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# Effectiveness of Self Instructional Module on the Knowledge Regarding Diabetic Diet among Diabetic Patients

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**Abstract:** ***India has been designated as the "Global capital of Diabetes" having the highest 35 million diabetic patient with 8.4% prevalence in Maharashtra. Worldwide 3.2 million deaths are attributed to diabetes every year and at least one in ten deaths among adults between 35 to 64 years old is attributed or diabetes. Aim: the main of study was to assess the effectiveness of self instructional module on the knowledge regarding diabetic diet in selected hospitals of Karad city. Methodology: The research approach adopted for the present study is an evaluative approach. The research design selected for the present study was Quasi- experimental study. The setting for the study was selected, which was selected hospitals of Karad city. The sample size for the present study was 40 diabetic patients in selected hospitals of Karad city. Findings: The pretest mean knowledge score and SD of the diabetic patients regarding diabetic diet was 16.025+/-4.371, which increased in Post test to 20.975+/- 1.860 . Conclusion: From the above findings it can be concluded that the self instructional module was effective in improving knowledge of diabetic patients.***

**Keywords:** diabetic diet, Diabetic patients**,** Knowledge, effectiveness, self instructional module

## 1. Introduction

Diabetes mellitus is a metabolic disorder of multiple aetiology characterized by chronic hyperglycemia associated with impaired carbohydrate, fat, and protein metabolism .These abnormalities are the consequences of either inadequate insulin secretion or impaired insulin action or both. Diabetes has been classified by the world health organisation into four distinct types: type 1, type 2, gestational diabetes mellitus, other specific types. Type 1 diabetes is characterized by a cell mediated autoimmune destruction of pancreatic beta cells that results in partial or total inability to secrete insulin , and lifelong need for insulin administration. Type 2 diabetes until recently referred to as non insulin dependent diabetes , is characterized by disorders of insulin action and secretion either feature being the predominant impairment. These individuals may not require insulin treatment either initially or ever. Other specific types of diabetes include less common causes where the underlying defect may be genetic, secondary to pancreatic disease, endocrine disorders, infections drugs or chemical toxins. Gestational diabetes is defined as any degree of glucose intolerance with onset or first recognition during pregnancy [1].

India has been designated as the "Global capital of Diabetes" having the highest 35 million diabetic patient with 8.4% prevalence in Maharashtra. Worldwide 3.2 million deaths are attributed to diabetes every year and at least one in ten deaths among adults between 35 to 64 years old is attributed or diabetes. The WHO estimates 177 million people with diabetes worldwide. In India, there are nearly 35 million diabetic patients and the number would go unto 80 million by 2030. If unchecked the diabetes can cause disease related to kidney, heart and nerve system at later stage [2].

Diabetes mellitus has become an epidemic in the United states with 21 million people having the disease. Approximately 15 million people are diagnosed with diabetes mellitus, with nearly an additional 6 million estimated to have the disease but who are undiagnosed. As a significant public health problem, diabetes mellitus is the sixth leading cause of death in the United states [3]. The dietary treatment of diabetes has changed considerably since the publication by British Diabetic Association in 1983 of a paper outlining dietary recommendations for diabetes. At around the same time, the National Education (NANCE) published guidelines on diet for the general population. There are two sets of guidelines were very similar such that the diabetic diet is now based upon the healthy eating guidelines for the general population , high in fibre and low in fat and sugar. The initial dietary education of the diabetes should have been carried out by the dietician. The practice nurse role will be to reinforce this education, to try to solve any dietary problems and to monitor weight and diabetic control. The aims of the dietary treatment are to:

- Achieve near normal blood levels of glucose and lipids.
- Minimise the risk of hypoglycaemia in diabetes treated with insulin and certain hypoglycaemic drugs.
- Reduce and /or maintain body weight [4].

The management of diabetes is most difficult part in clinical practice. Lifestyle modifications, dietary management and some major drugs are the major concerns of diabetes management. Focussing on the diet, a well planned and well structured self instructional module on the knowledge of diabetic patients about diabetic diet has been prepared for the study.

The focus of self instructional module is to promote effective teaching and learning of content for diabetic patients. It strives to help and make decisions about what is

of great importance and what strategies are effective in helping them to learn well. Major characteristics of self instructional module are to create a learning environment for making the learner to learn. It generates two way communications. This activity maintains high level of interest and provides motivation to learner.

## 2. Need for the Study

Diabetes mellitus is a chronic lifelong disease one has to live with. Diabetes mellitus is a major public health problem and is emerging as a pandemic. The number of diabetic patients in the world is estimated to reach more than 25 crores in 2010. India leads the world today with the largest number of diabetics followed by China and USA. It is the second most common chronic disease in children and accounts for 5-10% of all diagnosed cases of diabetes mellitus. India has an incidence of 10.6 cases/year/1, 00,000. Every fifth adult in Indian urban area is a diabetic [5].

India has nearly 35 million diabetic subjects today, which is briefly contributed by the urban population. The scenario is changing rapidly due to socio-economic transition occurring in the rural area also. Availability of improved modes of transport, and less strenuously as in the vicinity have resulted in decreased physical activities. Better economic conditions have produced changes in diet habits. The conditions are more favourable for expression of diabetes in the population, which already has a racial and genetic susceptibility of the disease. Recent epidemiological data show that the situations are similar throughout the country. The conversion to diabetes is enhanced by the low thresholds for the risk factor, such as age, body mass index and upper body adiposity. Indians have a genetic phenotype characterized by low body mass index, but with higher upper body adiposity, High body fat percentage and high level of insulin resistance. With a high genetic predisposition and the high susceptibity to the environmental insults, the Indian population faces a high risk for diabetes and its associated complications [6].

Nutritional therapy is an integral component of diabetes management. Its Main goals are to attain and maintain normal blood glucose levels and to prevent and treat the chronic complication of diabetes. It is recommended that a registered dietician will provide the dietary treatment but it is essential that all the medical team members will have the required and updated nutritional knowledge in order to support the patient in adopting a healthy life style. Lack of knowledge was found in the area of dietary fat and diabetes. Nonetheless, physicians and nurses reported that they are involved in the nutritional therapy. Over 90 percent provide nutritional advice to diabetic patients regularly and 56 percent even prescribed a diet for them. On the one hand these findings indicate lack of knowledge concerning the nutritional therapy in diabetes among family physicians and nurses but. On the other hand, there is also significant involvement of the health team in the treatment [7].

A study was conducted by Abioye-Kuteyi EA, Ojofeitimi EO, Ijadunola KT, Fasanu AO in a Nigerian Hospital. The aim of this study therefore was to assess the dietary knowledge, practices and control of type 2 DM in Obafemi Awolowo University Teaching Hospitals' Complex, Nigeria. All 33 type 2 diabetes patients that attended the hospital over a three month period were studied to assess knowledge of DM, dietary practice and control. Percentage perceived, correct and accurate knowledge as well as practice were used for comparative analysis. All 33 subjects had truncal obesity and needed to lose weight. This was moderately severe in 60% of subjects. About 52% received dietary advice. The latter had a significantly higher mean dietary knowledge score than those without dietary advice. Significantly higher mean knowledge scores seemed to be associated with better dietary practices and better glycogenic control. Overall, dietary practices improved significantly following diagnosis and counseling. A significant proportion of subjects increased their use of food with low glycaemic index (legumes 48.5%, cereals 90.9%) following diagnosis. The findings further emphasize the importance of structured dietary advice and dietary control in Type 2 diabetes. In settings where dieticians are scarce, physicians managing diabetic patients must be skilled in the dietary management of the condition and show commitment to it [8].

A study was conducted by Nadia Saleh Al-Amoudi and Amani Aliwi Alrasheed in Jeddah The objective of this study is to assess the dietary knowledge, attitudes and practices of female school teachers with type 2 diabetes. A total of 107 female school teachers with diabetes, 23-59 years old, were interviewed at their schools about issues related to their knowledge of diabetes and their attitudes and practices regarding the disease, using a structured questionnaire to guide the interview. The participants had diabetes for an average of 7.51±6.87 years. Approximately 74% of the participants were diagnosed with type 2 diabetes. Most of the female teachers were overweight (38.3%) or obese (46.7%). The daily food intake of the participants was adequate for 60% of the participants and inadequate for 37% of the participants. Moreover, the results showed that (84.1%) of the teachers in this study had adequate knowledge about the disease, and 57.9% of them maintained good practices; however, they have inadequate knowledge about food eating habits and macronutrients content. In this study, we found that 42% of the female teachers with diabetes were inactive, and almost 60% were active; however, they did not spend enough time exercising each week. Female teachers with diabetes require education to improve their dietary knowledge and increased physical activity to reach a normal weight [9].

A Study was conducted to assess the knowledge and attitude of Diabetic patient regarding Diabetic diet, Exercise and Foot care in selected hospitals of Pune city. The conceptual framework selected for present study was based on the Wellness-illness continuum, which explains the effect of knowledge and attitude on the health of a diabetic patient regarding diabetic diet, exercise and foot care. The design adopted for this study was simple descriptive survey design; total 251 samples were selected. A polished self-structured questionnaire was the tool, developed by investigator to explicit information from diabetic patients. The data were collected through a structured interview & self reporting technique. The value of reliability coefficient (0.89) was suggested that the tool is highly reliable. The pilot study was done and feasibility of the study was established. Based on

the objectives and the assumptions the collected data was analyzed by using descriptive and inferential statistics Distribution of knowledge scores regarding diabetic diet, exercise and foot care shows that 43.42% patient had poor knowledge regarding diabetic diet, exercise and foot care. However 58.56% had average knowledge regarding Diabetic diet; 47.41% had average knowledge regarding Exercise and 62.54% had poor knowledge regarding foot care. Attitude scores regarding diabetic diet, exercise and foot care shows that 74.9% had positive attitude. However the mean value of attitude score showed these patients had average attitude towards the Diabetic diet, exercise and foot care [10].

A study was conducted on the dietary adherence of a sample of 97 patients with insulin-dependent diabetes mellitus has been quantitatively described. Now, in an effort to understand the poor dietary adherence found diet-related knowledge and skill and their relationship to dietary adherence among 90 diabetic children have been studied. Diet-related competencies assessed were the ability to: (1) recall the personal diet plan, (2) correctly fill one's plate from a buffet, with the diet plan in hand, and (3) choose an appropriate meal from a restaurant menu. Adherence to the diet was assessed by unobtrusive observations at meals. Error rates on the three tests of knowledge and skill were .21, .28, and .51, respectively. The mean error rate at mealtime was .35, only slightly higher than the error rate for filling a plate when the children knew they were being tested. In a multiple regression analysis, age ($r$ = .37) and sex ($R$ = .48) were associated with adherence to the diet plan. Ability to choose correctly from a menu, duration of diabetes, and ability to correctly fill a plate from a buffet also entered the regression equation ($R$ = .54). The data suggest that many children did not possess the knowledge and skill required for good dietary adherence, regardless of motivation. Health educators may underestimate the complexity of the behaviors expected of chronically ill patients [11].

From the above studies it is clear the need for education about diabetes mellitus and it suggests the need for conducting this study. The researcher came across many diabetic patients during the time of clinical postings and found that patients lack knowledge about the dietary management of diabetes.

## 3. Review of Literature

The review of literature in a research report is a summary of current knowledge about a particular practice problem and includes what is known and not known about a problem. The literature is reviewed to summarize knowledge for use in practice or to provide a basis for conducting a study. The review of literature is defined as a broad, comprehensive in depth, systematic and critical review of scholarly publications, unpublished scholarly print materials and personal communications.

### 3.1 Studies related to Knowledge on Diabetes Mellitus

A study was conducted to describe how patient education is arranged in Swedish primary healthcare (PHC) and to assess whether the type of patient education and individual goal setting have an impact on diabetic patients' possibilities of reaching national treatment targets. Data from 485 primary healthcare centers (PHCCs) and 91,637 diabetic patients reported by the PHCCs to the National Diabetes Register in 2006. Of the PHCCs that reported how they performed the individual counseling, 50% reported checklist-driven counseling and 8% individualized counseling based on patients' needs. The current study indicates that improvement is needed in patient education in PHC to facilitate diabetic patients' possibilities of reaching national treatment targets [12].

A study was conducted on self-care dietary pattern among a group of 25 Asians and 24 Caucasians diagnosed with type 1 or type 2-diabetes. Data collected from a semi-structured interview and a 7-day health diary explored the self-care activities undertaken by the participants to establish metabolic control. From an analytical perspective, the collective responses were placed on a continuum ranging from strict adherence, moderately flexible adherence to very flexible adherence. The findings suggest that most of the participants were located in the latter two categories of diet related to self-care [13].

A cross-sectional study was conducted in a Diabetic clinic at turkey to determine the level of knowledge on Diabetes in 524 rural adults with the age over 30 years using a questionnaire .The result showed that mean Diabetic knowledge score was 30.2$\pm$3.46. The result indicated that Diabetes knowledge was lower in participants with Diabetes [14].

A study was conducted in the University of Mar Gland school of pharmacy USA, to determine the knowledge about their diabetic medications and their blood glucose control. Medication knowledge score was tabulated and correlated to the most recent glycosylated hemoglobin (A1C). 50 patients were screened for the study. The study revealed that there was a strong association between knowledge score and A1C. HbA1C was one half units lower with each unit increase in knowledge score among men, among women A1C was 1.6 units [15].

A prospective cohort study was conducted to determine the factors responsible for poor glycaemic control in diabetes and whether any such factors are associated with likely improvement in glycaemic control. 130 diabetic patients with poor glycaemic control (HbA (1c)> or = 10.0%) with 1-year follow-up in a teaching hospital Diabetes Clinic are studied. Changes in HbA (1c) were measured after 1 year. Poor glycaemic control was attributed to one of 15 possible causes. Those cases due to recent diagnosis of diabetes, inadequate treatment with diet. Additional strategies will be required to address those individuals who are not likely to respond [16].

### 3.2 Studies related to knowledge on Diabetic diet

A study was conducted in the USA to examine how lifestyle and dietary factors relate to the type 2 diabetes mellitus, 84,941 female nurses from 1980 to 1996 were followed ; these women were free of diagnosed cardiovascular disease, diabetes, and cancer at base line. Information about their diet

and lifestyle was updated periodically. A low-risk group was defined according to a combination of five variables: a body-mass index (the weight in kilograms divided by the square of the height in meters) of less than 25; a diet high in cereal fibre and polyunsaturated fat and low in trans fat and glycaemic load (which reflects the effect of diet on the blood glucose level); engagement in moderate-to-vigorous physical activity for at least half an hour per day; no current smoking; and the consumption of an average of at least half a drink of an alcoholic beverage per day. During 16 years of follow-up, we documented 3300 new cases of type 2 diabetes. Overweight or obesity was the single most important predictor of diabetes. Lack of exercise, a poor diet, current smoking, and abstinence from alcohol use were all associated with a significantly increased risk of diabetes, even after adjustment for the body-mass index. As compared with the rest of the cohort, women in the low-risk group (3.4 percent of the women) had a relative risk of diabetes of 0.09 (95 percent confidence interval, 0.05 to 0.17). A total of 91 percent of the cases of diabetes in this cohort (95 percent confidence interval, 83 to 95 percent) could be attributed to habits and forms of behaviour that did not conform to the low-risk pattern. The findings support the hypothesis that the majority of cases of type 2 diabetes could be prevented by the adoption of a healthier lifestyle [17].

A study was conducted in Minnesota to evaluate the effect of a High-Protein, Low-Carbohydrate Diet on Blood Glucose Control in People with Type 2 Diabetes The study was using a randomized 5- week crossover design with a 5 – week washout period in which 8 men were studied. The carbohydrate:protein:fat ratio of the control diet was 55:15:30. The test diet ratio was 20:30:50. Plasma and urinary β-hydroxybutyrate were similar on both diets. The mean 24-h integrated serum glucose at the end of the control and LoBAG diets was 198 and 126 mg/dl, respectively. The percentage of glycohemoglobin was 9.8 ± 0.5 and 7.6 ± 0.3, respectively. It was still decreasing at the end of the LoBAG diet. Thus, the final calculated glycohemoglobin was estimated to be ~6.3–5.4%. Serum insulin was decreased, and plasma glucagon was increased. Serum cholesterol was unchanged. Thus, a low-biologically-available-glucose( LoBAG) diet ingested for 5 weeks dramatically reduced the circulating glucose concentration in people with untreated type 2 diabetes **[18]**.

A prospective study was conducted to examine whether dietary fat intake affected the risk of type 2 diabetes in women. The study prospectively followed 84204 women aged 34–59 y with no diabetes, cardiovascular disease, or cancer in 1980. Detailed dietary information was assessed at baseline and updated in 1984, 1986, and 1990 by using validated questionnaires. Relative risks of type 2 diabetes were obtained from pooled logistic models adjusted for non dietary and dietary covariates. During 14 y of follow-up, 2507 incident cases of type 2 diabetes were documented. Total fat intake, compared with equivalent energy intake from carbohydrates, was not associated with risk of type 2 diabetes; for a 5% increase in total energy from fat, the relative risk (RR) was 0.98 (95% CI: 0.94, 1.02). Intakes of saturated or monounsaturated fatty acids were also not significantly associated with the risk of diabetes. However, for a 5% increase in energy from polyunsaturated fat, the RR was 0.63 (0.53, 0.76; $P < 0.0001$) and for a 2% increase in energy from *trans* fatty acids the RR was 1.39 (1.15, 1.67; $P = 0.0006$). We estimated that replacing 2% of energy from *trans* fatty acids isoenergetically with polyunsaturated fat would lead to a 40% lower risk (RR: 0.60; 95% CI: 0.48, 0.75). These data suggest that total fat and saturated and monounsaturated fatty acid intakes are not associated with risk of type 2 diabetes in women, but that *trans* fatty acids increase and polyunsaturated fatty acids reduce risk [19].

A cohort study was conducted to examine prospectively the relationship between glycaemic diets, low fiber intake, and risk of none—insulin-dependent diabetes mellitus. In 1986, a total of 65173 US women 40 to 65 years of age and free from diagnosed cardiovascular disease, cancer, and diabetes completed a detailed dietary questionnaire from which we calculated usual intake of total and specific sources of dietary fiber, dietary glycaemic index, and glycaemic load. During 6 years of follow-up, 915 incident cases of diabetes were documented. The dietary glycaemic index was positively associated with risk of diabetes after adjustment for age, body mass index, smoking, physical activity, family history of diabetes, alcohol and cereal fiber intake, and total energy intake. Comparing the highest with the lowest quintile, the relative risk (RR) of diabetes was 1.37 (95% confidence interval [CI], 1.09-1.71, *P*trend=.005). The glycaemic load (an indicator of a global dietary insulin demand) was also positively associated with diabetes (RR=1.47; 95% CI, 1.16-1.86, *P*trend=.003). Cereal fiber intake was inversely associated with risk of diabetes when comparing the extreme quintiles (RR=0.72, 95% CI, 0.58-0.90, *P*trend=.001). The combination of a high glycemic load and a low cereal fiber intake further increased the risk of diabetes (RR=2.50, 95% CI, 1.14-5.51) when compared with a low glycemic load and high cereal fiber intake. Results support the hypothesis that diets with a high glycaemic load and a low cereal fiber content increase risk of diabetes in women [20].

A prospective cohort study was conducted in the US to examine whether increasing cereal fiber in diet may be effective means of reducing the risk of type 2 diabetes. Diet was assessed at baseline in 1995 with a modified version of the National Cancer Institute–Block food frequency questionnaire. During 8 years of follow-up, there were 1938 incident cases of diabetes. Cox proportional hazards models were used to estimate incidence rate ratios (IRRs) for quintiles of dietary factors, while controlling for lifestyle and dietary factors. Glycaemic index was positively associated with the risk of diabetes: the IRR for the highest quintile relative to the lowest was 1.23 (95% confidence interval [CI], 1.05-1.44). Cereal fiber intake was inversely associated with risk of diabetes, with an IRR of 0.82 (95% CI, 0.70-0.96) for the highest vs lowest quintiles of intake. Stronger associations were seen among women with a body mass index (calculated as weight in kilograms divided by height in meters squared) lower than 25: IRRs for the highest vs. lowest quintile were 1.91 (95% CI, 1.16-3.16) for glycaemic index (*P* value for interaction, .12) and 0.41 (95% CI, 0.24-0.72) for cereal fiber intake (*P* value for interaction, .05). Increasing cereal fiber in the diet may be an effective means of reducing the risk of type 2 diabetes [21].

### 3.3 Statement Research Question:

"A study to assess the effectiveness of self instructional module on the knowledge regarding diabetic diet among diabetic patients in selected hospitals of Karad."

### 3.4 Objectives

1. To assess the knowledge among diabetic patients about diabetic diet with selected demographic variables before the administration of self instructional module.
2. To evaluate the effectiveness of self instructional module on the knowledge regarding diabetic diet among diabetic patients.
3. To find out the association between knowledge scores in the pretest knowledge scores with selected demographic variables.

### 3.5 Assumptions

1. The Diabetic patients may have some knowledge about diabetic diet.
2. The Diabetic patients will eager to obtain possible information pertaining to diabetic diet.
3. Administration of self instructional module is an effective method to improve and provide knowledge regarding prevention of diabetic diet.

### 3.6 Hypothesis

**H1**:- There will be significant association between pre-test and post test knowledge score on diabetic diet among diabetic patients with selected demographic variables at 0.05 level of significance.
**H2:-** There will be significant association between pre-test knowledge score on diabetic diet and selected demographic variables at 0.05 level of significance.
**H0:-** There will not be significant association between pre test and post test knowledge score on diabetic diet among diabetic patients with selected demographic variables at 0.05 level of significance.

## 4. Research Methodology

The methodology applied to acquire information pertaining to research problem and to evaluate the effectiveness of self instructional module. It also deals with description of methodology and different steps, which were undertaken for gathering and organizing data. It includes research approach, research design, variables, setting of the study population, inclusive and exclusive criteria for selection of the sample, sampling technique, sample size, development of tool, content validity, reliability, Pilot study and procedures for data collection and plan for data analysis [22].

## 5. Research Approach

An evaluative research approach was selected using one group pre- test-post test design. Experimental approach was used to evaluate the effectiveness of the self instructional module on knowledge about diabetic diet. The major aim of Evaluative research is to achieve, some practical goal, that is, to have major emphasis on utility. Hence this approach is most widely used when the primary objective is to determine the extent to which a given procedure achieves some desired result [23]. Focusing on the nature of the research problem for the present study and the objectives to be fulfilled. In the present study the researcher aimed at evaluating the effectiveness of self instructional module on the knowledge regarding diabetic diet among diabetic patients in selected hospitals of Karad city.

### 5.1 Sample and Sampling technique

In this study diabetic patients are the samples for the study. Convenient sampling technique was used for selecting the sample.

### 5.2 Sample size

40 Diabetic patients were included in the study.

### 5.3 Sampling criteria:

**Inclusion criteria:**
1. Patients of selected hospitals of Karad city, who are diagnosed as diabetic.
2. Those who are willing to participate in the study.
3. The patients who are stable.

**Exclusion criteria:**
1. Those patients who do not know to read and write Marathi or English.
2. The patients who are not co-operative.

### Data Collection Instrument

In this study the data collection instrument are :
- Section 1: Demographic data of diabetic patients.
- Section 2: A structured knowledge questionnaire on General information about Diabetes Mellitus.
- Section 3: A structured knowledge questionnaire on Diabetic diet.

## 6. Findings, Discussion

### Section A:

### Sample Characteristics
1. Highest percentage (50%) of the diabetic patients are in the age group of 41 -50 years.
2. More than half (80%)of the diabetic patients were males.
3. Highest percentage (92.5%) of the diabetic patients were married.
4. Majority of the diabetic patients (80%) were of Hindu religion

### Section B:

**A .Findings related to pretest and post test knowledge about General information about diabetes mellitus.**
1. Area wise Frequency and Percentage distribution of knowledge scores of Diabetic patients regarding general information about diabetes mellitus revealed that in pre –test majority 28(70%) had average knowledge, 6(15%)had good knowledge, and 6(15%) had poor knowledge ;whereas in

post-test majority of 29(72.5%)had good knowledge and 11(27.5%) patients had average knowledge regarding general information about diabetes mellitus

2. Area wise Mean, Standard Deviation of knowledge score of subjects regarding general information about diabetes mellitus revealed that pre-test mean knowledge score and standard deviation of the diabetic patients was 4.175+/- 1. 135 which was increased in post test to 6.05+/- 1.319. Obtained pre and post test scores paired t value is 7.980 and p value is <0.0001.

**B. Findings related to pre-test and post- test knowledge about knowledge about diabetic diet.**

1.Area wise Frequency and Percentage distribution of knowledge scores of Diabetic patients regarding diabetic diet revealed that in pre test majority25(62.5%) patients had average knowledge ,10 (25%) had Good knowledge,5(12.5%) had poor knowledge ;whereas in post-test majority of 17(42.5%) had average knowledge,23 (57.5%%) had good knowledge regarding diabetic diet**.**

2.Area wise Mean, Standard deviation of knowledge score of subjects regarding diabetic diet revealed that he pre test mean knowledge score and standard deviation of the diabetic patients was 11.975+/- 3.490**,** which was increased in post test to 14.925+/-1.873.Obtained pre and post test scores paired t value is 4.978 and pvalue is<0.0001.

**C. Findings related to overall (Total) pre-test and post test knowledge about diabetic diet.**

1. Area wise Frequency and Percentage distribution of total knowledge score of Diabetic patients regarding General information about diabetes mellitus and diabetic diet revealed that in pre test majority 28(70%) had average knowledge,4(10%) had Good knowledge and (8)20%poor knowledge in total knowledge score whereas in post test 26 (65%) had good knowledge and 14 (35%) had average knowledge in the total knowledge score of the study.

2. While assessing the effectiveness of SIM, Area wise Mean ,Standard Deviation of total knowledge score of subjects regarding general information of diabetes mellitus and diabetic diet revealed that the pre test pre test mean knowledge score and standard deviation of the diabetic patients was 16.025+/- 4.371 which was increased in post test to20.975+/- 1.860. Obtained pre and post –test scores paired t value is 7.520 and p value is<0.0001 which is considered extremely significant and paired‘t’ test showed a significant gain in knowledge.

**Section –C:**

**Association between pre –test knowledge scores diabetic diet with selected socio demographic variables.**

Statistical analysis using chi-square test to find the association between pre –test knowledge scores on diabetic diet with selected demographic variables revealed that the variables age , sex, are independent of each other and was not significant at 0.05 level of significance. But there is significant association of Marital status and Religion with pre test knowledge scores at 0.05 level of significance.

## 7. Conclusion

Based on the findings the result of the main study shows pre-test mean knowledge score of the diabetic patients was 16.025. In the Post-test the mean knowledge score of the diabetic patients was 20.975 suggesting that there is a significant difference of 4.95. This concluded that the SIM was an effective method to improve the diabetic patients’ knowledge regarding diabetic diet.

## 8. Scope of the study

**Nursing Education**

- Knowledge on diabetic diet among diabetic patients can be considered by the nurse educators to teach the nursing students to gain knowledge and practice.
- The study inculcates the idea to develop of teaching modules and materials towards the promotion of life and effective management and prevention of diabetes.
- This study can provide ample information about diabetic diet and its importance.

**Nursing Practice**

- Nurses can provide health education to the patients about diabetic diet and provide care for effective management of the disease. Nurses can use posters, flash cards and use many AV aids to accomplish their task.
- Nurses can taught about variety of treatment measures for diabetes.
- It helps in staff development.

**Nursing Research**

- The research helps to plan new interventional strategies for diabetes mellitus patients to manage diabetes.
- The aim of research is to contribute knowledge to the pre existing knowledge base. This study helps to contribute to the knowledge.
- This study can incorporate the importance of further research in the management of diabetes.

**Nursing Administration**

- Nursing administrators at various levels can take initiative to conduct research on various health problems and their management
- Nursing administrators can properly utilize nurse’s abilities, practice, attitude and knowledge regarding the management of diseases like diabetes and its prevention.
- It can help the nursing administrators to carry out educational workshops, conferences and other educational activities in their organisations which help enhance knowledge and practice in the effective management of diabetes.

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