Research Article

# Nutritional Awareness Among Patients of Diabetes Mellitus Type II

**Faizan Khalid[1], Asma Azam[2], Syeda Amna Batool Kazmi[3], Eesha Gul[4], Usama Khan[5], Shahr Yar[6], Nimra Bint e Tahir[7], Ayesha Saeed Malik[8], Saira Afzal[9]**

*[(1)]Emory University School of Medicine, [(2)]Our Lady of the Lake Children's Hospital, Baton Rouge, LA;[(3-5)]Mayo Hospital, Lahore, [(6)]St. Mary's Hospital, London, [(7)]Nimra Bint e Tahir, University of Chicago, [(8)]Maimonides Children's Hospital of Brooklyn, NY, [(9)]King Edward Medical University Lahore, Pakistan.*

**Abstract:**

**Background:** Diabetes is one of the most common diseases in Pakistan but data on awareness of nutritional importance among diabetic patients is scarce. Type II diabetes is a long-term metabolic disorder characterized by high blood sugar caused by a combination of insulin resistance, and relative insulin deficiency. It affects multiple systems in the body and can cause several complications. This study aims to assess nutritional awareness among diabetic patients.

**Materials and Methods:** A cross-sectional survey was conducted among 183 diabetic patients of mayo hospital, Lahore. Participants were selected through a non-probability convenience sampling technique. The data was collected through a structured close-ended questionnaire. The autonomy and confidentiality were assured through well-defined informed consent. Data analysis was done through SPSS-26 software.

**Results**: Altogether 183 patients were enrolled in the study. There were 109(59.6%) males and 74(40.4%) females subjects. The greatest number of patients i.e. 56(30.6%) were in the age group of 55-64 years. Of the total subjects only 10(6%) were not on a special diet while 88(48%) were on a sugar-free diet and 85(46%) were on a cholesterol-free diet. Only 105(57%) participants think that brown sugar is a healthy alternative to white sugar while 27(15%) disagree and 37(28%) were not sure. The major percentage of the participants, 147(80.3%) agree that diet can help control complications of diabetes but 41(19.7%) were not aware of this concept.

**Conclusion:** Necessary interventions such as nutrition education programs and awareness programs should be carried out to promote health, delay the onset of diabetes, and prevent diabetic complications in the future.

**Corresponding Author:** Faizan Khalid

**Supervisor**: Prof. Dr. Saira Afzal | Department of Community Medicine, KEMU, Lahore.

**Keywords:** Awareness, Nutrition, Diabetes type II.

## INTRODUCTION:

Type II diabetes is a long-term metabolic disorder characterized by high blood sugar caused by a combination of insulin resistance, and relative insulin deficiency.[1] Nutrients are the substances that are required for health and growth and the process of intake of such substances is termed as Nutrition. Diabetes is one of the most common diseases in Pakistan. According to the Diabetes Prevalence Survey of Pakistan (2017), 35.3 million people among the adult population are suffering from this disease bringing the prevalence to 16.98%.[2] This research aims to assess the nutritional awareness in diabetes mellitus type 2 patients.

Awareness of the patient regarding their disease helps not only to reduce the burden of the disease but also to prevent its complications. Diabetes is a silent disease and the majority of cases of diabetes go undiagnosed, mainly due to lack of knowledge. A study conducted in India in 2010, found that more than 50% of the study subjects did not know of the condition called Diabetes and about 35% of the diabetic population did know that the disease is preventable.[3] A Research undertaken in Egypt (2015) found that despite the high prevalence of diabetes in the area, patients were lacking an understanding of the importance of diet in the management of diabetes. Only one-third of diabetic patients were aware of diet planning to better manage their disease.[4] Regarding diet planning and adherence, a study shows that only 1.85% of the subjects responded positively to following a diet plan at home, and a mere 22.2% of people believe that a controlled diet helps in the maintenance of blood glucose. [5] It has been found that poor knowledge about nutrition can lead to poor glycemic control in diabetics. 72% of respondents answered incorrectly when questioned regarding foods to be consumed. [6] A study concluded that there was a significant positive association between knowledge regarding diet and self-care practices. The findings indicate that good nutritional knowledge leads to healthyeating. [7]

A study conducted in Karachi among the urban diabetic population about the knowledge, attitude, and self-care practices shows a severe lack of concern of people about their disease. Only about 12.9% of the subjects under study knew that diabetes can be prevented. [8] Another study conducted in Islamabad in 2009 found that only (43%) of adults in a rural population had any awareness of diabetes mellitus. [9]

The high prevalence of diabetes in Pakistan demands that an intensive study should take place to determine the contributing factors, especially nutritional awareness. Even though the influence of lifestyle on diabetes has been studied, there is no notable work regarding the diabetic population's knowledge of nutrition, in particular. This research intends to alleviate this the dearth of information provides data on which new studies can be based. Such data is important to plan public health programs to prevent and possibly reduce the occurrence of Diabetes. Our findings will suggest whether there is a need for nutritional education to raise awareness about factors influencing glycemic control among diabetics.

| VARIABLE | | FREQUENCY | PERCENTAGE % |
|---|---|---|---|
| **Gender** | Male | 109 | **59.6%** |
| | Female | 74 | **40.4%** |
| **Education status** | Uneducated | 42 | **23%** |
| | Educated | 141 | **77%** |
| **Employment status** | Employed | 46 | **25.1%** |
| | Unemployed | 109 | **59.6%** |
| | Students | 7 | **3.8%** |
| | **Retired** | **21** | **11.5%** |

## METHODS AND METHOD:

A Cross-sectional Quantitative survey method was used to determine the awareness of nutrition among diabetic patients. The subjects were diabetic patients who visited the Mayo Hospital, Lahore from June to September 2018. Data was collected using a close-ended questionnaire. A non-Probability convenience sampling technique was used to select the participants. The questionnaire consisted of demographic data (Age, Gender, Educational status) and questions related to awareness of nutrition. In this survey, a total of 183 subjects participated. Data was obtained from the subjects who volunteered to participate in this study. Informed consent was obtained from the participants before the data collection. Descriptive statistics were used for data analysis using SPSS-26 software. The results were analyzed and presented in tables and figures.

## RESULTS

The total number of participants in the study was 183. More males participated than females.

**Table 1:** Demographic variables

| Age | Frequency | Percentage % |
|---|---|---|
| 18-24 | 7 | **3.8%** |
| 25-34 | 4 | **2.2%** |
| 35-44 | 22 | **12%** |
| 45-54 | 42 | **23%** |
| 55-64 | 56 | **30.6%** |
| 65-75 | 37 | **20.2%** |
| Above 75 | 15 | **8.2%** |

**Fig 1:** Patients on a special diet.

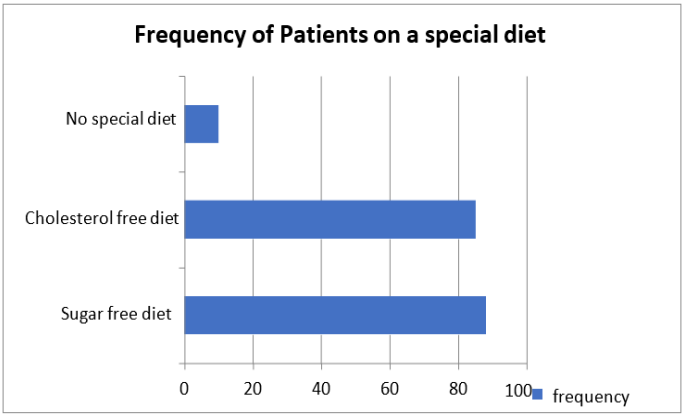


**TABLE 2:** Awareness of food components (n=183)

| | Foods | High (%) | Low (%) | NOT SURE (%) |
|---|---|---|---|---|
| Are these foods highor low in carbohydrates? | Porridge | 51(27.9%) | 49(26.8%) | 83(45.4%) |
| | Chappati | 66(36.1%) | 24(13.1%) | 93(50.8%) |
| | Rice | 70(38.3%) | 36(19.7%) | 77(42.1%) |
| | White bread | 69(37.7%) | 34(18.6%) | 80(43.7%) |
| | Nuts | 29(15.8%) | 48(26.2%) | 106(57.9%) |
| | Cheese | 36(19.7%) | 38(20.8%) | 109(59.6%) |
| Are these foods highor low in fat? | Meat | 83(45.4%) | 56(30.6%) | 44(24%) |
| | Margarine | 146(79.8%) | 0 | 37(20.2%) |
| | Honey | 22(12%) | 78(42.6%) | 83(45.4%) |
| | Egg | 52(28.4%) | 71(38.8%) | 60(32.8%) |
| | Cheese | 78(42.6%) | 44(24%) | 61(33.3%) |
| | Bread | 25(13.7%) | 76(41.5%) | 82(44.8%) |
| Are these foods highor low in protein? | Chicken | 138(75.4%) | 10(5.5%) | 35(19.1%) |
| | Cheese | 17(9.3%) | 53(29%) | 113(61.7%) |
| | Cream | 8(4.4%) | 82(44.8%) | 93(50.8%) |
| | Egg | 123(67.2%) | 8(4.4%) | 52(28.4%) |
| | Butter | 18(9.8%) | 79(43.2%) | 86(47%) |

**Figure 2:** Exercise can help control blood sugar levels.

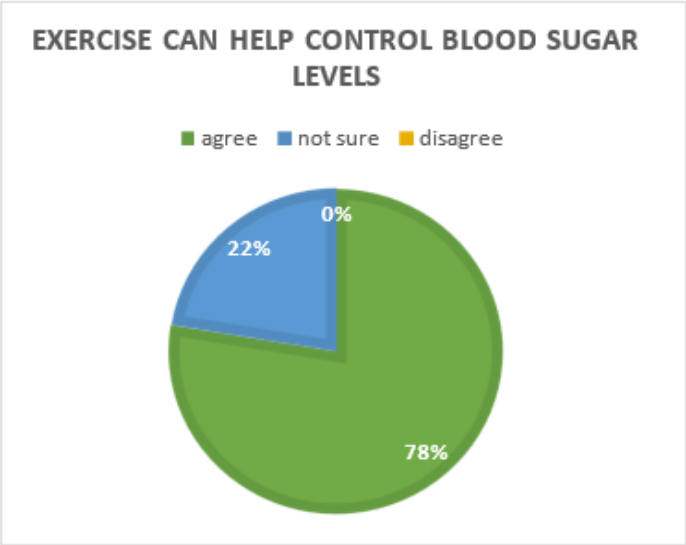


**Table 3:**

| | Agree (%) | Disagree (%) | Not sure (%) |
|---|---|---|---|
| Brown sugar is a healthy alternative to white sugar | 105 (57.4%) | 27(14.8%) | 51(27.9%) |
| There is more proteinin a glass of whole milk than in skimmedmilk | 68(37.2%) | 13(7.1%) | 102(55.7%) |
| There is more calcium in a glass of whole milk than in skimmed milk | 51(30%) | 19(10%) | 113(60%) |
| Diet can help control complications caused by diabetes | 147(80.3%) | 0 | 36(19.7%) |
| A glass of fruit juice is same as a serving of fruit. | 51(27.9%) | 95(51.9%) | 37(20.2%) |

**Table No: 4**

| Complications of diabetes | Frequency (%) |
|---|---|
| Chest pain | 37(20.2%) |
| Worsening hypertension | 63(34.4%) |
| Frothy urine | 27(14.7%) |
| Cataract | 10(5.4%) |
| Numbness in legs | 62(33.8%) |
| Floaters in vision | 24(13.1%) |
| Swelling of feet | 15(8.1%) |

## DISCUSSION:

183 people participated in the study out of which 109 (59.6%) were male and 74 (40.4%) were females. 169 (92%) patients responded that they were taking anti-diabetic medication while 11(6%) were not taking any medication. Figure 1 shows that only 10(6%) participants were not on a special diet while 88(48%) were on a sugar-free diet and 85(46%) were on a cholesterol-free diet.

Table 2 shows the response to the survey question-naire on awareness of food components. Itshows that 93(51%) participants were not sure that chapatti is a major source of carbohydrates and 77(42%) were not sure that rice contains carbohydrates. It also shows that 71(40%) participants think that egg is low in fat but 37(20%) participants are not sure whether margarine is high or low in fat. It was also seen that 79(43%) participants think that butter is low in protein while 86(47%) were not sure.

Table 3 shows that 105(57%) participants think that brown sugar is a healthy alternative to white sugar while 27(15%) disagree and 37(28%) are not sure. 147(80.3%) participants agree that diet can help control complications of diabetes while 41(19.7%) were not sure.

Figure 2 shows that 142(78%) participants agree that exercise can control sugar levels while 41(23%) people are not sure. Regarding the newly evolving concept that a diabetic should eat frequent and small amounts of meals instead of the regular three meals, 127(70%) participants agreed with the concept, 3(2 %) disagreed while 53(28%) participants were not sure.

Table 4 shows that 63(34.4%) participants had complaints of worsening hypertension,62(33.8%) had numbness in their legs and 37(20.2%) complained of occasional chest pain.

This is a cross-sectional study that cannot provide causal relationships but only state a hypothesis for future research. Limitations of this study were that it was conducted only among the outpatients and enrolled the patients only from one hospital in one development region and hence cannot be generalized to the diabetic population. So further studies may be conducted covering a wider area to better evaluate the awareness among the general diabeticpopulation.

## CONCLUSION:

The objective of the study was achieved. The results of the study show a deficit in patients' knowledge regarding nutrition. The study emphasizes the need for improvement in knowledge and awareness regarding the importance of diet and exercise among the diabetic population to achieve prevention and better control of diabetes and its complications.

Since the incidence of diabetes is increasing day by day, necessary interventions such as nutrition education programs and awareness programs should be carried out to promote health. Government and non-government organizations should make policies for health education regarding the importance of diet for the prevention of diabetes-related complications. Print and electronic media may be used to spread awareness.

## ACKNOWLEDGMENTS:

We would like to express our sincere gratitude and appreciation to Prof. Dr. Saira Afzal, Ms. Faiza Aziz for their unwavering support and assistance in this research work. Their valuable guidance and input have been instrumental in ensuring the success of our publication. We are truly grateful for their contributions.

## REFERENCES:

1. Kumar V, Abbas AK, Aster JC. Robbins Basic Pathology. 9th ed. Philadelphia:Saunders Elsevier ;2014.
2. Malik A, Diabetes Prevalence Data in Pakistan 35.3m adult population diabetic in country: survey. The News [Internet] 2017 Nov 26. [cited 2018 May 5] Available from:https://www.thenews.com.pk/print/248882-diabetes-prevalence-data-in-pakistan-35-3m-adult-population-diabetic-in-country-survey.
3. Deepa M, Bhansali A, Anjana RM, Pradeepa R, Joshi SR, Joshi PP, et al. Knowledge and awareness of diabetes in urban and rural India: The Indian Council of Medical Research India Diabetes Study (Phase I): Indian Council of Medical Research India Diabetes 4. Indian J Endocrinol Metab. 2014;18(3):379-385.
4. Khawaga GE, Wahab FA. Knowledge, attitudes, practice and compliance of diabetic patients in Dakahlia, Egypt. Eur J Res Med Sci. 2015; 3(1):40-53.
5. Upadhyay D, Izham M, Alurkar V, Mishra P, Palaian S. Evaluation of knowledge, attitude and practice of newly diagnosed diabetes patients-a baseline study from Nepal. Int J Pharm Pract Teach. 2012;3:245–52.
6. Ju LM, Shahar S, Yahya HM, Ching TS, Nor

NSM, Chou LH, et al. Level of Nutritional Knowledge and Health Awareness Among Diabetes Mellitus Patients at Cheras Health Clinic, Kuala Lumpur, Malaysia**.** Sains Malays. 2010;39(3):505-511.

7. Backman DR, Haddad EH, Lee JW, Johnston PK, Hodgkin GE. Psychosocial predictors of healthful dietary behaviour in adolescents. J Nutr Educ Behav. 2002;34(4):184-92.
8. Ahmed MU, Seriwala HM, Danish SH, Khan AM, Hussain M, Husain M, Ahmed MM. et al. Knowledge, Attitude, and Self Care Practices Amongst Patients With Type 2 Diabetes in Pakistan. Glob J Health Sci. 2016;8(7):1-8.
9. Ulvi OS, Chaudhary RY, Ali T, Khan MFA, Khan M, Malik FA et al. Investigating the awareness level about Diabetes Mellitus and associated factors in Tarlai (Rural Islamabad). J Pak Med Assoc. 2009;59(11).