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Original Research Paper

Nutritional Science

# DIETARY INTAKE AND NUTRITION KNOWLEDGE AMONG DIABETIC PATIENTS

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**ABSTRACT** The present study is focused to analyze nutrition intake and nutrition knowledge among diabetic patients. Total sample of 50 patients were taken from OPD of Govt. and Pvt. clinics of Gurdaspur city. The sample for the study was selected randomly from OPD running in area of Gurdaspur city. Multistage random sampling techniques were employed for selecting the sample. Both standardized techniques and structured questionnaires were used to collect the data. Results revealed that more than half patients had other comorbidity like hypertension, hypothyroidism along with diabetes. Most of sample patients were overweight, had sedentary lifestyle and consuming 2000 kcal on average. Knowledge regarding the food groups were limited.

**KEYWORDS :** Diabetic, hypertension, therapeutic diet, BMI, sedentary

## INTRODUCTION

Diabetes mellitus type 2 (DM2) is a metabolic disorder of multiple etiologies due to disturbances of carbohydrate, fat, and protein metabolism. It is characterized by chronic hyperglycemia, and it is associated with cardiovascular and renal complications. These complications result in diminished quality of life and reduced life expectancy. In addition, the disease places a considerable economic burden on worldwide healthcare resources. The estimated number of deaths due to diabetes is similar to the combined number of deaths from several infectious diseases such as human immunodeficiency virus (HIV)/AIDS, malaria, and tuberculosis.

Although DM2 is associated with complications, it is a preventable disease. Morbidity and mortality can be reduced by secondary prevention through regular screening, early detection of DM and its complications, and appropriate treatment of chronic complications. To control DM, it is necessary to determine associated risk factors. Uncontrollable factors include socioeconomic status, age, sex, genetic susceptibility, and other environmental factors. Controllable risk factors include obesity, hypertension, dyslipidemia, and smoking. It is very important to manage these risk factors to prevent or delay the onset of DM2 as well as avoid the occurrence of life-threatening complications. Despite this, a high proportion of patients with risk factors for diabetes-related complications are not adequately controlled. Therefore, improvements in disease management and monitoring are required to ensure that guideline targets are met.

In order to set a program for the screening of DM2 in the prediabetic stage or earlier, it is necessary to define recent risk factors associated with diabetes. To the best of our knowledge, no study has assessed the risk factors for diabetes among low- and middle-income Gurdaspur patients with DM2. Hence, the primary objective of this study was to determine the common risk factors associated with DM2 and the demographic background of adult Saudi patients with DM2 as well as the role of these factors in the development of complications. We also aimed to determine the impact of dietary and nondietary control among diabetic patients. We believe that the results of this study will help healthcare administrators to improve health education and design a community-directed strategy for DM2. (Manal A. Murad et al. 2014, Assessment of the Common Risk Factors Associated with Type 2 Diabetes Mellitus in Jeddah)

Only a few studies have conducted on knowledge regarding and attitude towards diabetes and obesity among Gurdaspur diabetic patients. However, the level of awareness regarding risk factors in development of diabetes among the Gurdaspur population gets very little attention in previous study. This study was therefore, conducted to assess the level of awareness about the risk factors responsible for the development of type 2 diabetes and its determinants among individuals who attended a tertiary care centre.

## OBJECTIVES OF THE STUDY

1. To study the dietary intake and nutrition knowledge among diabetic patients.
2. To asses the nutritional status of sample patients.
3. To examine any related comorbidity (NCDs) among sample patients.

## METHODOLOGY

The collection of data is an important aspect of the research. Whole process of the research depends upon the data. There are many techniques of data gathering. These method and technique are determined in the light of the problem and source of relevant data. In view of this, the current study aims at detecting the risk factors for type II diabetes in patients in Govt. Medical College Hospital. Total sample of 50 patients was drawn from OPD of Govt. and Pvt. clinics of Gurdaspur city. The sample for the study was selected randomly from OPD running in area of Gurdaspur city. Multistage random sampling techniques were employed for selecting the sample. Inclusion Criteria included patients fulfilling the ADA criteria for diagnosis of type 2 DM who are diagnosed type-2 diabetics. Structured questionnaire was used as a tool for collection of data. The questionnaire used in this study consists of following three parts:-

1. Food and nutritional intake
2. Physical activity
3. Nutritional status

After assessing the daily dietary intake, nutritional intake of each subject was calculated. After this, two types of methods were used for nutritional assessment:

**a. Anthropometric Measurements:**

In this study height and weight of the subjects were recorded by using the measuring tape for height and foot weighing scale for weight. After recording weight and height BMI was calculated by using BMI for age percentile.

| BMI for Age Percentile | |
|---|---|
| Less Than 5th Percentile | Underweight |

| | |
|---|---|
| 5th percentile to less than the 85th percentile | Healthy weight |
| 85th percentile to less than 95th percentile | Risk of Overweight |
| 95th Percentile or greater | Overweight |

**b. Clinical Assessment:**

To evaluate the extent of under-nutrition, clinical assessment is done. It is the simplest and most practical method of asserting the nutritional status a group of individuals. It is an essential feature of all nutrition surveys. It utilizes a number of physical signs that are known to be associated with mal-nutrition and deficiency of vitamins and micro nutrients. The clinical examination is the most important part of nutritional assessment as it gives direct information of the signs and symptoms of dietary deficiency prevalent among the people. In this method, the subject's body from head to toe is examined visually. General clinical examination with special attention to organs like hair, eyes, nails, skin, tongue, gums and lips etc. was done. Detection of relevant signs helps in establishing the nutritional diagnosis.

## Data Analysis

Both qualitative and quantitative methods were employed for data analysis. An appropriate statistical technique was used where applicable.

## Analysis and Interpretation of Data

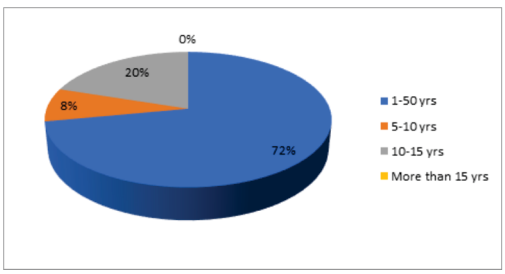
**Table 1 Showing Gender Of The Respondents**

| Variable | Numbers | Percentage |
|---|---|---|
| Male | 22 | 44% |
| Female | 28 | 56% |

Above table showed that 56% of the respondents were females and 44% are males.

**Table 2: Distribution Of Sample According To The Duration Of Disease**

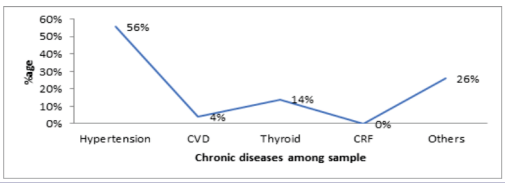
| GENERAL PROFILE | NO.OF SUBJECTS | %AGE |
|---|---|---|
| AGE | | |
| 1-50 yrs | 36 | 72% |
| 5-10 yrs | 4 | 8% |
| 10-15 yrs | 10 | 20% |
| More than 15 yrs | - | 0% |




It is observed from table 2 most 72% of the respondents had 1-50 yrs of duration of diseases. 20% of the respondents from 10-15 yrs and 8% of the respondents from 5-10 yrs.

**Table 3: Incidence Of Chronic Disease Among Samples**

| GENERAL PROFILE | NO.OF SUBJECTS | %AGE |
|---|---|---|
| Hypertension | 28 | 56% |
| CVD | 2 | 4% |
| Thyroid | 7 | 14% |
| CRF | 0 | 0% |
| Others | 13 | 26% |




More than half of patients were hypertensive where as other comorbidities like hypothyroidism (14%), CVD (4%) and other diseases were present along with DMII.

**Table No 4: Anthropometric Measurements**

| BMI | | |
|---|---|---|
| Underweight | - | - |
| Normal | 7 | 14 |
| Pre-Obese | 12 | 24 |
| Obesity (Grade I) | 5 | 10 |
| Obesity (Grade II) | 16 | 32 |
| Obesity (Grade III) | 10 | 20 |

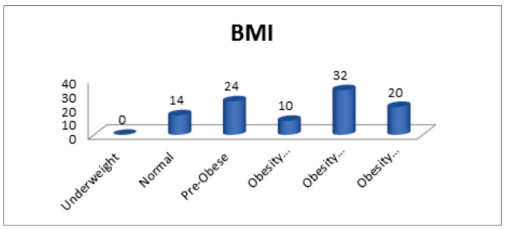



Table 4 depicted that BMI of respondents. 32% of the respondents were obese (Grade II), 24% of the respondent pre-obese, 20% had obesity (Grade III) and rest 10% had obesity (Grade I).

**Table 5: Daily Physical Activity Being Done By Patients For Management Of Blood Pressure**

| Daily Physical Activity | No. | %Age |
|---|---|---|
| Sedentary | 32 | 64 |
| Moderate | 12 | 24 |
| Heavy | 6 | 12 |
| Activity Done | | |
| Yoga | 20 | 40% |
| Exercise | - | - |
| Meditation | - | - |
| Walk | 30 | 60% |

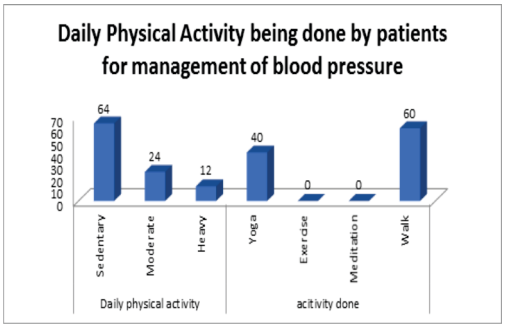



Table 5 showed that daily physical activity being done by patients for management of blood pressure.

Daily physical activity
- Sedentary – 64%
- Moderate – 24%
- Heavy – 12%

Activity Done
- Yoga – 40%
- Exercise – 0%
- Meditation – 0
- Walk – 60%

**Table 6: Food Pattern Being Followed**

| Food Pattern | No. of Subjects | %age |
|---|---|---|
| Vegetarian | 29 | 58% |
| Non-Vegetarian | 21 | 42% |

Table 6 showed that the food pattern and daily consumption of meal pattern being followed. Maximum respondents said they were vegetarian 58% and 42% of the respondents were non-

vegetarian.

**Table 7: Daily Consumption Of Meal Pattern Being Followed**

| Meal Consumption Pattern | No. of Subjects | Percentage |
|---|---|---|
| 3 Meals | 24 | 48% |
| 5 Meals | 4 | 8% |
| Less than 3 | 7 | 14% |
| More than 5 | 15 | 30 |

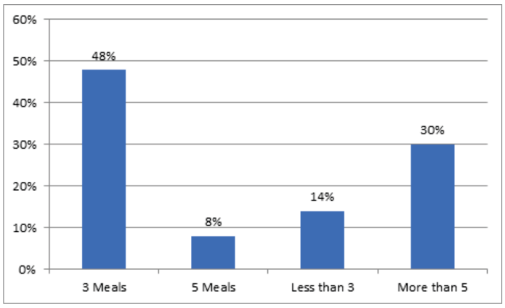



Table 7 highlights daily consumption of meal pattern being followed. 48% of the respondents are 3 Meals, 30% of the respondent are more than 5, 14% of the respondent are less than 3 and 8% of the respondent are 5 meals.

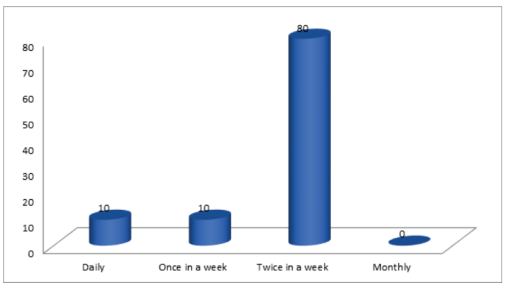
**Table 8: Habit of Consuming Fruits**

| Habit of consuming fruits | No. of Subjects | Percentage |
|---|---|---|
| Daily | 32 | 64 |
| Once in a week | 0 | 0 |
| Twice in a week | 18 | 36 |
| Monthly | 0 | 0 |

Table 8 depicts that habit of consuming fruits. 64% of the respondents said daily and 36% of the respondent said twice in a week.

**Table 9: Habit Of Consuming Green Leafy Vegetable**

| Variabales | No. of Subjects | Percentage |
|---|---|---|
| Daily | 5 | 10 |
| Once in a week | 5 | 10 |
| Twice in a week | 40 | 80% |
| Monthly | | |




Above graph depicts that habit of consuming green leafy vegetables. Maximum 80% of respondents said twice in a week and 10% of the respondent said daily and once in a week.

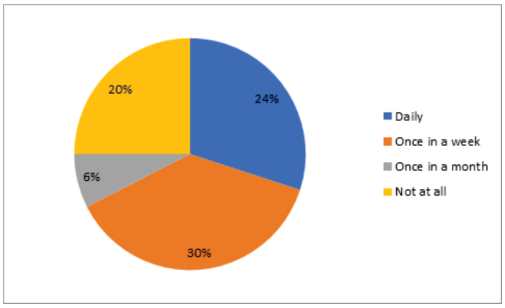
**Table 10: Habit of Consuming Salads**

| Consuming Salads | No. of Subjects | Percentage |
|---|---|---|
| Yes | 36 | 72% |
| No | 14 | 28% |

Above table and graphs depicts that majority 72% of the subjects were consuming salads and rest 28% not consuming salads.

**Table 11: Habit Of Taking Fried Feeds**

| Habit of taking tried feeds | No. of Subjects | Percentage |
|---|---|---|
| Daily | 12 | 24% |
| Once in a week | 15 | 30% |
| Once in a month | 3 | 6% |
| Not at all | 10 | 20% |




Above graph revealed that maximum 30% of the subject were having habit of taking fried foods once in a week, whereas 24% of the subjects were taking daily fried foods, 20% of the subject said not at all and 6% of the subjects taking fried food once in a month.

**Table 12: Habit Of Adding Salt To Cooked Foods**

| Habit of adding salt to cooked foods | No. of Subjects | Percentage |
|---|---|---|
| Yes | 12 | 24% |
| No | 38 | 76% |

Above graph showed that majority 76% of the subjects add salt to cooked food after being prepared and 24% of the subject 'not'.

## CONCLUSION

It is evident from result that maximum patients were from 30-40 yrs of age group and females. 36% of the respondents were higher secondary qualified and 34% of the respondents were graduate. It was seen that 36% of the respondents were having 20000-30000 income group and most of the respondents had 1-5 yrs of duration of diseases. It was matter of concern that other comorbidities were present along with the diabetes. 32% of the respondents were having obesity (Grade II), 24% of the respondent pre-obese, 20% is obesity (Grade III) and rest is 10% obesity (Grade I). Daily physical activity was done by patients for management of blood pressure. It was seen that mostly sample were preferably vegetarian and consumed fruits daily. Maximum of the subjects were having habit of taking fried foods once in a week, whereas 24% of the subjects taking daily fried foods, 20% of the subject said not at all and 6% of the subjects taking fried food once in a month. It was also observed that majority of the subjects added salt to cooked food after being prepared and 72% of the subjects were having processed food.

The knowledge regarding risk factors of Type II diabetes was found average but there were areas of deficiencies in IGT, GDM, low birth weight and high cholesterol level as risk factors of Type II diabetes. On the other hand, it was very clear that the study respondents had good attitude score regarding risk factors of Type 2 diabetes. Age, sex, education, family history, acquisition of information and BMI have shown a significant association with knowledge and sex, education, acquisition of information and knowledge about risk factors are significantly associated with attitude.

Overall, the respondents participated in this study have average awareness regarding risk factors of diabetes. Diabetes education and socio-demographic factors need to be considered to improve the awareness regarding the risk factors of type-2 diabetes. Several studies (Knowler, W.C. et al. 2002 & Hussain, A. et al. 2006) have shown that type 2 diabetes can be prevented with the modification of lifestyles and by educating people or developing awareness about the risk factors. From public health perspective, there is a critical need for innovative target oriented prevention programs for people

who are at risk of diabetes as awareness programs may motivate general population and high-risk individuals to adopt a healthy lifestyle, undergo routine medical check-ups, and be an active player in the prevention of diabetes.

The participant's practice in order to control blood sugar levels and to prevent the complications of diabetes are still needs to be improved. This can be better done through health education on diabetes in order to make the patients aware about their health illnesses and eventually change their attitude towards the diabetes, which in turn results in good lifestyle practices by the patients with diabetes, resulting in reduction of burden that occurs due to its complications.

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