Knowledge Regarding Prevention of Complications of Diabetes Mellitus

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Abstract: *The objective of the study was to evaluate the effectiveness of Individualized Planned Teaching Programme (IPTP) on knowledge regarding prevention of complications of Diabetes Mellitus among Diabetic patients. A quasi experimental study conducted in selected IPDs of Gian Sagar Hospital. Fifty diabetic patients were chosen by purposive sampling technique. Self reported structured knowledge questionnaire was used to assess the knowledge of the diabetic patients. Reliability of the tool was calculated by split half method. Tool was found reliable (r=0.82). The findings revealed that the mean post-test knowledge scores of Experimental group & control group was 31.12 ± 1.590 & 21.32 ± 1.952 respectively with Mean difference of 9.80 & also findings were found statistically significant (p<0.05). There was no significant association found between knowledge score & age, habitat, educational status & income (p>0.05). According to the result of this study, IPTP has a favorable impact on knowledge regarding prevention of complications of Diabetes Mellitus among Diabetic patients.*

Keywords: Diabetes mellitus, prevention, complications of DM.

1. Background of the Study

Diabetes Mellitus is a Metabolic disorder of multiple etiologies characterized by hyperglycemia with carbohydrates, fat, and protein metabolic alterations that result from defects in the secretion of insulin, its action or both. Inadequate control of glucose level of patients causes various complications that can be acute and chronic.[1]

Acute complications include Diabetic ketoacidsis (DKA), Hyperglycemic hyperosmolar state & Hypoglycemia. And chronic complications include Microvascular complications (Retinopathy, Nephropathy & Neuropathy) & Macrovascular complications which include Coronary artery disease, stroke, Feet ulceration and/or amputations, Hypertension, Hyperlipidemia & Erectile Dysfunction.[2]

Diabetes Education and Prevention' is the theme for World Diabetes Day (November 14) for the period 2009-2013. The slogan for 2011 is 'Act on Diabetes'. Diabetes increases the risk of heart disease and stroke and causes immense disability and premature mortality, and poses a significant economic burden.[3]

Research studies have found that lifestyle changes can prevent or delay the onset of type 2 diabetes among high-risk. Lifestyle interventions included diet and moderate-intensity physical activity (such as walking for 30 minutes daily.[4]

The goal of Diabetes mellitus treatment is to normalize the blood glucose level & to prevent the complications. The glucose level control depends on the health education regarding different complications of Diabetes mellitus. Individual Planned Teaching programme is an instructional method that will provide systematic information for diabetic patients on prevention of complications of Diabetes mellitus.

2. Need of the study

In India, crude prevalence rate of diabetes in urban areas is about 9% and that the prevalence in rural areas has also increased to around 3% of the total population. By 2030 this "record" is expected to move to the 60-79 age group with some 196 million cases.[5]

"The world needs to invest in integrated health systems that can diagnose, treat, manage and prevent diabetes," Diabetes is controllable and complications are preventable. Early screening, diagnosis and treatment also prevent or reduce the more serious consequences of the disease (microvascular and macrovascular complications). Once diagnosed, diabetes requires self-management, including testing, lifestyle modification, and regular exercise and monitoring blood glucose levels.[6]

Hence, any strategy is likely to be more effective is the primary than the secondary prevention.[7]

Primary prevention of diabetes complications being to be effective only when patients have access to quality medical care and the knowledge and skills to manage their diabetes on a day-to-day basis. Practice guidelines established by the American Diabetes Association and the Diabetes Quality Improvement Project are evidence-based and, if followed, are likely to improve patient outcomes[8]. Accurate and comprehensible information, education and training of patients and their families are the foundations of good diabetic therapy. At present there are certain techniques and approaches available to provide the knowledge to the diabetic patients e.g. group teaching, individual planned teaching and other strategies such as pamphlets, Self Instructional Modules and booklets.

Individual planned teaching programme (IPTP) is a proven and simple instructional strategy to provide health education

to patient. Hence the researcher felt the strong need to conduct the study to evaluate the effectiveness of the IPTP on prevention of complications of diabetes mellitus among the diabetic patients in selected In Patient Departments (IPD's) of Gian Sagar Hospital, Ram Nagar, Rajpura, Distt. Patiala, Punjab.

3. Aim of the Study

To evaluate the effectiveness of Individualized Planned Teaching Programme (IPTP) on knowledge regarding prevention of complications of Diabetes Mellitus among Diabetic patients.

4. Methodology

This was a quasi experimental study conducted in selected IPDs of Gian Sagar Hospital. Fifty diabetic patients were chosen by purposive sampling technique. Self reported structured knowledge questionnaire was used to assess the knowledge of the diabetic patients. Reliability of the tool was calculated by split half method. Tool was found reliable (r=0.82). On the first day pre test was taken from experimental and control group followed by administration of IPTP to the experimental group and post test was taken after one week of both groups. Data was analyzed using descriptive and inferential statistics.

5. Data Collection Method

Data collection was collected at selected In Patient Departments (IPD's) such as medical & surgical wards of Gian Sagar Hospital from 25th feb. to 25 march 2013 after obtaining the written permission from the Medical Superintendent of Gian Sagar Medical College & Hospital,. On the first day pre test was taken from both experimental and control group. The IPTP was administered to the experimental group and post test was taken after one week of both experimental and control group.

6. Results

Study findings revealed that mean pre-test & post-test knowledge score of diabetic patients in experimental group was 18.44 ± 2.501 & 31.12 ± 1.590 respectively with mean difference of 9.80 & also findings were found statistically significant (p<0.05). The findings revealed that the mean post-test knowledge scores of Experimental group & control group was 31.12 ± 1.590 & 21.32 ± 1.952 respectively with Mean difference of 9.80 & also findings were found statistically significant (p<0.05). There was no significant association found between knowledge score & age, habitat, educational status & income (p>0.05).

Table 1: Comparison of existing knowledge of Experimental Group and Control group regarding prevention of complications of Diabetes Mellitus, N=25+25
Maximum obtainable score=36

Group	Range	Mean±SD
Experimental Group	13-23	18.44±2.501
Control Group	14-20	17.92±1.631

Table 1 shows that the existing knowledge of Diabetic patients in the experimental group was in the range 13-23 & mean was 18.44 ± 2.501.

The table 1 also shows that the existing knowledge of the diabetic patients in control group was in the range 14-20& mean was 17.92 ± 1.631.

Table 2: Comparison of pre-test and post-test knowledge scores of Experimental Group, N=25
Maximum obtainable score=36

Test	Range	Mean ± SD	Mean difference	"t" value
Pre-test	13-23	18.44 ± 2.501	12.68	27.70*
Post-test	28-34	31.12 ± 1.590		

"t"$_{(24)}$ = 1.711, p<0.05 *Significant

Data in table 2 depicts that the mean pre-test knowledge score of diabetic patients was in the range 13-23, Mean ± SD was 18.44 ± 2.501. And the mean post-test knowledge score of diabetic patients was in the range 28-34, Mean ± SD was 31.12 ± 1.590 respectively in experimental group with the Mean difference 12.68. The computed 't'value (t $_{(24)}$=27.70) was greater than the table value (t$_{(24)}$= 1.711) at 0.05 level of significance. Hence null hypotheses was rejected and inferred that findings were statistically significant. It shows the effectiveness of IPTP in improving knowledge regarding prevention of complications of diabetes mellitus.

Table 3: Comparison of post-test knowledge scores of Experimental & Group Control group
N=25+25
Maximum obtainable score=36

Group	Range	Mean ± SD	Mean difference	"t" Value
Experimental Group	28-34	31.12 ±1.590	9.800	19.46*
Control group	17-25	21.32 ±1.952		

t $_{(48)}$=2.010, p<0.05 *significant

Table 4 shows the mean post test knowledge score of diabetic patients in the experimental group was in the range 28-34, Mean±SD was 31.12±1.590. And in the control group Knowledge scores of diabetic patients was in the range 17-25, Mean±SD was 21.32 ±1.952.

The mean post-test knowledge score (31.12±1.590) of diabetic patients in Experimental group was higher than the mean post test knowledge score of control group was (21.32 ±1.952) with Mean difference 9.80 The computed "t" value (t$_{(48)}$=19.46) was greater than the table value (t$_{(48)}$=2.0106) at 0.05 level of significance, hence the null hypothesis was rejected and inferred that findings were statistically significant. It showed the effectiveness of IPTP in improving knowledge regarding prevention of complications of diabetes mellitus.

7. Discussion of findings

These findings were supported by a study conducted to assess the knowledge, attitude, & practice scores of the Diabetes mellitus patients. The greatest numbers of patients were in the age group of 51-60 years. There were 56.59% males and 43.41% females. A study conducted in Allahabad proved that there was significant difference (p<0.001) when knowledge of illiterate patients was compared to graduate or post-graduate patients, though there was a total lack of knowledge regarding self-care.[9]

The pre-test knowledge score was in the range 13-23, mean was 18.44 and the Median was 18. The investigator also found that post-test knowledge score was in the range 28-34, mean was 31.12 and the Median was 32.

The finding revealed that the mean difference was 12.68 which shows the effectiveness of Individualized Planned Teaching Programme (IPTP) on knowledge regarding prevention of complications of Diabetes Mellitus among Diabetic patients. In order to find out statistical inference, paired 't' test was computed findings revealed that the computed 't' value (t $_{(24)}$=27.70) was greater than the table value (t$_{(24)}$= 1.711) at 0.05 level of significant. Hence null hypotheses was rejected and inferred that findings were statistically significant

The Mean post-test knowledge score of Diabetic patients in experimental group and control group was 31.12 ± 1.590 & 21.32 ±1.952 respectively with the mean difference 9.80 which shows the effectiveness of Individualized Planned Teaching Programme (IPTP) on knowledge regarding prevention of complications of Diabetes Mellitus among Diabetic patients.

In order to find out statistical inference independent group 't'test computed. Findings revealed that the computed "t" value (t$_{(48)}$=19.46) was greater than the table value (t$_{(48)}$=2.0106) at 0.05 level of significance, hence the null hypothesis was rejected and inferred that findings were statistically significant.

To analyze the association of knowledge regarding prevention of complications of Diabetes Mellitus patients with selected demographic variables chi- square was used. There was no association found with selected demographic variables at 0.05 level of significance. Therefore null hypothesis failed to reject and inferred that research hypothesis was not supported for these variables.

A similar study was conducted in Kempegowda Bangalore. The association between income and knowledge level was found to be non significant in Pre-test indicated no impact of income on knowledge level (p>0.05). Residence and knowledge were found to be non significant.[10]

8. Conclusion

Study findings revealed that Individualized Planned Teaching Programme (IPTP) was effective on knowledge regarding prevention of complications of Diabetes Mellitus among Diabetic patients. There was no association found with knowledge score & selected demographic variables such as age, habitat, educational status and income (p>0.05).

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