with variables like **gender, income, and family history of diabetes**.

The association analysis confirms that certain demographic factors have an influence on the knowledge levels of diabetic patients regarding the prevention of hypoglycemia.

CONCLUSION:

The study concluded that the structured teaching program (STP) was highly effective in improving the knowledge of diabetic patients regarding the prevention of hypoglycemia. The significant increase in knowledge scores post-intervention reflects the positive impact of the educational program.

This study underscores the importance of targeted educational interventions in managing chronic conditions like diabetes, particularly in preventing complications such as hypoglycemia. The findings suggest that such programs can enhance the overall understanding and self-management abilities of diabetic patients, potentially improving their health outcomes.

Nursing Implications:

Nursing Education:

- The results of this study highlight the importance of structured teaching programs (STP) in enhancing patients' knowledge about critical health issues like hypoglycemia. Nursing educators can adopt similar STPs to educate diabetic patients about hypoglycemia prevention.
- Educators can use tools like **PowerPoint presentations** and **structured questionnaires** to assess and reinforce patient knowledge over time, which will also enhance nursing students' teaching abilities in clinical settings.

Nursing Practice:

- Nurses play a crucial role in educating diabetic patients. The findings emphasize the need for nurses to be well-versed in **diabetes management**, especially in preventing hypoglycemia.
- The **STP** can be utilized in clinical practice to educate patients about the prevention and management of hypoglycemia, thus improving the overall quality of care provided to diabetic patients.

Nursing Administration:

- Nursing administrators can use the **structured knowledge questionnaire** developed in this study to assess the current knowledge of diabetic patients and design targeted educational interventions.
- The results of this study can also help in developing policies for patient education regarding diabetes management and hypoglycemia prevention in healthcare settings.

Nursing Research:

- This study can serve as a foundation for further research into innovative and effective teaching methods for diabetic patients.
- Future research can explore the long-term impact of structured teaching programs on patient outcomes such as reduced incidents of hypoglycemia or better disease management.

Recommendations For Further Studies:

- A similar study could be conducted with a **larger sample size** to confirm these findings and explore whether the improvement in knowledge is sustained over a longer period.
- Research can also be extended to explore the **impact of teaching programs** on other chronic conditions related to diabetes, such as diabetic ketoacidosis or neuropathy.
- Further studies can assess the **effectiveness of different teaching methods** (e.g., digital tools, hands-on demonstrations) in educating diabetic patients on hypoglycemia prevention.

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