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A Study To Assess The Effectiveness Of Structured Teaching Programme On Knowledge Regarding Management And Prevention Of Diabetic Emergencies Among Patients With Diabetes Mellitus At Dsmch, Perambalur.

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Abstract

The present study titled *"*A Study to assess the effectiveness of structured teaching programme on knowledge regarding management and prevention of diabetic emergencies among patients with diabetes mellitus at DSMCH, Perambalur*"* aims to determine the existing level of knowledge regarding management and prevention of diabetic emergencies among patients with diabetes mellitus. To find out the association between pre test level of knowledge regarding management and prevention of diabetic emergencies among patients with diabetes mellitus with their selected demographical variables. A sample size was 60 diabetic patients was selected at Dhanalakshmi Srinivasan Medical College and hospital, Siruvachur, Perambalur, pre experimental approach and pre experimental one group pre test and post test design were using non-probability purposive sampling technique. Pre test mean score was 20 with a standard deviation of 6.332, reflecting a mean percentage of 20.00%. After intervention, post test mean score was increased to 26.983 with a standard deviation of 6.987, corresponding to a mean percentage of 27.00%. This improvement, amounting to a mean difference of 6.983 points, highlights a substantial enhancement in knowledge. The paired t-test value of 7.4042, with degrees of freedom (df) equal to 59, indicates a statistically significant difference ($p < 0.05$). This result underscores the effectiveness of the intervention in significantly increasing participants' understanding of diabetic emergency management and prevention, demonstrating that the observed improvements are unlikely to be due to chance. This study emphasizes the importance of continuous health education to empower diabetic individuals in managing their condition and preventing complications.

Keywords:

Structured teaching programme, diabetic emergencies, diabetes mellitus, knowledge assessment, purposive sampling, DSMCH Perambalur.

Introduction

The pancreas makes the hormone insulin, which helps to control blood sugar levels. Insulin is manufactured by a small clump of pancreatic cells called the 'islets of Langerhans'. High blood sugar levels prompt the release of insulin from the islets of Langerhans, so that the sugars can pass into cells. The endocrine pancreas also makes glucagon, another hormone involved in the regulation of blood sugar.[1] Blood sugar levels can fluctuate throughout the day. Pancreas releases insulin, a hormone that helps glucose get into your cells to be used for energy, when your blood sugar levels rise. This helps keep

your blood sugar in a healthy range.[2] Diabetes mellitus is a significant global health concern, contributing to high mortality rates. According to the World Health Organization (WHO), diabetes was responsible for approximately 1.5 million deaths worldwide in 2019. It is a major risk factor for cardiovascular diseases, kidney failure, and other serious health complications.[3] The prevalence of diabetes continues to rise, with an estimated 537 million adults living with the disease in 2021, and projections suggest that this number could reach 643 million by 2030. Effective management and prevention strategies are crucial to reduce the impact of diabetes-related deaths globally.[4] Type 1 diabetes is caused by a lack of insulin due to the destruction of insulin-producing beta cells in the pancreas. In type 1 diabetes, an autoimmune disease, the body's immune system attacks and destroys the beta cells. Normally, the immune system protects the body from infection by identifying and destroying bacteria, viruses, and other potentially harmful foreign substances. But in autoimmune diseases, the immune system attacks the body's own cells. In type 1 diabetes, beta cell destruction may take place over several years, but symptoms of the disease usually develop over a short period of time.[5] Diabetes primarily arises from issues with insulin production or use. Type 1 diabetes is often an autoimmune response that destroys insulin-producing cells in the pancreas, with genetic and environmental factors playing a role. Type 2 diabetes is linked to insulin resistance, where the body doesn't use insulin effectively, often influenced by obesity, physical inactivity, and poor diet. Genetics also contribute to risk. Gestational diabetes occurs during pregnancy due to hormonal changes that affect insulin. Other factors include age, ethnicity, and certain medical conditions. Understanding these causes helps in prevention and management strategies for diabetes.[6] Effective diabetes management involves a combination of lifestyle changes and medical care. Key components include monitoring blood sugar levels regularly, maintaining a balanced diet rich in whole grains, fruits, and vegetables, and managing carbohydrate intake. Regular physical activity is crucial for improving insulin sensitivity. Medication, such as insulin or oral hypoglycemics, may be necessary based on the type of diabetes. Stress management and adequate sleep also play important roles. Regular check-ups with healthcare professionals help track progress and adjust treatment plans. Education about diabetes is vital for self-management and preventing complications.[7] **Objectives** were, to determine the existing level of knowledge regarding management and prevention of diabetic emergencies among patients with diabetes mellitus. To evaluate the effectiveness of structured teaching program on knowledge regarding management and prevention of diabetic emergencies among patients with diabetes mellitus. To find out the association between pre test level of knowledge regarding management and prevention of diabetic emergencies among patients with diabetes mellitus with their selected demographical variables. **Hypothesis**, There is a significant difference between pre and post test level of knowledge regarding structured teaching program on management and prevention of diabetic emergencies among patients with diabetes mellitus. There is a significant association between pre-test level of knowledge regarding management and prevention of diabetic emergencies among patients with diabetic mellitus with their selected demographical variables. Conceptual framework helps to express abstract ideas in a more reality, understandable, and precise form of the original conceptualization. The conceptual framework for this study was adapted from Pender's Health Promotion Model.

Research methodology

In the study, A quantitative, pre-experimental research design was used to assess the effectiveness of a structured teaching programme on diabetic emergency management among diabetic patients. The research design selected for this study was pre experimental one group pre test and post test design. **Variable**, Independent variable - In this study the independent variable is structured teaching program on knowledge regarding management and prevention of diabetic emergencies. Dependent variable - In this study the dependent variable is gaining of knowledge regarding management and prevention of diabetic emergencies among patients with diabetic mellitus. **Settings** - The setting was chosen on the basis of availability of sample and the cooperation extended by the Management and the health team. This study was conducted at selected hospital, Perambalur district. **Population** - target population - The population under study constituted the patients with diabetes mellitus. accessible population - Patients at Dhanalakshmi Srinivasan medical college and hospital, Perambalur. **Sample** - The samples are patients with diabetic mellitus at Dhanalakshmi Srinivasan medical college and hospital, Perambalur hospital, Perambalur who fulfill the inclusive criteria. **sample size** -Sample size was 60 patients with diabetic mellitus at Dhanalakshmi Srinivasan Medical College and Hospital, Perambalur district. **Sampling Technique** - The investigator used Non-

Probability-Purposive sampling technique to select the samples for the study.

DESCRIPTION OF THE TOOLS

An instrument in research refers to the tool or equipment used for collecting data. Structured questionnaire was developed by the investigator in order to obtain information from the diabetes patients. The tool used in this study has two parts.

PART I: DEMOGRAPHIC VARIABLES

Section A: Demographic variables such as age, gender, marital status, educational level, employment status, income level, religion, type of diet, geographical location, and social habits.

Section B: Clinical variables such as lifestyle factors, type of diabetes, duration of diabetes, and family history.

PART II: STRUCTURED INTERVIEW SCHEDULE

Multiple choice questions were used to assess the knowledge level, which consists of 42 items. Each correct answer is given 1 mark and wrong answer carries zero marks. The total mark is 42. The score is interpreted as,

INTERPRETATION	SCORE	PERCENTAGE
Inadequate knowledge	1 - 14	1% - 33%
Moderately adequate knowledge	15 - 28	34% - 66%
Adequate knowledge	29 - 42	67% - 100%

ANALYSIS AND INTERPRETATION OF DATA

Table -1 Frequency and percentage wise distribution of pre and post test level of knowledge regarding management and prevention of diabetic emergencies among patients with diabetes mellitus

Sl. No	Level of Knowledge	Pre Test		Post Test	
		n	%	n	%
1	Inadequate knowledge	18	30.00	6	10.00
2	Moderately adequate knowledge	32	53.33	19	31.67
3	Adequate knowledge	10	16.67	35	58.33

Table – 2 Comparison of mean, standard deviation and mean percentage of pre and post test level of knowledge regarding management and prevention of diabetic emergencies among patients with diabetes mellitus

TEST	PRE TEST			POST TEST			MEAN
	Mean	SD	Mean %	Mean	SD	Mean %	Diff
Level of Knowledge	20	6.3	20	26.98	6.9	27	6.98

The mean score of participants, in pre test was 20 with a standard deviation of 6.332, corresponding to a mean percentage of 20.00%. After the intervention, in post test mean score increased to 26.983 with a standard deviation of 6.987, reflecting a mean percentage of 27.00%. This represents a substantial increase of 6.983 points in the mean score, indicating a significant enhancement in the participants' understanding. The improvement suggests that the intervention was effective in increasing the participants' knowledge about managing and preventing diabetic emergencies. Overall, the data demonstrates a positive shift in knowledge, highlighting the success of the educational efforts in achieving better preparedness among patients.

Table – 3: Paired "t" test value of pre and post test level of knowledge regarding management and prevention of diabetic emergencies among patients with diabetes mellitus

TEST	PRE TEST			POST TEST			MEAN	Paired 't' value
	Mean	SD	Mean %	Mean	SD	Mean %	Diff	
Knowledge	20	6.3	20.00	26.983	6.9	27.00	6.983	7.4042 df = 59 *P<0.05 S**

Pre test mean score was 20 with a standard deviation of 6.332, reflecting a mean percentage of 20.00%. After intervention, post test mean score was increased to 26.983 with a standard deviation of 6.987, corresponding to a mean percentage of 27.00%. This improvement, amounting to a mean difference of 6.983 points, highlights a substantial enhancement in knowledge. The paired t-test value of 7.4042, with degrees of freedom (df) equal to 59, indicates a statistically significant difference ($p < 0.05$). This result underscores the effectiveness of the intervention in significantly increasing participants' understanding of diabetic emergency management and prevention, demonstrating that the observed improvements are unlikely to be due to chance.

Section – d: association between the pre test level of knowledge regarding management and prevention of diabetic emergencies among

patients with diabetes mellitus with their selected demographic and clinical variables.

Association between the pre test level of knowledge regarding management and prevention of diabetic emergencies among patients with diabetes mellitus with their selected demographic variables.

The gender and geographic location are significant factors affecting knowledge about diabetic emergency management, whereas other demographic and lifestyle factors do not show a strong association. This interpretation provides a clear summary of which factors significantly affect knowledge levels and which do not, based on the chi-square test results. Only Gender and Geographical location demographic variables are significant, rest of the variables or non-significant.

Association between the pre test level of knowledge regarding management and prevention of diabetic emergencies among patients with diabetes mellitus with their selected clinical variables.

Most of the clinical variables do not significantly impact knowledge levels about diabetic emergencies, a family history of diabetes appears to play a crucial role in influencing individuals' understanding of the condition. This interpretation highlights the significance of each clinical variable in relation to knowledge about diabetic emergencies, with a particular focus on the notable impact of having a family history of diabetes. Only family history of diabetic mellitus clinical variable is significant, rest of the variables or non-significant.

CONCLUSION

In conclusion, the study assessing the effectiveness of a structured teaching program on knowledge regarding management and prevention of diabetic emergencies among patients with diabetes mellitus demonstrates that significant improvements in knowledge levels. The findings indicate that the educational intervention effectively enhanced participants' understanding of key concepts related to recognizing and responding to diabetic emergencies. Increased awareness can empower patients to take proactive measures in managing their condition, thereby reducing the risk of complications. This underscores the importance of ongoing education and support for individuals with diabetes. Implementing similar structuredd teaching programs can be beneficial in promoting better self-management practices and improving overall health outcomes in this population. Further research may be warranted to evaluate long-term retention of knowledge and the impact on actual health behaviors.

NURSING IMPLICATION

The findings of the present study have implications in the field of nursing service, education, administration and research.

Implications in Nursing Practice

1. As a diabetic medic team, nurses should understand the importance of different non pharmacological measures to reduce the diabetic mellitus problems.
2. Encouraging the diabetic in informed decision making.
3. Medical health nurses should understand the importance of educating regarding diabetic problems.
4. Medical health nurses should conduct program regarding emergency problems in diabetic mellitus.

Implications in Nursing Education

1. Aging is a complex, multi factorial and inevitable process, which continues through the entire lifespan.
2. It is very important to cope with medical health problems normally rather than through drugs and medications.
3. Student’s nurses should have a proper knowledge regarding changes that take place during diabetic patients health problems of institutionalized with diabetic mellitus.
4. Students should be encouraged to participate in various programmes conducted for diabetic patients, family members and public.
5. Students should be familiar with the different strategies to manage diabetic problems, so that they can help the patients with diabetic mellitus to come up with their problems.

Implications in Nursing Administration

1. A nurse administrator should take all the measures to promote health while providing nursing care.
2. She could conduct and encourage various research programmes for promoting techniques and improving the wellbeing of the patient.
3. Various exposures to the staff and students nurses like visit community area will help

them to know the problems of the diabetic patients.

4. Medical health education should be given to the elderly regarding various mechanism of diabetic problems.
5. Provide opportunities for staff to attend medical health courses.

Implications in Nursing Research

1. The lack of research based information shall be merged in relation to an intervention, frequently applied by nurses.
2. The same study can be done in different settings.
3. This study can be a baseline for future studies to build upon and motivate other investigators to conduced further studies.
4. The findings of the study can be disseminated to the nurses working in hospital setting area, through various media.

LIMITATIONS

1. Sample was selected hospital from Perambalur.
2. The rating scale prepared by the investigator for measuring the medical health problems was used for data collection which restricted the amount of information that can be obtained from the respondents.

RECOMMENDATIONS

- Based on the findings the following recommendations are proposed for future researches.
- A similar study may be conducted to assess the knowledge regarding management and prevention of Diabetic emergencies among patients admitted in Dhanalakshmi Srinivasan Medical College and Hospital. An evaluation study may be conducted to identify utilization and effectiveness of Structured teaching programme in Dhanalakshmi Srinivasan Medical College and Hospital, Perambalur.
- Similar study can be replicated on large sample.

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