Effectiveness Of A Planned Teaching Programme On Knowledge Regarding Control Of Blood Sugar Level Among Type-2 Diabetes Mellitus Patients

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Abstract :- Background: Type-2 Diabetes Mellitus (T2DM) is a major public health problem worldwide and its prevalence is rapidly increasing, particularly in developing countries. Effective management of diabetes largely depends on patients' knowledge and self-care practices related to diet, exercise, medication adherence, and monitoring of blood glucose levels. Lack of adequate knowledge contributes significantly to poor glycaemic control and development of complications.

Objective :- To evaluate the effectiveness of a planned teaching programme on knowledge regarding control of blood sugar level among patients with Type-2 Diabetes Mellitus.

Methods:-A pre-experimental one-group pre-test post-test design was adopted. The study was conducted among 50 Type-2 Diabetes Mellitus patients admitted in a tertiary care hospital of Kashmir. Non-probability convenient sampling technique was used. Data were collected using a structured interview schedule consisting of 40 items related to diabetes and its control. A planned teaching programme covering causes, symptoms, diet, exercise, medication, hypoglycaemia, and hyperglycaemia was administered. Post-test was conducted seven days after the intervention. Data were analysed using descriptive and inferential statistics.

Results :- In the pre-test, majority of participants (60%) had average knowledge, while 14% had below average knowledge. The mean pre-test knowledge score was 16.74 ± 6.45. In the post-test, 56% of participants achieved excellent knowledge and none had below average knowledge. The mean post-test knowledge score was 31.12 ± 5.93. The difference between pre-test and post-test mean scores was statistically significant ($p < 0.05$), indicating the effectiveness of the planned teaching programme.

Conclusion :-The planned teaching programme significantly improved knowledge regarding control of blood sugar level among Type-2 Diabetes Mellitus patients. Structured educational interventions should be integrated into routine diabetic care to promote better self-management and prevent complications.

Keywords: Type-2 Diabetes Mellitus, Planned Teaching Programme, Knowledge, Blood Sugar Control, Patient Education

Introduction :-

Diabetes Mellitus is one of the most common chronic metabolic disorders characterized by persistent hyperglycaemia due to defects in insulin secretion, insulin action, or both. The global burden of diabetes is increasing at an alarming rate and has become a major public health concern. According to recent estimates, hundreds of millions of people are living with diabetes worldwide, and a significant proportion of them remain undiagnosed. Among the different types of diabetes, Type-2 Diabetes Mellitus accounts for nearly 90–95% of cases.

The rise in Type-2 Diabetes Mellitus is strongly associated with urbanization, sedentary lifestyle, unhealthy dietary patterns, obesity, and genetic predisposition. In developing countries, rapid socio-economic transition has further accelerated the prevalence of diabetes. India is considered one of the leading countries in terms of diabetes burden, with millions of adults affected and a large number of new cases being reported each year. This growing prevalence imposes a heavy burden on individuals, families, and health care systems.

Diabetes Mellitus is associated with a wide range of acute and chronic complications. Persistent hyperglycaemia can lead to microvascular complications such as retinopathy, nephropathy, and neuropathy, as well as macrovascular complications including coronary artery disease and stroke. These complications significantly reduce quality of life and increase mortality. Although diabetes cannot be completely cured, it can be effectively controlled through proper management strategies.

Management of Type-2 Diabetes Mellitus involves both pharmacological and non-pharmacological measures. These include appropriate use of oral hypoglycaemic agents or insulin, dietary modification, regular physical activity, monitoring of blood glucose levels, and prevention of complications. However, successful diabetes management largely depends on patients' ability to understand and practice these measures consistently in their daily lives. Therefore, patient education plays a central role in diabetes care.

Knowledge regarding disease process, symptoms, diet, exercise, medication, and complication prevention enables patients to take responsibility for their own care. Studies have consistently shown that inadequate knowledge is associated with poor glycaemic control and increased risk of complications. Many patients remain unaware of target blood glucose levels, importance of foot care, and warning signs of hypo- and hyperglycaemia. This lack of awareness leads to poor adherence to treatment and unhealthy lifestyle practices.

Planned teaching programmes are structured educational interventions designed to improve patients' understanding and skills related to disease management. Such programmes are usually based on learning needs of patients and are delivered using simple language and visual aids. Education not only improves knowledge but also motivates patients to adopt healthier behaviours.

In hospital settings, patients with Type-2 Diabetes Mellitus often present with uncontrolled blood sugar levels and related complications. This reflects gaps in knowledge and self-management. Nurses and health professionals are in a unique position to provide education to these patients. Therefore, evaluating the effectiveness of planned teaching programmes is essential to determine their impact on patient knowledge and to strengthen diabetes education strategies.

The present study was conducted to assess the effectiveness of a planned teaching programme on knowledge regarding control of blood sugar level among Type-2 Diabetes Mellitus patients admitted in a tertiary care hospital in Kashmir.

Objectives:-

To assess the pre-interventional level of knowledge regarding control of blood sugar level among Type-2 Diabetes Mellitus patients.

To assess the post-interventional level of knowledge regarding control of blood sugar level among Type-2 Diabetes Mellitus patients.

To evaluate the effectiveness of the planned teaching programme by comparing pre-test and post-test knowledge scores.

To determine the association between pre-test knowledge scores and selected demographic variables.

Hypotheses:-

H1: There is a significant difference between pre-test and post-test knowledge scores regarding control of blood sugar level among Type-2 Diabetes Mellitus patients.

H2: There is a significant association between pre-test knowledge scores and selected demographic variables.

Methodology:-

Research Design:-

A pre-experimental one-group pre-test post-test research design was adopted for the study.

Research Approach

Quantitative evaluative research approach was used to assess the effectiveness of the planned teaching programme.

Setting:-

The study was conducted in a tertiary care hospital in Anantnag, Jammu and Kashmir.

Population:-

The target population consisted of patients diagnosed with Type-2 Diabetes Mellitus admitted in medical wards.

Sample and Sampling Technique:-

A sample of 50 Type-2 Diabetes Mellitus patients was selected using non-probability convenient sampling technique.

Inclusion Criteria

Patients diagnosed with Type-2 Diabetes Mellitus

Willing to participate in the study

Available during data collection

Exclusion Criteria

Seriously ill patients

Patients with sensory or cognitive impairment

Tool for Data Collection:-

A structured interview schedule consisting of 40 multiple-choice questions was used to assess knowledge regarding:

Concept of diabetes

Diet and blood sugar control

Exercise and physical activity

Role of medication

Each correct answer was awarded one mark. Maximum score was 40.

Intervention

A planned teaching programme was developed based on literature and expert opinion. It included:

Meaning and causes of diabetes

Normal blood sugar values

Symptoms of hypo- and hyperglycaemia

Dietary recommendations

Importance of exercise

Medication compliance

Prevention of complications

The programme was administered individually using charts and verbal explanation and lasted about 30 minutes.

Data Collection Procedure:-

Pre-test knowledge was assessed using the structured interview schedule. After pre-test, the planned teaching programme was delivered. Post-test was conducted after seven days using the same tool.

Data Analysis:-

Data were analysed using descriptive statistics (frequency, percentage, mean, standard deviation) and inferential statistics (paired t-test and chi-square test). Level of significance was set at 0.05.

Ethical Considerations:-

Permission was obtained from hospital authorities. Informed consent was taken from all participants. Confidentiality was maintained.

Results:-

Pre-Test Knowledge Level

In the pre-test, majority of participants (60%) had average knowledge, 24% had good knowledge, 14% had below average knowledge and only 2% had excellent knowledge. The mean pre-test score was 16.74 ± 6.45.

Post-Test Knowledge Level

In the post-test, 56% of participants achieved excellent knowledge, 34% had good knowledge and 10% had average knowledge. None of the participants had below average knowledge. The mean post-test score was 31.12 ± 5.93.

Effectiveness of Planned Teaching Programme:-

There was a significant increase in mean knowledge score from pre-test to post-test. The calculated t-value was statistically significant at 0.05 level, indicating that the planned teaching programme was effective in improving knowledge.

Association with Demographic Variables

Significant association was found between pre-test knowledge scores and selected demographic variables such as education and duration of illness, while no significant association was observed with age and gender.

Discussion:-

The present study demonstrated that patients with Type-2 Diabetes Mellitus had inadequate knowledge regarding control of blood sugar level before the educational intervention. Similar findings have been reported by various studies conducted in different regions, which showed poor awareness among diabetic patients regarding diet, exercise, and medication.

After administration of the planned teaching programme, there was a marked improvement in knowledge levels. The increase in mean knowledge score clearly reflects the positive impact of structured education. These findings are consistent with earlier studies which reported that patient education significantly improves knowledge and self-care practices.

Education plays a critical role in empowering patients to manage their illness effectively. Through planned teaching, patients gained better understanding of normal blood sugar levels, importance of dietary modification, regular exercise, and adherence to medication. Awareness regarding hypoglycaemia and hyperglycaemia also improved, which is essential for early recognition and management.

The association between knowledge and educational status indicates that patients with higher education tend to have better understanding of disease management. This suggests the need for more focused educational strategies for illiterate and low-educated patients.

Conclusion:-

The study concluded that the planned teaching programme was highly effective in improving knowledge regarding control of blood sugar level among Type-2 Diabetes Mellitus patients. Structured educational interventions should be incorporated into routine hospital care and community-based diabetes programmes. Continuous education and reinforcement are necessary to ensure long-term adherence to self-care practices and prevention of complications.

Reference:

1.   1. Park K. Textbook of preventive & social medicine. 22nd edition. Jabalpur India: Banarsidas Bhanot Publishers; 2011.

2.   2. Smeltzer SC., Bare BG., Hinkle JL., Cheever KH. Brunner & suddarth's textbook of medical surgical nursing. 11th edition. Vol. 2. New Delhi India: Wolters Kluwer publishers:2009.

3.   3. Poulsen P, Kyvik KO, Vaag A, Beck-Nielsen H. Heritability of type II (non-insulin dependent) diabetes mellitus and abnormal glucose tolerance--a population-based twin study. Diabetology. 2009; 42(2):139-45.

4.   4. Harris M, Zimmet P. Classification of diabetes mellitus and other categories of glucose intolerance. In: Alberti K, Zimmet P, Defronzo R, editors. international textbook of diabetes mellitus.2nd edition. Chichester: John Wiley and Sons Ltd; 1997. P 9-23.

5.   5. Centres for Disease Control and Prevention. National Diabetes Fact Sheet: General Information and National Estimates on Diabetes in the United States, 2005. Atlanta, GA: US Department of Health and Human Services, Centres for Disease Control and Prevention; 2005. Available at: http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2005.pdf. Accessed March 29, 2016.

6.   6. Jeon CY, Lokken RP, Hu FB, van Dam RM. Physical activity of moderate intensity and risk of type 2 diabetes: a systematic review. Diabetes Care. 2007;30:744–52.

7. 7. Mokdad AH. Ford ES. Bowman BA. Dietz WH. Vinicor F. Bales VS. Marks JS. Prevalence of obesity: Diabetes & obesity related health risk factors. JAMA.2005:289(1):3-7

8. 8. Hu FB, Manson JE, Stampfer MJ, et al. Diet, lifestyle, and the risk of type 2 diabetes mellitus in women. N Engl J Med. 2005;345:790–97

9. 9. Rewers M, Hamman RF. Risk factors for non-insulin-dependent diabetes. In: Harris MI, Cowie CC, Stern MP, et al, eds. Diabetes in America. 2nd ed. Bethesda, MD: National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases; 2005:179–220. NIH publication 95–1468.

10. 10. Kaye SA, Folsom AR, Sprafka JM, et al. Increased incidence of diabetes mellitus in relation to abdominal adiposity in older women. J Clin Epidemiol. 2006;44:329–34.

11. 11. Narayan KM, Boyle JP, Geiss LS, et al. Impact of recent increase in incidence on future diabetes burden: U.S., 2005–2050. Diabetes Care. 2006;29:2114–16.

12. 12. Will JC, Galuska DA, Ford ES, et al. Cigarette smoking and diabetes mellitus: evidence of a positive association from a large perspective cohort study. Int J Epidemiol. 2007;30:540–46.

13. 13. Strodl E, Kenardy J. Psychosocial and non-psychosocial risk factors for the new diagnosis of diabetes in elderly women. Diabetes Res Clin Pract. 2006; 74:57–65.

14. 14. Diez Roux AV, Jacobs DR, Kiefe CI. Neighbourhood characteristics and components of the insulin resistance syndrome in young adults: the coronary artery risk development in young adults (CARDIA) study. Diabetes Care. 2005;25:1976–82

15. 15. Minet L, Moller S, Vach W, Wagner L, Henriksen JE. Mediating the effect of self-care management intervention in type 2 diabetes: a meta-analysis of 47 randomised controlled trials. Patient Educ. Couns. 2010;80: 29-41

16. 16. UK Prospective Diabetes Study Group. Tight blood pressure control and risk of macrovascular and microvascular complications in type 2 diabetes: UKPDS 38. BMJ.2008;317:703–13

17. 17. American Diabetes Association. Standards of medical care for patients with diabetes mellitus. Diabetes Care.2006;24 (1):33–55

18. 18. International Diabetes Federation. Clinical guidelines task force: Global guidelines for Type-2 Diabetes Mellitus.Brussels,Belgium;2012

19. 19. Kamel NM, Badawy YA, el-Zeiny NA, Merdan IA. Behaviour of patients in relation to management of their disease. East Mediterr Health J. 2009 Sep; 5(5): 967-73.

20. 20. Clarke J, Crawford A, Nash DB. Evaluation of a comprehensive diabetes disease management program: progress in the struggle for sustained behaviour. Disease Management. 2005; 5(2): 77 -86.