EUROPEAN JOURNAL OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES
http://www.ejbps.com

ISSN 2349-8870
Volume: 8
Issue: 7
592-595
Year: 2021

IMPACT OF NUTRITION EDUCATION INTERVENTION ON NEWLY DIAGNOSED TYPE 2 DIABETIC MALE SUBJECTS

***[1]Suman Bala, [2]Tarvinderjeet Kaur and [3]Manmeet Kaur**

[1]Assistant Prof., Department of Home Science, Kurukshetra University, Kurukshetra, Haryana, India.
[2]Professor, Department of Home Science, Kurukshetra University, Kurukshetra, Haryana, India.
[3]Research Scholar, Department of Home Science, Kurukshetra University, Kurukshetra, Haryana, India.

***Corresponding Author: Suman Bala**
Assistant Prof., Department of Home Science, Kurukshetra University, Kurukshetra, Haryana, India.

Article Received on 20/05/2021 **Article Revised on 10/06/2021** **Article Accepted on 01/07/2021**

ABSTRACT

Introduction: Nutrition education intervention plays a key role in diabetes self-care management because effective communication and nutrition education enhance nutrition knowledge, attitude towards healthy food choices. It also improves nutritional status, clinical outcomes and quality of life of diabetic people. Therefore the purpose of this research was to educate type 2 diabetic male subjects. **Methodology**: Total sixty male type 2 diabetic subjects free from serious complications were selected purposively from district Kurukshetra, Haryana. A self-structured questionnaire was developed with KAP (knowledge, attitude, practices) aspects of type 2 diabetes. Nutrition education was imparted for a period of four months through different audio/ visual aids. KAP scores were assessed before, during and after the intervention trial by personal interview method. **Results & Discussion**: An improvement in mean KAP scores was observed in intervention group instead of control group. The mean knowledge scores (46.33±15.25) in intervention group were high while in control group where no education was provided mean knowledge scores (13.07±2.21) were low. Mean Attitude and Practices scores (16.07±1.41 & 25.70±1.39) were also more in intervention group when compared to mean attitude and practices scores (6.73±1.46 & 13.10±2.01) of control group. Results showed that nutrition education intervention significantly improved KAP scores among subjects who received nutrition education compared with those who did not receive. **Conclusion:** Nutrition education is an effective tool to bring about the positive effects on their health and self-care management of diabetic people.

KEYWORDS: type 2 diabetes, knowledge, attitude, practices, nutrition education, KAP scores.

INTRODUCTION

Today Diabetes Mellitus has become the major public health challenge not only in India but also globally. It is rising very speedily and become one of the fastest growing health crisis of 21 century. In 2010 the global projection for diabetes in 2025 was 438 million, with over five years still to go, this projection has already been surpassed by 25 million. International Diabetes Federation Diabetes Atlas 2019 estimated that 463 million adults in the world are currently living with diabetes. The new estimates show an increasing number of diabetes in younger people that are very worrisome for future generations. Previously Type 2 diabetes was most commonly found in older adults, but now it is increasingly seen in children, adolescents and younger adults due to their modern sedentary lifestyle. In India diabetes has reached on its alarming level because 1 in 6 adults with diabetes in the world come from India. The burden of diabetes is reflected not only in the increasing numbers of people with diabetes, but also in the growing number of premature deaths due to diabetes. In 2017, 1.1 million people died due to diabetes in India that is second highest number of deaths of all International Diabetes Federation (IDF) regions.

In India there is progressive decrease in energy expenditure in occupational activities. Urbanization, mechanization of many manual works, uses of luxurious vehicles, increasing leisure time consumption of fast food and sedentary lifestyle aggravates non communicable diseases and the main causative factors which are responsible for occurrence of type 2 diabetes in Indian population especially in younger adults. Diabetes is known as silent killer because people with type 2 diabetes can live for many years without showing any symptoms. But during that time high blood glucose is silently damaging the body and complications may be developing in the body. Complications of diabetes impact the quality of life. Early detection and management of blood glucose level reduces serious complications. Type 2 diabetes can be delayed or preventable and can be successfully managed and

controlled by making healthy lifestyle changes such as improving dietary habits, physical activity, regular screening and nutrition education to facilitate self-care. Nutrition plays an important role in the treatment and management of type 2 diabetes. Nutritional knowledge about what to eat, when to eat and how much to eat is a useful tool in the treatment of diabetes. The major aim of nutrition education is to understand the role of nutrition in the prevention of diabetes, identify emerging health problems in early stages, to adopt healthy food practices and to make needed changes in their dietary habits. Diabetic nutrition education intervention helps diabetic people in coping with the nutritional demands of diabetes considering their cultural and social circumstances. Effective educational intervention improves nutritional behavior as well as blood profile of diabetic people. It also led to positive impact on patient's perception and beliefs and motivates persons to engage in healthy dietary habits.

Therefore the present study was conducted to investigate the aspects of Knowledge, Attitude and Practices (KAP) in type 2 diabetic male subjects.

MATERIAL AND METHOD

Locale of the Study: The locale of the study was district Kurukshetra, Haryana, India.

Selection of sample: Sample size comprising of sixty male subjects – thirty each in experimental group and control group were selected using purposive sampling methodology.

Development of Questionnaire: Self-structured questionnaire was developed with definite and concrete questions keeping in mind the objectives of the study to collect the pertinent information. Questionnaire contained KAP (Knowledge, Attitude and Practices) aspects of selected type 2 diabetes subjects. Overall 112 questions were included in KAP questionnaire. Knowledge section contained sixty questions to assess diabetic subject's knowledge regarding balanced diet, food groups, healthy dietary pattern, low glycemic foods, complex carbohydrates &fiber rich foods and food beliefs, fads & fallacies and each correct answer was given a score 1 and for incorrect answer score of 0 was marked. Attitude part had twenty questions which included respondents attitude towards diabetes, role of diet and exercise in the management of blood glucose and habit of nibbling, skipping meal, smoking, sweetened beverages & alcohol consumption etc., for this score 1 was marked for positive attitude and 0 was marked for negative attitude. Same was treated with practice that is score of 1 was given to good practice and 0 was given for bad practice. This part contained thirty two questions such as practices related to consumption of balanced diet, low GI foods, following regular & healthy meal pattern, habit of nibbling & extra sugar intake and exercise etc. KAP obtained scores were categorized into fair (0-25%), good (26-50%), very good (51-75%) and excellent (76-100%).

Nutrition Education: Nutrition education was imparted to only experimental group through different audio visual aids such as charts/set of posters/leaflets/ PowerPoint presentation, and videos etc. twice in a week for a period of four months. No education was imparted to control group. KAP scores were evaluated before (starting of nutrition education), during (after two months) and after the fourth month of nutrition education intervention in both experimental and control group.

Statistical Analysis of Data: Data was analyzed by using mean, standard deviation and paired t test through SPSS-24version.

Ethical Approval: For this study ethical approval was obtained from Institutional Ethical Committee, Kurukshetra University, Kurukshetra (IEC-KUK).

Table I: KAP Scores of the Subjects.

Knowledge Scores (60)	Group	Fair (0-15)	Good (16-30)	Very Good (31-45)	Excellent (46-60)
Before (0 months)	Experimental	8(26.6)	22 (73.3)	-	-
	Control	27 (90)	3 (10)	-	-
During (2 months)	Experimental	-	28(93.3)	2 (6.6)	-
	Control	25 (83.3)	5(16.6)	-	-
After (4 months)	Experimental	-	-	7 (23.3)	23(76.6)
	Control	27(90)	3 (10)	-	-
Attitude Scores (20)		Fair (0-4)	Good (5-10)	Very Good (11-15)	Excellent (16-20)
Before (0 months)	Experimental	2 (6.6)	25 (83.3)	3 (10)	-
	Control	2(6.6)	25(83.3)	3(10)	-
During (2 months)	Experimental	-	19 (63.3)	11 (36.6)	-
	Control	5(16.6)	25(83.3)	-	-
After (4 months)	Experimental	-	-	10(33.3)	20 (66.6)
	Control	2 (6.6)	28 (93.3)	-	-
Practice Scores (32)		Fair (0-8)	Good (9-16)	Very Good (17-24)	Excellent (25-32)

Before (0 months)	Experimental	-	24 (80)	6(20)	-
	Control	-	30 (100)	-	-
During (2 months)	Experimental	-	8(26.6)	22 (73.3)	-
	Control	-	28 (93.3)	2 (6.6)	-
After (4 months)	Experimental	-	-	4 (13.3)	26 (86.6)
	Control	-	29(96.6)	1 (3.3)	
Total KAP Scores (112)		Fair (0-28)	Good (29-56)	Very Good (57-84)	Excellent (85-112)
Before (0 months)	Experimental	-	30 (100)	-	-
	Control	5 (16.6)	25 (83.3)	-	-
During (2 months)	Experimental	-	24(80)	6 (20)	-
	Control	9(30)	21 (70)	-	-
After (4 months)	Experimental	-	-	1 (3.3)	29 (96.6)
	Control	-	30(100)	-	-

Table I represents the KAP scores of diabetic subjects observed before, during and after the intervention trial in both experimental and control group. In knowledge section before imparting nutrition education maximum subjects (73.35%) scored between16-30 marks which were in good category and around twenty seven per cent subjects scored a fair mark that is between 0-15 marks. During experimental trial (2 months) majority of subjects (93.3%) scored good marks and only 6.6% subjects scored very good (31-45) marks. More ever after four months of nutrition education intervention more than $3/4^{th}$ subjects improved excellent (46-60) and nearly $1/4^{th}$ subjects upgraded to very good marks in experimental group. In control group maximum respondents that is ninety per cent scored fair marks (0-15) and only ten per cent scored marks between 16 to 30 i.e good category at the starting of intervention trial which remain same after the completion of intervention. Information regarding balanced diet, adoption of healthy & regular meal pattern and role of fiber & low glycemic foods in the management of type 2 diabetes related knowledge increased in experimental group after imparting nutrition education.

In attitude section, after giving nutrition education for two months nearly $2/3^{rd}$ subjects scored good marks (5-10) and more than $1/3^{rd}$ respondents improved to very good marks (11-15) which was only ten per cent before imparting nutrition. Further after two more months of nutrition education intervention $2/3^{rd}$ respondents upgraded to excellent (16-20) category of knowledge which was nil before and during the nutrition education intervention. While in control group before imparting nutrition education majority (83.3%) of subjects achieved good marks (5-10) which remained same during the intervention trial and after 120 days 93.3% respondents even scored same marks between 5to 10. None of the subjects in this attained very good (11-15) and excellent (16-20) marks. Respondent's attitude towards healthy diet, selection of nutritious &low GI food in their meals and dietary habits improved in intervention group and an increase in awareness about skipping meals, nibbling, calories from carbonated & alcoholic beverages was also noticed in them.

In practice part before imparting nutrition education most of the subjects (80%) scored between 9-16 marks and fell in category of good which improved to very good category i.e marks between 17-24 after two months of nutrition education intervention. Nutrition education of two more months that is after four months of nutrition education majority (86.6%) of subjects got improved marks that is excellent marks (25-32) followed by very good marks (13.3%). After four months of nutrition education majority of respondents received elevated improved score that is from good (80%) to very good (73%) to excellent (86.6%). On the other hand in control group subjects remained in good category before (0month), during (2 months), after (4 months) interventional trial. No such improvement was observed among them. However nobody fell in excellent category. After imparting nutrition education good practices such as to follow regular &healthy meal pattern, eating fiber rich foods instead of fried foods & sweetened or carbonated beverages and maintaining ideal body weight by lifestyle modifications were observed in experimental group.

In total KAP scores all subjects scored good (29-56) marks in experimental group before imparting nutrition education. After two months of nutrition education intervention $3/4^{th}$ respondents remain in good (29-56) category whereas $1/4^{th}$ subjects upgraded to very good (57-84) category. After four months of nutrition education intervention (none of the subjects) scored marks that fell in good category and majority i.e 96.6% respondents elevated to excellent category by scoring marks between 85-112. In control group maximum of the subjects scored good mark that is between 29-56marks followed by fair. No improvement was observed in this group. Findings of the present study are in line with Rahaman et.al. (2017) who emphasized that attending an educational programme significantly improved knowledge, attitude and practices levels in diabetic people than those who never attended any educational programme. Kaur et.al. (2007) also reported positive impact among nutrition education interventional group. The outcome of nutrition education intervention was notably seen in experimental group as there was an improvement observed in nutritional knowledge, attitude

towards healthy meal pattern and good dietary habits and practices.

Table II: Mean &Per cent Change in KAP Scores of the subjects.

Groups	Mean Scores KNOWLEDGE			% Change			t-test		
	Before (0 month)	During (2 months)	After (4 months)	B/D	D/A	B/A	B/D	D/A	B/A
Experimental	18.30±3.9	24.83±5.0	46.33±15.2	35.6	86.58	153.1	5.01*	5.61*	6.51*
Control	12.27±2.4	12.30±2.5	13.07±2.21	0.24	6.26	6.51	NS	NS	NS
	ATTITUDE								
Experimental	7.33±2.0	10.10±1.1	16.07±1.41	37.7	59.1	119.2	2.27*	7.98*	6.30*
Control	7.27±2.0	6.17±2.1	6.73±1.46	-15.1	9.07	-7.4	NS	NS	NS
	PRACTICE								
Experimental	13.37±2.8	18.53±2.2	25.70±1.39	27.8	38.6	92.2	6.44*	7.41*	7.59*
Control	12.80±2.1	12.67±2.4	13.10±2.01	-0.01	3.39	2.34	NS	NS	NS

(*Significant at p<0.05), NS=non significant

Before commencing the nutrition education intervention the mean knowledge, attitude & practices (KAP) scores obtained by respondents were 18.30±3.9, 7.33±2.06 & 13.37±2.8 respectively. After sixty days of nutrition education intervention an increase of 35.6%, 37.7% and 27.84% in KAP was noticed. When nutrition education intervention was extended for sixty more days further improvement of 86.5%, 60% and 38.69% was observed. Perusal of the data revealed that nutrition education intervention for 120 days resulted in 153.1%, 119.2% and 92.2% improvement in their KAP scores respectively. Statistically analysis of the data further indicated significant improvement ($p<0.05$) in all the respective scores of experimental group. Improvement was also observed in control group but the change was non-significant. Fatema et.al. (2017) and Chawla et.al.(2019) also suggested that nutrition education significantly improve knowledge, attitude and practices (KAP) scores with regard to dietary management and lifestyle modification to control glycemic levels in diabetic people.

CONCLUSION

The present study highlighted the impact of nutrition education intervention on type 2 diabetic subjects. Imparting nutrition education through different audio visual aids is an important measure to make clear concepts and remember that for a longer time. Results of this study indicate a positive impact on dietary knowledge, attitude towards healthy food choices as well as good practices of eating and selection of nutritious foods for diabetic people. Present study reinforces that nutrition education play a key role in adoption of healthy food choices and dietary habits and led to significant improvement in dietary knowledge, attitude and practices which is essential aspect in the management of type 2 diabetes.

REFERENCES

1. Anjana RM, Deepa M, Pradeepa R, et al. Prevalence of diabetes and pre diabetes in 15 states of India: results from the ICMR–INDIAB population-based cross-sectional study. *Lancet Diabetes Endocrinol*, 2017; 5: 585-596.
2. Chawla SPS, Kaur S, Bharti A, et al. Impact of health education on knowledge, attitude, practices and glycemic control in type 2 diabetes mellitus. *J Family Med Prim Care*, 2019; 8(1): 261-268.
3. Fatema K, Hossain S, Natasha K, Chowdhury HA, Akter J, Khan T, Ali L. Knowledge attitude and practice regarding diabetes mellitus among Non diabetic and diabetic study participants in Bangladesh. *BMC Public Health*, 2017; 17(1): 364.
4. International Diabetes Federation. IDF Diabetes Atlas, 9th edition Brussels, Belgium, 2019.
5. Kaur TK, Kochar GK and Agarwal T, Impact of Nutrition Education on Nutrient Adequacy of Adolescent Girls. *Stud. Home Comm. Sci., 2*007; 1(1): 51-55.
6. Rahaman KS, Majdzadeh R, Holakouie Naieni K, Raza O. Knowledge, Attitude and Practices (KAP) Regarding Chronic Complications of Diabetes among Patients with Type 2 Diabetes in Dhaka. *Int J Endocrinol Metab*, 2017; 15(3): e12555.
7. Ramachandran A, Snehalatha C, Shetty AS, Nanditha A. Trends in prevalence of diabetes in Asian countries. *World J Diabetes*, 2012; 3(6): 110-117.
8. Roglic G. WHO Global report on diabetes: A summary. *Int J Non-Commun Dis.*, 2016; 1: 3-8.