Effectiveness of Structured Teaching Programme on knowledge regarding diabetic complications among diabetes patients

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ABSTRACT

Uncontrolled diabetes over time leads to microvascular and macrovascular complications. Diabetes leads to a major impact on heart, eyes, kidneys, blood vessels and nerves. Diabetic retinopathy, diabetic neuropathy, diabetic nephropathy, cardiovascular complications such as CAD, heart attack, stroke, chronic infections, skin problems, opportunistic systemic alterations cause lifetime disability as well as even death. Hence, the present study aimed at to assess the effectiveness of Structured Teaching Programme on knowledge regarding diabetic complications among diabetes patients at Saveetha Medical College and Hospital, Chennai. A quantitative quasi-experimental research design with one group pretest and post-test was obtained. Purposive sampling technique was followed among 60 diabetic patients and data were collected by using structured questionnaires. Pretest demographic data and knowledge were assessed, and then STP was implemented regarding diabetes complications. Posttest knowledge were assessed after 1 week and analyzed by using descriptive and inferential statistics. The study revealed that pretest mean score of knowledge was 11.62 + 4.60 whereas in the post-test mean score was 26.88 + 2.98. The mean difference is 15.27. The calculated paired 't' value of t = 30.0824 was found to statistically significant at p<0.0001 level. This clearly shows that the STP imparted to patients with diabetes mellitus had significant improvement in the post-test level of knowledge regarding diabetic complications. The studies concluded that there is a significant difference between the pre-test and posttest level of knowledge. Hence, the Structured Teaching Programme implemented in this study is effective to develop knowledge regarding diabetic complications among diabetic patients.

INTRODUCTION

Diabetes mellitus is a complex term for heterogeneous unsettling influences of metabolism for which the primary finding is ongoing hyperglycemia. The cause is either impeded insulin discharge or disabled insulin activity or both (Kerner and Brückel, 2014). People with diabetes have an increased risk of developing a number of serious health problems. Individuals with diabetes have an expanded danger of building up various medical issues. Reliably high blood glucose levels can prompt serious illnesses which can affects the heart and vascular system, eyes, kidneys, nerves and teeth. In addition,
individuals with diabetes also have a higher danger of developing infections. In practically all big time salary nations, diabetes is a main source of cardiovascular sickness, visual impairment, kidney failure and lower limb amputation. (Baynest, 2015)

In India, crude prevalence rate of diabetes in metropolitan zones is about 9% and that the prevalence in rural regions has also expanded to around 3% of the entire population. By 2030 this "record" is relied upon to move to the 60-79 age group with approximately 196 million cases (Nelson et al., 2002). The total number of individuals with diabetes rose from 108 million out of 1980 to 422 million out of 2014. The worldwide prevalence of diabetes among grown-ups more than 18 years old rose from 4.7% in 1980 to 8.5% in 2014 (Sarwar et al., 2010).

Diabetes commonness has been rising all the more quickly in low-and center pay nations than in big time salary nations. Diabetes is a significant reason for visual deficiency, kidney disappointment, cardiovascular attacks, stroke and lower limb amputation. In 2016, an expected 1.6 million deaths were legitimately brought about by diabetes mellitus (Seshasai et al., 2011). Another 2.2 million passings were inferable from high blood glucose in 2012. Practically 50% of all death owing to high blood glucose happen before the age of 70 years. WHO predicts that diabetes mellitus was the seventh driving reason for deaths in 2016.

The most usual complication of diabetes is Diabetic Peripheral Neuropathy (DPN) which usually starts from toes and moves upwards. DPN mainly affects the peripheral nerves of feet, legs, hands and arms. It is characterized by numbness, tingling, pain, burning and throbbing sensations and also increases the risk of foot ulcers. (Sankari et al., 2015)

The normal frequency of diabetic nephropathy is high (3% every year) during the initial 10 to 20 years after diabetes develops. Typically, it takes 15 years for vascular tiny veins in organs like kidney, eyes and nerves to get influenced. It is assessed that 20% to 40% of diabetic patients will end up with Chronic kidney disease (CKD). (Sulaiman, 2019)

Around the world, diabetic retinopathy (DR) is the main source of visual impairment among adult workers. Estimated prevalence stays around 34.6 % (roughly 93 million people) and 10.2 % have a newly developed phase of the illness. (Lima et al., 2016)

Worldwide, in general CVD influences around 32.2% of all people with T2DM. CVD is a significant reason for mortality among individuals with T2DM, representing roughly 50% of all deaths over the investigation period. Coronary artery disease and stroke were the significant patrons. (Einarson et al., 2007)

Hypoglycemia is an unavoidable and unexpected attack, as it can suddenly worsen when the brain is starved of glucose. Unless managed rapidly, it might turn out to be confounded and incapable of dealing with the condition. In serious cases, it causes even loss of consciousness, convulsions, or a coma (Stephen et al., 2008).

Around 500,000 individuals seek medical emergency only due to DKA. National Centre for health statistics demonstrated that most patients with DKA were between the age group of 18 and 44 years (56%) and 45 and 65 years (24%), with just 18% of patients < 20 years old. 66% of DKA patients were considered to have type 1 diabetes and 34% to have type 2 diabetes. (Seth et al., 2015)

In India, about 55% of adult age individuals are not physically active. Percentage of physically inactive adults found huge at metropolitan cities than in rural areas (Paulin and Subramanian, 2019). In spite of having sufficient mindfulness about physical activity, a significant number of diabetic patients discover barriers for actual physical activity. Several ecological elements which are connected to urbanization can demoralize individuals from getting more active, such as dread of brutality and wrong doing in outdoor territories, high-density traffic, low air quality and contamination, deficiency of parks, walkways and sports/entertainment opportunities. (Gavi and Hensley, 2009)

Consequently, the basic reasons for diabetic complications are poor glycemic control either due to non-adherence, carelessness towards the disease and its ill effects, unhealthy eating regimen, deficient physical movement and also by ineffective treatment by the medical care professional. (Kumar et al., 2018)

On top of these ill effects, diabetes can incline the patient for various severe infections. The ultimate result of diabetes is a handicap, or potentially passing, and has an extraordinary financial effect which is immediate (clinical and treatment costs) and aberrant (expenses due to hospitalizations, loss of vision, lower extremity removals, kidney failure and cardiovascular complications). Thus, counteraction is most money saving than treatment also for the board of diabetic difficulties (Vermeire et al., 2003).

Hence, the present study focused at to assess the effectiveness of Structured Teaching Programme on knowledge regarding diabetic complications among diabetes patients at Saveetha Medical College and Hospital, Chennai.
Table 1: Frequency and percentage distribution of knowledge regarding diabetic complications before implementing Structured Teaching Programme

<table>
<thead>
<tr>
<th>Level of knowledge</th>
<th>Pre-test Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate knowledge</td>
<td>48</td>
<td>80 %</td>
</tr>
<tr>
<td>Moderate knowledge</td>
<td>12</td>
<td>20 %</td>
</tr>
<tr>
<td>Adequate knowledge</td>
<td>0</td>
<td>0 %</td>
</tr>
</tbody>
</table>

Table 2: Frequency and percentage distribution of knowledge regarding diabetic complications after implementing structured Teaching Programme

<table>
<thead>
<tr>
<th>Level of knowledge</th>
<th>Post test Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate knowledge</td>
<td>0</td>
<td>0 %</td>
</tr>
<tr>
<td>Moderate knowledge</td>
<td>8</td>
<td>13.33 %</td>
</tr>
<tr>
<td>Adequate knowledge</td>
<td>52</td>
<td>86.67 %</td>
</tr>
</tbody>
</table>

Table 3: Distribution of mean, standard deviation and mean difference, paired ‘t’ value of level of knowledge among diabetic patients inpretest and posttest N = 60

<table>
<thead>
<tr>
<th>Level of knowledge</th>
<th>Mean</th>
<th>S.D</th>
<th>Mean Difference</th>
<th>Paired ‘t’ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>11.62</td>
<td>4.60</td>
<td>15.27</td>
<td>P&lt;0.0001</td>
</tr>
<tr>
<td>Post-test</td>
<td>26.88</td>
<td>2.98</td>
<td></td>
<td>t=30.0824 Df=59S****</td>
</tr>
</tbody>
</table>

****significant

MATERIALS AND METHODS

A quasi-experimental research design with one group pre-test post-test was chosen to assess the knowledge on diabetic complications among diabetes patients. The study was conducted at Saveetha Medical College and Hospital, Chennai, after obtaining formal permission from the Institutional Review Board and Institutional Ethical Committee of SIMATS. The sample size comprised of 60 diabetes patients those who fulfill the inclusion criteria. Purposive sampling technique was used to collect the data from the sample. The inclusion criteria were patients who admitted with diabetes mellitus without diabetic complications, who are willing to participate, who are willing to come back on posttest day in case of discharge, who knows to read and write in Tamil and aged above 30 years.

Those who do not know to read and write in Tamil, who doesn’t willing to participate, who are not willing to come back on posttest day in case of discharge were excluded. Explained about the study and informed consent was obtained from the patients. Data was collected by structured questionnaire. Confidentiality was maintained throughout the procedure. Collected data were analysed by using descriptive and inferential statistics. The project has been approved by the ethics committee of the institution.

RESULTS AND DISCUSSION

Sample characteristics

The current investigation depicts that majority of the samples belong to the age group of above 50 years 73.33% (44), 63.33% (38) were male patients, 43.33% (26) of patients were secondarily educated, 46.67% (28) of patients are moderate workers, 68.33% (41 members) of patients were Hindus, 56.67 % (34) of patients doesn’t had a family history of diabetes mellitus, 80% (48) of patients were married, and 88.33% (53) of patients follows non-vegetarian / mixed diet, 46.67% (28) of patients are teetotalers. Regarding BMI (Body Mass Index) 41.67% (25) of patients are normal. Regarding the history of diagnosed with high cholesterol levels 46.67% (28) of patients has high cholesterol level.

Effectiveness of structured teaching programme regarding diabetic complications among diabetic patients.

Table 1 reveals the knowledge level regarding diabetic complications before administration of the Structured Teaching Programme. Findings of pretest analysis reveal that majority 80 % (48) of
patients had inadequate knowledge and 20 % (12) of patients had moderate knowledge.

Table 2 reveals the knowledge level regarding diabetic complications after administration of the Structured Teaching Programme. Findings of posttest analysis reveal that majority 86.67 % (52) of patients had adequate knowledge and 13.33 % (12) of patients had moderate knowledge.

Table 3 shows that in pretest the mean value is 11.62 and standard deviation is 4.60 and in posttest the mean value is 26.88 and the standard deviation is 2.98. The mean difference between pretest and posttest is 15.27. Through the knowledge regarding diabetic complications, there is a significant improvement in mean and standard deviation in posttest than pretest. The paired t-test value is 30.0824, which is found to be extremely statistically significant (P<0.0001).

Association between the posttest level of knowledge with their selected demographic variables.

A significant association was found between posttest knowledge scores regarding diabetic complications with the selected demographic variables such as educational status, occupational status and bad habits. No significant association was found between posttest knowledge scores regarding diabetic complications with the selected demographic variables such as age, gender, religion, family history of diabetes mellitus, marital status, dietary habit, BMI and diagnosed with high cholesterol.

These findings were supported with a similar study conducted by Pandey (2017) where he had conducted a study to assess the Effectiveness of Structured Teaching Programme (in Term of Knowledge) Regarding Healthy Eating Habits among the Parents of School going Children. The findings of his study revealed that the pretest Knowledge of parents were 8% adequate, 60% moderate, and 32% inadequate while in the post-test the knowledge of parents were 33% adequate, 53.33% moderate and 13.34% inadequate.

CONCLUSIONS

The studies concluded that there is significant difference in the knowledge level where the level of knowledge increases after implementing STP. Therefore, it is important to create awareness and promote knowledge thereby preventing the risk or causes of diabetic complications thus further improve the quality of life.

Conflict of Interest

The authors declare that they have no conflict of interest for this study.

Funding Support

The authors declare that they have no funding support for this study.

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