

## Self-Care Practices Regarding Eating Habits, Knowledge of Diet and Exercise for Type II Diabetic Patients

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### KEYWORDS

Practices Regarding Eating, Knowledge of Diet

### ABSTRACT

Background: Diabetes is an incurable condition. Adopting lifestyle modifications, including dietary adjustments and regular physical activity, plays a crucial role in effectively managing type-2 diabetes (T2DM) and preventing its potential long-term consequences. The aim of this article is to assess sociodemographic characteristics and self-care practices with eating habits patterns among T2DM. **Materials and Methods:** The study chose a cross-sectional design, and the non-probability (purposive) method was used to identify participants. The total sample consisted of 150 participants who suffer from type 2 diabetes and who have patient records and files within the Diabetes Center at Marjan Medical City from June 20th, 2023, to November 10th, 2023. Results: The study findings indicated that the study showed good knowledge at Mean± SD= 2.35±0.046. , according to their levels of education the significance at (p<0.024 ). **Results:** The study results indicate that the patients' adherence increased as the education levels increased and vice versa. while the study showed partial adherence to diet and exercises at Mean± SD= 1.55±0.17 as well the study also found a highly significant association between the self-care practice for patients regarding the diet and exercise and some sociodemographic variables such as education levels, at a statistically significant level (p < 0.006). **Conclusion:** According to the results, the study concluded There was partial adherence to diet and exercise among patients with type II diabetes. However, factors such as the educational status of participants were found to influence the chance to self-care practice recommendations.

### 1. Introduction

Diabetes mellitus (DM) is a complicated, long-term, no communicable disease linked to problems with protein, lipid, and glucose metabolism. [1] The condition is characterized by elevated blood glucose levels brought on by either ineffective insulin secretion or action, or by both, and gradual death of beta cells. DM comes in various forms, such as gestational DM, type 2 DM (T2DM), and type 1 DM (T1DM).[2] Throughout the world, one of the most prevalent metabolic diseases is type 2 diabetes mellitus (T2DM). The main cause of type 2 diabetes is the tissues that are insulin-sensitive not being able to react to insulin. [3] Worldwide, obesity, a sedentary lifestyle, and ongoing use of diets high in refined carbohydrates and sugar-sweetened beverages are the main causes of type 2 diabetes.[4] The objectives of self-care practices in the treatment of type 2 diabetes are to attain ideal metabolic regulation and blood glucose levels that are within or as close to normal as is safe for the patient.[5] It was discovered that, on average, individuals with type 2 diabetes consume about the same amounts of macronutrients as the general population: 45–60% of their calories come from carbohydrates, with the remaining calories coming from fat and protein.[6] T2DM and obesity are regarded as global public health concerns, and there is a strong correlation between their incidence rates. [7] Eating habits and cultural, social, economic, and psychological variables that are gradually incorporated into a person's daily routine have been proven to be strongly correlated.[8] Restricting carbs is a highly researched therapeutic option for type 2 diabetes. This is due to the fact that carbs have the biggest impact on BG and insulin levels among all the macronutrients. [9] The silent disease that diabetes is until organ damage happens. Diabetes self-care is lacking, from preventative treatment to at-home practices including exercise, a balanced diet, and medication adherence. Medication compliance is increased and disease complications are decreased when patients' knowledge about diabetes, its complications, and self-care is evaluated. [10] The International Diabetes Federation indicated that diabetes is a critical health issue. People with diabetes mellitus (DM) face chronic hyperglycemia, which can lead to a variety of complications.[11] Diabetes self-care entails following a prescribed diet, exercising, and self-monitoring blood glucose (SMBG). Life cycle modifications and self-care techniques are also taken into account. Glycemic control is one of the self-care practices that are essential to good diabetes

management and both short- and long-term results. Clinical guidelines place a strong emphasis on SMBG, nutrition, exercise, and adherence.[12] Nutrient distribution should be determined by an individual assessment of eating habits, preferences, and metabolic goals; the Action for Health in Diabetes trial found that 8.6% weight loss reduced HbA1c considerably in diabetes mellitus patients after one year. [13] Insulin resistance and pre-diabetes can often be prevented and treated with a healthy diet and increased physical activity, which essentially stops the illness from ever starting. Nonetheless, compared to healthy individuals, type 2 diabetics should follow different guidelines for physical exercise. [14].

## 2. Methodology

This cross-sectional study was conducted at the Diabetes and Endocrine Diseases Center in Murjan Teaching Hospital in Babel Governorate, Iraq. The study was performed during the period from June 20th, 2023, to November 10th, 2023. An opportune sample of 150 patients, either sex with T2DM, were included, and all adult patients above 18 years with T2DM were involved. centre was based on the following criteria: 1. The centre received all adult patients with endocrine problems and diabetes mellitus for treatment and follow-up. 2. It is the only diabetic centre in Hilla City. 3. A large number of patients attended this center which facilitates data the process of collection completion within a limited period.

## Ethical consideration

Ethics committee approval was obtained with the decision of Babylon University, Nursing College Ethics Committee as well as the Babylon Health Directorate to obtain official permission to carry out the study After that verbal consent was obtained from the patients, and data were gathered through face-to-face interview method.

## 3. Result and Discussion

The results of (**Table 1**) diabetic patients' ages show that most of the group samples ranged from 30 to 39 years. Sex-related results showed that males predominated, accounting for 60.7% of the total; concerning education, the distribution of findings in the study as Institute and above was (31.3%),. Regarding marital status, they were married and constituted (78.0% ), and nuclear families constituted about (78.7%). The majority of participants in the study were employed, constituted (62.7% and 60.7% residents in urban area. The table(2) demonstrates how well the participants understood how food and exercise fit into the management of type 2 diabetes. In other words, 40% of respondents agreed that following exercise guidelines could help diabetic patients' circumstances. Nevertheless, 24.0% of those surveyed said they were unaware that diabetes could get better with exercise. Furthermore, the majority of participants expressed that abandoning the recommended eating plan might not have a positive impact on their health. In the same way, 44.7% of respondents concurred that consuming foods one should avoid can worsen their illness. Table (3) illustrates the overall assessment of the patients' knowledge regarding self-care to diet and exercises. The study results indicate that 47.3% of the patients have a good knowledge with a mean 2.35 and standard deviation 0.46. Table (4) illustrates the dietary customs and patterns of patients with type II diabetes mellitus. The study results indicate that the patients with type II diabetes take Consumption of carbohydrate-rich foods daily. For example, bread and potatoes fall under the category of carbohydrates, while fruits and vegetables are classified as fruits and vegetables. E.g., bananas, apples, oranges, onions, cabbage, and protein-rich foods. For example, dairy goods such as milk, eggs, meat, and fish. They seldom consume beverages and sugary foods. Examples include carbonated drinks, confectionery, and high-fat foods and oils. For example, items such as cakes, pies, biscuits, and any dishes cooked in oil, butter, or fried are avoided. Table (5) illustrates the difference in self-care according to their levels of education. The study results indicate that the patients' adherence increased as the education levels increased and vice versa. Table (6) illustrates the "association between the Patients' Self-care and their levels of knowledge. The analysis's findings show a significant association between the Patients' Self-care" and their knowledge at a p-value below 0.05.

Table (1) presents the demographic characteristics of the study sample.

| Qualities of the Demographics | Rating and intervals      | Frequency | Percent |
|-------------------------------|---------------------------|-----------|---------|
| <b>Age</b>                    | <20 years                 | 6         | 4.0     |
|                               | 20-29 year                | 38        | 25.3    |
|                               | 30-39 years               | 39        | 26.0    |
|                               | 40 - 49 years             | 37        | 24.7    |
|                               | 50 -59 years              | 30        | 18.2    |
| <b>Sex</b>                    | Male                      | 91        | 60.7    |
|                               | Female                    | 59        | 39.3    |
| <b>Levels Of Education</b>    | Unable to read and write  | 20        | 13.3    |
|                               | Read and write            | 18        | 12.0    |
|                               | Primary School Graduate   | 32        | 21.3    |
|                               | Secondary School Graduate | 33        | 22.0    |
|                               | Institute and above       | 47        | 31.3    |
| <b>Marital Status</b>         | Single                    | 21        | 14.0    |
|                               | Married                   | 117       | 78.0    |
|                               | Divorced                  | 8         | 5.3     |
|                               | Widowed                   | 2         | 1.3     |
|                               | Separated                 | 2         | 1.3     |
| <b>Family Type</b>            | Nuclear                   | 118       | 78.7    |
|                               | Extend                    | 29        | 19.3    |
|                               | Others                    | 3         | 2.0     |
| <b>Occupation</b>             | Employ                    | 94        | 62.7    |
|                               | Unemployed                | 26        | 17.3    |
|                               | Retired                   | 24        | 16.0    |
|                               | House wife                | 6         | 4.0     |
| <b>Residency</b>              | Urban                     | 91        | 60.7    |
|                               | Rural                     | 59        | 39.3    |

Table (2) The Knowledge of patients with diabetes about self-care regarding(diet and exercise).

| No | Patient knowledge.                                                                      | Scale    | F   | %    | M.S  | S.d.  | Assessment     |
|----|-----------------------------------------------------------------------------------------|----------|-----|------|------|-------|----------------|
| 1  | Continually exercising can help diabetes patients' conditions.                          | No       | 36  | 24.0 | 2.16 | 0.786 | Fair knowledge |
|    |                                                                                         | Not sure | 54  | 36.0 |      |       |                |
|    |                                                                                         | Yes      | 60  | 40.0 |      |       |                |
|    |                                                                                         | Total    | 150 | 100  |      |       |                |
| 2  | It might not be possible to improve if the recommended dietary regimen plan is ignored. | No       | 41  | 27.3 | 2.17 | 0.833 | Fair knowledge |
|    |                                                                                         | Not sure | 42  | 28.0 |      |       |                |
|    |                                                                                         | Yes      | 67  | 44.7 |      |       |                |
|    |                                                                                         | Total    | 150 | 100  |      |       |                |
| 3  | The normal value of fasting blood sugar is 80-120 mg/dl.                                | No       | 25  | 40.0 | 2.40 | 0.760 | Good knowledge |
|    |                                                                                         | Not sure | 40  | 14.0 |      |       |                |
|    |                                                                                         | Yes      | 85  | 46.0 |      |       |                |
|    |                                                                                         | Total    | 150 | 100  |      |       |                |
| 4  | Your health will suffer if you consume foods that you should avoid due to your illness  | No       | 24  | 16.0 | 2.46 | 0.756 | Good knowledge |
|    |                                                                                         | Not sure | 33  | 22.0 |      |       |                |
|    |                                                                                         | Yes      | 93  | 62.0 |      |       |                |
|    |                                                                                         | Total    | 150 | 100  |      |       |                |
| 5  | Improved general understanding of diet and exercise could help patients                 | No       | 21  | 14.0 | 2.51 | 0.730 | Good knowledge |
|    |                                                                                         | Not sure | 32  | 21.3 |      |       |                |
|    |                                                                                         | Yes      | 97  | 64.7 |      |       |                |

|    |                                                                                              |              |     |      |      |       |                |
|----|----------------------------------------------------------------------------------------------|--------------|-----|------|------|-------|----------------|
|    | make consistent changes and become more conscious of their health.                           | <i>Total</i> | 150 | 100  |      |       |                |
| 6  | You believe that managing diabetes requires a healthy diet and nutrition.                    | No           | 25  | 16.7 | 2.46 | 0.765 | Good knowledge |
|    |                                                                                              | Not sure     | 31  | 20.7 |      |       |                |
|    |                                                                                              | Yes          | 94  | 62.7 |      |       |                |
|    |                                                                                              | <i>Total</i> | 150 | 100  |      |       |                |
| 7  | Eating food in large quantities is harmful to you, so it should be eaten in small quantities | No           | 24  | 16.0 | 2.34 | 0.740 | Good knowledge |
|    |                                                                                              | Not sure     | 51  | 34.0 |      |       |                |
|    |                                                                                              | Yes          | 75  | 50.0 |      |       |                |
|    |                                                                                              | <i>Total</i> | 150 | 100  |      |       |                |
| 8  | Diabetes can cause weight changes, retinal damage, weight loss, slow healing of wounds.      | No           | 24  | 16.0 | 2.39 | 0.749 | Good knowledge |
|    |                                                                                              | Not sure     | 44  | 29.3 |      |       |                |
|    |                                                                                              | Yes          | 82  | 54.7 |      |       |                |
|    |                                                                                              | <i>Total</i> | 150 | 100  |      |       |                |
| 9  | Diabetes can damage eyes.                                                                    | No           | 25  | 16.7 | 2.43 | 0.763 | Good knowledge |
|    |                                                                                              | Not sure     | 35  | 23.3 |      |       |                |
|    |                                                                                              | Yes          | 90  | 60.0 |      |       |                |
|    |                                                                                              | <i>Total</i> | 150 | 100  |      |       |                |
| 10 | Since receiving your diabetes diagnosis, has your lifestyle changed?                         | No           | 41  | 27.3 | 2.25 | 0.861 | Fair knowledge |
|    |                                                                                              | Not sure     | 30  | 20.0 |      |       |                |
|    |                                                                                              | Yes          | 79  | 52.7 |      |       |                |
|    |                                                                                              | <i>Total</i> | 150 | 100  |      |       |                |

(Good knowledge (Mean 2.34 And more). (Fair knowledge (Mean 1.67-2.33). (Poor knowledge (1-1.66))

Table (3) Overall Assessment of Patients' Knowledge

| Levels of Patients' Knowledge | Frequency | Percent | Overall Mean and Standard Deviation | Assessment |
|-------------------------------|-----------|---------|-------------------------------------|------------|
| Poor                          | 13        | 8.7     | 2.35 (0.46)                         | Good       |
| Fair                          | 66        | 44.0    |                                     |            |
| Good                          | 71        | 47.3    |                                     |            |
| Total                         | 150       | 100.0   |                                     |            |

Table (4) Assessment of Patients' Eating Habit and Patterns.

| Eating Customs and Patterns                                                                        | Rating           | Frequency | Percent |
|----------------------------------------------------------------------------------------------------|------------------|-----------|---------|
| Carbohydrate-rich foods. E.g. bread, potatoes                                                      | Once a week      | 27        | 18.0    |
|                                                                                                    | 2-3 times a week | 25        | 16.7    |
|                                                                                                    | Every day        | 81        | 54.0    |
|                                                                                                    | Rarely           | 12        | 8.0     |
|                                                                                                    | Never            | 5         | 3.3     |
|                                                                                                    | Total            | 150       | 100.0   |
| Drinks and high-sugar meals. such as chocolates, soft drinks, and candies.                         | Once a week      | 17        | 11.3    |
|                                                                                                    | 2-3 times a week | 30        | 20.0    |
|                                                                                                    | Every day        | 31        | 20.7    |
|                                                                                                    | Rarely           | 44        | 29.3    |
|                                                                                                    | Never            | 28        | 18.7    |
|                                                                                                    | Total            | 150       | 100.0   |
| Vegetables and fruits. such as apples, bananas, oranges, onions, and cabbage.                      | Once a week      | 11        | 7.3     |
|                                                                                                    | 2-3 times a week | 50        | 33.3    |
|                                                                                                    | Every day        | 54        | 36.0    |
|                                                                                                    | Rarely           | 22        | 14.7    |
|                                                                                                    | Never            | 12        | 8.0     |
|                                                                                                    | 33               | 1         | .7      |
| Foods high in protein. Fish, meat, eggs, and milk products are a few examples.                     | Once a week      | 14        | 9.3     |
|                                                                                                    | 2-3 times a week | 41        | 27.3    |
|                                                                                                    | Every day        | 52        | 34.7    |
|                                                                                                    | Rarely           | 26        | 17.3    |
|                                                                                                    | Never            | 17        | 11.3    |
|                                                                                                    | Total            | 150       | 100.0   |
| Oils and foods high in fat. cakes, pies, biscuits, fried dishes, and anything using oil or butter. | Once a week      | 24        | 16.0    |
|                                                                                                    | 2-3 times a week | 24        | 16.0    |
|                                                                                                    | Every day        | 28        | 18.7    |
|                                                                                                    | Rarely           | 38        | 25.3    |
|                                                                                                    | Never            | 36        | 24.0    |
|                                                                                                    | Total            | 150       | 100.0   |

Table (5) Mean Difference in Patients' self-care according to their Levels of Education

| Main Studied Domains        | Level of Education         | N   | Mean Rank | Chi-square Value | d.f. | P-value  |
|-----------------------------|----------------------------|-----|-----------|------------------|------|----------|
| Overall Patients' Adherence | Illiterate                 | 20  | 55.25     | 11.22            | 4    | *0.024 S |
|                             | Both read and write        | 18  | 61.22     |                  |      |          |
|                             | Elementary School Graduate | 32  | 82.22     |                  |      |          |
|                             | Secondary School Graduate  | 33  | 90.82     |                  |      |          |
|                             | Institute and above        | 47  | 74.26     |                  |      |          |
|                             | Total                      | 150 |           |                  |      |          |

Table (6) Relationship Between Patients' Adherence and Their Knowledge

| Main Studied Domain | Levels | Overall Patients' self-care |                     |           | Chi-S. V | D.F. | P-Value |
|---------------------|--------|-----------------------------|---------------------|-----------|----------|------|---------|
|                     |        | Non-Adherence               | Partially Adherence | Adherence |          |      |         |

|                             |      |   |     |    |        |   |             |
|-----------------------------|------|---|-----|----|--------|---|-------------|
| Overall Patients' Knowledge | Poor | 0 | 13  | 0  | 12.235 | 4 | *0.016<br>S |
|                             | Fair | 6 | 50  | 10 |        |   |             |
|                             | Good | 3 | 45  | 23 |        |   |             |
| Total                       |      | 9 | 108 | 33 |        |   |             |

## Discussion

Discussion of the Socio-Demographic Characteristics of patients with Diabetes Mellitus Type II at Diabetes Center. Regarding the age distribution of diabetic patients, it was found that 25% of the study group were within the age range of 30-39 years. In more prosperous societies, the onset of type 2 diabetes often occurs in the medium to older age groups. However, in developing nations, the prevalence of cases is higher among young and middle-aged individuals due to the younger age distribution of the population. In terms of gender, males have a significant presence in the study, making up 60.7% of the total. In terms of gender, males dominate the survey, making up 60.7% of the total. This can be ascribed to the men's proactive approach to achieving excellent health, resulting in the number of males seeing medical care for diabetes mellitus. This finding contradicts the findings of a survey conducted by Al-Mansour (2020) in Al-Majmaah City, Saudi Arabia. The study revealed that the majority of individuals in various age categories were 40 years old and above, with females comprising the largest proportion (34.9%) of the participants [14]. Concerning the level of education, the findings of the current study indicated that the Institute and above educational level was one-third. This variable is crucial in such studies because it affects the patient's cognition and perception, how they recognize the real prognosis of their disease condition, and the follow-up and update of their information. This result agrees with the study by Jenkins, David JA, et al. (2024). The Lancet Diabetes & Endocrinology., which indicates that the highest percentages had a basic educational level (Institute and above) demonstrates how well the participants understood how food and exercise fit into the management of type 2 diabetes [15]. In other words, Two-fifths of respondents agreed that following exercise guidelines could help diabetic patients' circumstances. Nevertheless, One-quarter of those surveyed said they were unaware that diabetes could get better with exercise. Furthermore, the majority of participants expressed that abandoning the recommended eating plan might not have a positive impact on their health. In the same way, 44.7% of respondents concurred that consuming foods one should avoid can worsen their illness. Additionally, findings obtained from certain studies conducted in Ghana (2022) Demonstrate that participants had a very high level of understanding importance of food & physical exercise and the management of (T2DM). overall assessment of the patient's knowledge regarding their self-care regarding diet and exercise [16].

This study assessed the patient's general knowledge on their adherence to diet and activity. The study findings indicate that fewer than 50% of the patients possess adequate knowledge, with an average of 2.35 and a standard deviation of 0.46. According to the researcher, the high level of knowledge observed among diabetes patients at the diabetes Centre in Merjan Medical City can be ascribed to the regular teaching they receive during the diabetic clinic days. These results agree with the study by Othman (2022) in Erbil Iraq, which reported that most patient's knowledge at post-test with Study Groups was at a good level of knowledge. More than half of all study participants reported eating carbohydrates, fruits, vegetables, and protein daily. The consumption of such foods can be attributed to factors such as the accessibility of these foods and the financial means to acquire them, as well as their superior taste and the convenience and efficiency they offer in terms of preparation., or it may be due to the benefits that these foods contain to treat other diseases common to diabetes, such as the fact that some carbohydrates contain fibre[17]. Similar results were described in the study by Duda et al., (2021) who found that most participants daily consumed carbohydrates such as white bread and white rice. Participants described that their diet consisted mostly of carbohydrates, proteins, fruits and vegetables and rarely consumed sugary and fatty foods[18]. According to the difference in the patient's adherence to their levels of education using the Kruskal Wallis Test. The study results indicate a significant difference in p.value (0.024) of less than 0.05 in patients' self-care according to their adherence increased as the education levels increased and vice versa. In a study conducted by



Mirowsky & Ross, (2015). where the results are consistent with the results of our current study, as research has demonstrated that education offers numerous distinct advantages and valuable assets that typically postpone the development of chronic ailments like diabetes [19].

#### 4. Conclusion and future scope

According to the results, the study concluded There was partial adherence to diet and exercise among patients with type II diabetes. However, factors such as the educational status of participants were found to influence the chance to self-care practice recommendations.

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