

Effectiveness of Planned Teaching Programme on Knowledge And Practice Regarding Self-Administration of Insulin among Patients with Diabetes Mellitus, at Dhanalakshmi Srinivasan Medical College and Hospital, in Siruvachur, Perambalur District

Shyamala Grace. S¹, Karthi²

¹Associate Professor, Dept of MSN, Dhanalakshmi Srinivasan college of Nursing, Perambalur.

²Associate Professor & HOD, Dept of MSN, ES College of Nursing, Villupuram

Corresponding Author: Karthi

ABSTRACT

Background: Diabetes is one of the incurable but easily controllable diseases. The prevalence of diabetes is higher in developed countries than in developing countries.

Objectives: To evaluate the effectiveness of PTP on knowledge and practice regarding self administration of Insulin among patients with diabetes mellitus.

Design: Pre experimental one group pre and post test research design.

Setting: Dhanalakshmi Srinivasan Medical college and Hospital, Siruvachur at Perambalur.

Participants: 40 diabetic mellitus patient fulfilling the inclusion criteria.

Selection Criteria: Diabetes Mellitus patients in the age group of 18-45 years attending Medical OPD at Dhanalakshmi Srinivasan Medical College and Hospital.

Sampling Techniques: Non-Probability purposive sampling techniques was used.

Results: The result shows that Regarding pre test average mean score among the Diabetes Mellitus patients, as 8.52. post test average mean score among Diabetes Mellitus as 15.42. The standard deviation in the pre test were 3.19 and post test were 2.76. Thus the difference, in the level of knowledge was confirmed by the paired 't' value 15.59, which was Significant at (p>0.001). Regarding pre test average mean score among the Diabetes Mellitus patients, as 7.88. post test average mean score among Diabetes Mellitus as 15.63. The standard deviation in the pre test were 2.67 and post test were 2.56. Thus the difference, in the level of knowledge was confirmed by the paired 't' value 23.58, which was Significant at (p>0.001). There was significant association with their

demographic variables such as sex, educational status and history of illness at P<0.05 level.

Conclusion: Planned Teaching Program was effective among Diabetes Mellitus patients regarding self administration of Insulin.

Key words: Planned Teaching Program, Diabetes Mellitus, self administration, Insulin

INTRODUCTION

“KICK OUT DIABETES”

Diabetes is a serious, chronic disease that occurs either when the pancreas does not produce enough insulin (a hormone that regulates blood glucose) or when the body cannot effectively use the insulin it produces.

Diet, exercise, weight loss, and a healthy lifestyle remain essential in the initial and ongoing management of type 2 diabetes. The addition of one or more oral Anti Diabetic (OAD_s) is appropriate when glycemic control can no longer be achieved by the use of the initial non-pharmacological measures. Similarly, insulin should be added when the combined use of OAD_s and non-pharmacologic measures are no longer able to achieve glycemic control.

Assessment and reinstruction for insulin injection technique is important to improve glycemic control, not only for those with erroneous injection skill, but also for those with apparently proper techniques. Individual planned teaching is one of the effective teaching strategies, which can be used to improve the knowledge and ability

of the diabetic patient on self administration of insulin. Even when insulin is prescribed early in treatment, low doses are often employed due to the fear of hypoglycemia. Appropriate patient education early in treatment can do much to alleviate fears and misconceptions.

Insulin therapy is a complicated technique that cannot be mastered easily by health education once or twice. Even in much practiced patients many faults and misconceptions could creep in. So it is necessary to supervise the existing knowledge and practice level and supplement them with the planned teaching programme.

NEED FOR STUDY

A Nation's prosperity lies in the health of its citizens. Healthy people make the nation strong and wealthy. The past few decades have revolutionised the life style of human beings in the whole world. However this age of speed and competition has increased the stresses and strains which man is subjected to. Diabetes is a growing threat to global public health and affects all societies regardless of age, sex, ethnicity or race. The countries with largest number of diabetic people will be in India, China and U.S.A by 2030. (IDF)

World Health Organizations (2016) stated that globally, an estimated 422 million adults are living with diabetes mellitus. The global prevalence of diabetes in the year 2000 was 171,000,000 and it is expected and approximated to be raised to 366,000,000 by 2030.

According to international diabetes federation (2019) 425 million people have diabetes in the world and 82 million people in the SEA (South East Asia) Region; by 2045 this will be rise to 151 million. There were over 72.946.400 cases of diabetes in India in 2017.

International Diabetes Federations estimated that India currently represents 49 percent of the world's diabetes burden, with an estimated 72 million cases in 2017, a

figure expected to almost double to 134 million by 2025.

Times of India reports that one among the nine diabetic patients in the world is an Indian. By 2025, it is estimated that every fifth diabetic patient in the world will be an Indian. Diabetes is one of the most economically burdensome chronic diseases of our time.

2010, there were 45.2 million cases of type 2 diabetes mellitus in India. of these, 14.7 million and 30.5 million were found in rural and urban areas, respectively. The major cities of India (New Delhi, Mumbai, Kolkata, Chennai, Bangalore, Hyderabad and Ahmadabad) had an estimated prevalence of 7.3 million type 2 diabetes cases in 2010. It is estimated that by the end of 2020, the total prevalence of type 2 diabetes will increase to 69.7 million.

A survey conducted in Chennai, found out that urban areas in India had a significantly higher incidence of diabetes. The incidence in the hospital series varies; 0.7% of admissions in Pondicherry, 11.3% in Madras, 20.3% in Luck now, 9.4% in Delhi, 2.6% in Bombay, 2.2% Hubli, 4.12% in Hyderabad, 1.7% in Jabalpur and 8.7% in Trivandrum. These figures show that diabetes mellitus is more prevalent in affluent societies than in rural areas of south of India. Recent epidemiological studies have reported that migrant Asian Indians living in different parts of the world show a much higher prevalence of diabetes than the host population of those countries.

Alnamas.,et.,al.,(2017) assessed the knowledge regarding self administration of insulin injection among diabetes mellitus patients in Diabetic Clinic.20 diabetic mellitus patients on insulin therapy were selected by convenient sampling method. The study revealed that 12 participants (60%) are having good knowledge regarding self administration of Insulin injection. 6 participants (30%) are having average knowledge and 2 participants (10%) are having poor knowledge regarding self administration of Insulin injection. The study concluded that all diabetes mellitus

patient should be educated or trained about self administration of Insulin.

Surekha Bhujanga shetty (2017) conducted a cross sectional study to assess the knowledge, attitude and practice amongst subjects with diabetes on insulin therapy in Karnataka. 448 diabetes subjects with insulin therapy were taken as a study sample. Results revealed that 61.38% of them were men and 44.9% of them were in the age group of >60 years. 70.5% of the subjects were self-injecting insulin. 85.4% subjects were rotating the injection sites. The study concluded that due to poor knowledge, attitude and practice makes the diabetic patients to undergo several errors in insulin injection technique, that makes the insulin injection painful, reduces patient compliance and also affect glycemic control. It is recommended by all health care professional need to conduct the pre-injection counseling, frequent reassessment of injection technique, to alleviate these factors for achieving optimal success with insulin therapy.

STATEMENT OF THE PROBLEM

“Effectiveness of Planned Teaching Programme on Knowledge and Practice regarding self-administration of Insulin among Patients With Diabetes Mellitus, At Dhanalakshmi Srinivasan Medical College And Hospital, in Siruvachur, Perambalur District”.

OBJECTIVES

- To assess the level of knowledge and practice regarding self-administration of insulin among patients with diabetes mellitus before and after the PTP.
- To evaluate the effectiveness of PTP on knowledge and practice regarding self-administration of insulin among patients with diabetes mellitus.
- To find out the association between the post-test level of knowledge and practice regarding self administration of insulin among diabetes mellitus with their selected demographic variables.

HYPOTHESES

H₁: There is significant difference between the level of knowledge and practice on self administration of insulin among patient with diabetes mellitus before and after PTP.

H₂: There is a significant effectiveness of PTP regarding self administration of insulin among patient with diabetes mellitus.

H₃: There will be significant association between post test level of knowledge and practice on self-administration of insulin among patient with diabetes mellitus with their selected demographic variables.

DELIMITATIONS

The study is delimited to

- Patients with diabetes mellitus, whose receive insulin.
- Patients attending medical OPD at Dhanalakshmi Srinivasan Medical College and Hospital.
- 40 samples only.
- The study period was 30 days.

MATERIALS AND METHODS

RESEARCH APPROACH: Quantitative evaluative approach

RESEARCH DESIGN: Pre-experimental one-group pre-test post-test.

SETTING OF THE STUDY: Dhanalakshmi Srinivasan Medical College and Hospital Siruvachur, Perambalur.

TARGET POPULATION: Diabetes mellitus patients.

ACCESSIBLE POPULATION:

Diabetes mellitus patient attending OPD at Dhanalakshmi Srinivasan Medical College and Hospital. Siruvachur.

SAMPLE: Diabetes mellitus patients aged 18 to 45 years, who are attending OPD at DSMCH, Siruvachur, who fulfilled the inclusion criteria.

SAMPLE SIZE: The sample size is 40 diabetes mellitus patients.

SAMPLING TECHNIQUES: The sampling techniques used for the study was Non-Probability purposive sampling techniques.

DESCRIPTION OF THE DATA COLLECTION INSTRUMENT

It consists of three section:

SECTION A: Demographic variables

It consisted of 10 items such as age, sex, education, occupation, income of the family, dietary habits, marital status, family history of Diabetes Mellitus, duration of illness and duration of insulin treatment, who is injecting insulin for you.

SECTION B:

Structured Knowledge questionnaire regarding self administration of insulin among diabetes mellitus patients. The tool consisted of 20 items to assess the knowledge regarding self-administration of insulin. In that scoring, the correct answer carries 1 score and the wrong answer carries 0 score. The maximum score is 20 and the minimum score is 0.

SECTION C:

Structured observation checklist to assess the ability of the patients in performing the self-administration of insulin. The tool consisted of 3 areas such as:

- Preparation of the articles
- Method of insulin administration
- After-care of the articles.

The observation is marked under two headings, “done” and “not done”. Each item was given one score if it was under the heading done. The total possible score was 21.

SCORING INTERPRETATION

SECTION B: To evaluate the effectiveness of planned teaching programme regarding knowledge on self administration of insulin among diabetes mellitus patients.

Diabetes mellitus patients respond to 20 Questions. It was allotted Inadequate 0-7, moderate level 8-14, adequate level 15-20

LEVEL OF KNOWLEDGE REGARDING SELF ADMINISTRATION OF INSULIN	SCORE	PERCENTAGE
Adequate	15-20	71-100
Moderate	8-14	36-70
Inadequate	0-7	0-35

SECTION C: Observational check list to assess the practicing ability of self administration of insulin.

The observational check list was graded in 3 level. Poor 0-7, Moderate level 8-14, Good 15-21.

LEVEL OF OBSERVATION	SCORING	PERCENTAGE
Good	15-21	71-100
Moderate	8-14	36-70
Poor	0-7	0-35

RESULTS AND DISCUSSION

TABLE 1: Evaluate The Effectiveness of Planned Teaching Programme regarding the Self administration of Insulin among Diabetes Mellitus.

Sl.No	Level of Knowledge	Mean	Standard Deviation	Mean Difference	Student't' Test	Inference
1	Pre test	8.52	3.19	6.90 ± 2.80	t=15.59P=0.001	*** significant
2	Post test	15.42	2.76			

The above table shows the Comparison of Mean, SD and paired ‘t’ test value of knowledge scores before and after administration of planned teaching programme regarding self administration of Insulin among Diabetes Mellitus.

Regarding pre test average mean score among the Diabetes Mellitus patients, as 8.52.post test average mean score among Diabetes Mellitus as 15.42.The standard deviation in the pre test were 3.19 and post test were 2.76. Thus the difference, in the level of knowledge was confirmed by the paired ‘t’ value 15.59, which was Significant (p>0.001).

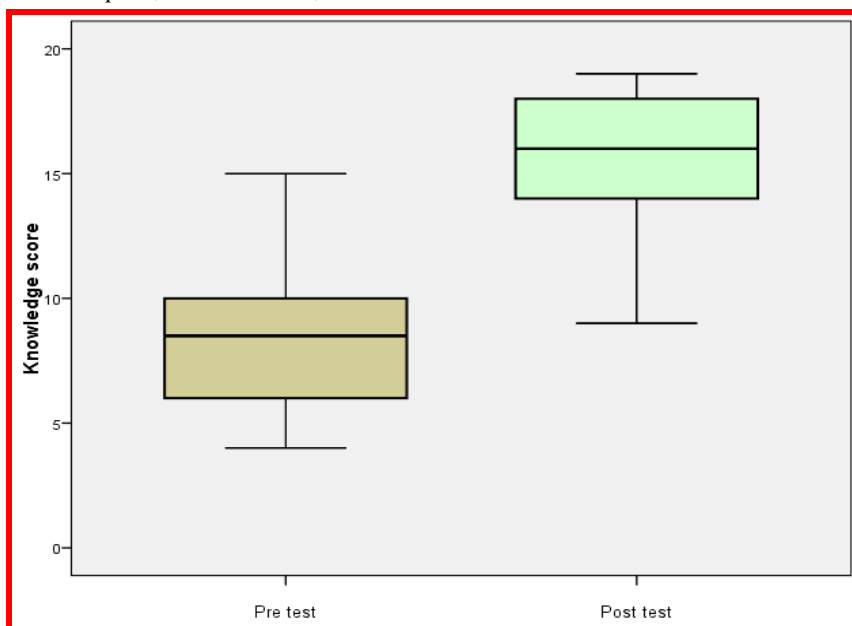


Fig-1: Box plot compares the pre-test and post-test knowledge score.

Table 2-Comparison of Mean, SD and paired 't' test value of Practice before and after Planned teaching programme regarding self administration of Insulin among Diabetes Mellitus. N-40

Sl.No	Level Of Observation	Mean	Standard Deviation	Mean Difference	Student 't' Test	Inference
1	Pre test	7.88	2.67	7.75	t=23.58 P=0.001	*** Significant
2	Post test	15.63	2.56			

Table 2: Shows the Comparison of Mean, SD and paired 't' test value of practice score before and after planned teaching programme regarding self administration of Insulin among Diabetes Mellitus.

Regarding pre test average mean score among the Diabetes Mellitus patients, as 7.88.post test average mean score among Diabetes Mellitus as 15.63.The standard deviation in the pre test were 2.67 and post test were 2.56. Thus the difference, in the level of knowledge was confirmed by the paired 't' value 23.58, which was Significant ($p > 0.001$).

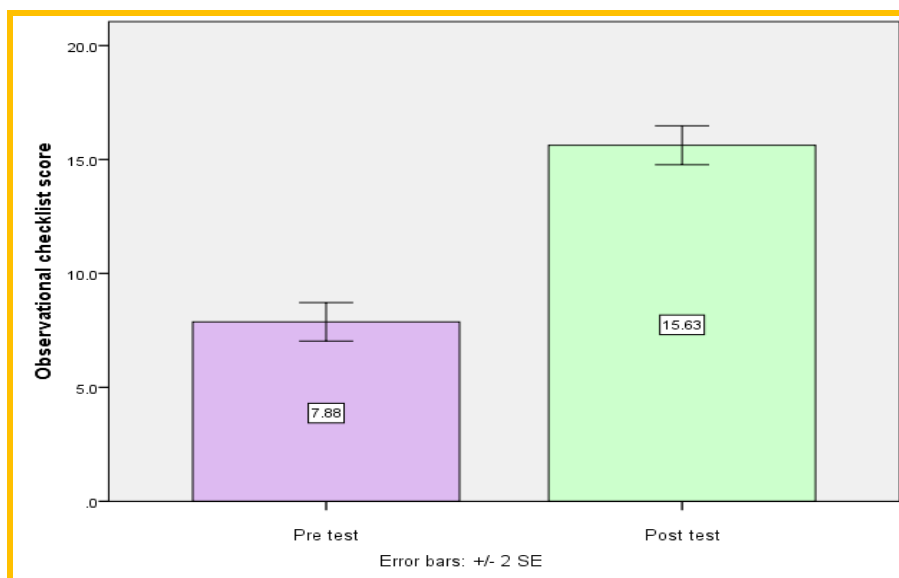


Fig-2: Simple bar diagram with Two Standard Error compares the pre test and post test mean Practice score

Table 3-ASSOCIATION BETWEEN POST TEST LEVEL OF KNOWLEDGE REGARDING SELF ADMINISTRATION OF INSULIN AMONG DIABETES MELLITUS PATIENTS WITH THEIR SELECTED DEMOGRAPHIC VARIABLES.

S.NO	Demographic variables	Table value	Chi-Square value	Level of significance
1	Age in years	P=0.63	$\chi^2=4.31$	Not significant
2	Sex	P=0.04	$\chi^2=6.67$	Significant
3	Marital status	P=0.82	$\chi^2=2.87$	Not significant
4	Educational status	P=0.03	$\chi^2=16.90$	Significant
5	Occupation	P=0.47	$\chi^2=7.61$	Significant
6	Monthly income	P=0.14	$\chi^2=9.60$	Not significant
7	Dietary habits	P=0.99	$\chi^2=0.01$	Not significant
8	Family history of illness	P=0.02	$\chi^2=7.76$	Significant
9	Duration of illness	P=0.71	$\chi^2=3.69$	Not significant
10	Duration of insulin treatment	P=0.13	$\chi^2=9.83$	Not significant
11	Who is injecting insulin to you?	P=0.16	$\chi^2=9.20$	Not significant

Table 3.1-ASSOCIATION BETWEEN POST TEST LEVEL OF PRACTICE REGARDING SELF ADMINISTRATION OF INSULIN AMONG DIABETES MELLITUS PATIENTS WITH THEIR SELECTED DEMOGRAPHIC VARIABLES.

S.NO	Demographic variables	Table value	Chi-Square value	Level of significance
1	Age in years	P=0.31	$\chi^2=3.58$	Not significant
2	Sex	P=0.04	$\chi^2=4.40$	Significant
3	Marital status	P=0.48	$\chi^2=2.43$	Not significant
4	Educational status	P=0.02	$\chi^2=11.43$	Significant
5	Occupation	P=0.49	$\chi^2=3.40$	Not Significant
6	Monthly income	P=0.04	$\chi^2=0.04$	Not significant
7	Dietary habits	P=0.66	$\chi^2=0.18$	Not significant
8	Family history of illness	P=0.02	$\chi^2=5.46$	Significant
9	Duration of illness	P=0.21	$\chi^2=4.39$	Not significant
10	Duration of insulin treatment	P=0.15	$\chi^2=5.23$	Not significant
11	Who is injecting insulin to you?	P=0.37	$\chi^2=3.13$	Not significant

DISCUSSION

The first objective was to assess the level of knowledge and practice regarding self-care administration of insulin among patient with Diabetes Mellitus before and after the PTP respectively pre-test level of knowledge were 82.5% of them had inadequate, 17.5 had moderate knowledge, in post-test level of knowledge score was 62.5% of them had adequate knowledge, 30% of the sample had moderate knowledge. Pre-test level of practice were respectively 85.5% of them have poor practice regarding self administration of insulin and post-test level of practice was 72.5% good, 27.5% moderate practice level. Hypothesis H₁ is accepted.

The second objective was to evaluate the effectiveness of PTP on knowledge and practice regarding self-administration of insulin among patients with diabetes mellitus. Comparison of Mean, SD and Paired 't' test value in pre test and post test 8.52,3.19 and 15.42, 2.76 respectively. The paired 't' test value t=15.59 at 0.001 level.(Significant).

Hypothesis H₂ is accepted.

The third objective of the study was to find out the association between the post-test level of knowledge and practice regarding self administration of insulin among diabetes mellitus with their selected demographic variables.

Chi-Square Value calculated to find out the association between post test level of knowledge regarding self administration of Insulin with their selected demographic variables. The finding reveals that there was Not Significant association with Age, marital status, occupation, monthly income, dietary habits, family history of illness, duration of illness, duration of Insulin, who is injecting Insulin at p<0.05 level. The finding revealed that there was Significant Association with Sex, educational status and family history of illness.

Chi-Square Value calculated to find out the association between post test level of Practice regarding self administration of Insulin with their selected demographic variables. The finding reveals that there was Not Significant association with Age, marital status, occupation, monthly income, dietary habits, duration of illness, duration of Insulin, who is injecting Insulin at P<0.05

level. The finding revealed that there was Significant Association with the Demographic Variables such as sex, educational status, family history of illness at $P < 0.05$ level. Hypothesis H_3 is accepted.

CONCLUSION

The study shows that planned teaching program was effective in self administration of insulin among diabetes mellitus patients.

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