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Knowledge, attitude and practice regarding diabetes mellitus among diabetic patients

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Abstract

Inadequate regulation of blood glucose levels results in diabetes mellitus (DM). Among its many subclassifications are type 1, type 2, gestational diabetes, newborn diabetes, maturity-onset diabetes of the young (MODY), and steroid-induced diabetes. Although both type 1 and type 2 DM subtypes can cause hyperglycemia, they differ in their origin, presentation, and course of treatment. This observational study was performed at a medical center, and an online questionnaire was sent to the patients and also random patients and some relatives in the hospital ward. Randomly select diabetic patients who will attend Imam Hassan medical center for Endocrine and diabetes mellitus, Kerbala. Information will fill in the designed questionnaire. 100 participants were included in this study. Females made up 62%, the majority of participants were 20-29 years old (43%). Regarding the educational level, those who were in college and had bachelors and above were (63%). The majority of participants were unemployed (51%), and those who lived in urban areas was (79%). The result showed that participants had good knowledge. Also, the findings indicated that participants had a moderate mean of attitude and practice. The study's findings demonstrated that patients' attitudes, practices, and understanding on T2DM are inadequate. The mean of 0.72 indicated that all participants had good knowledge levels. Attitude and practice of participants among DM in this study were moderate with a mean (0, 59, 0.63).

Keywords: Diabetes education, patient attitudes, health practices, blood sugar control, self-management, chronic disease awareness

Introduction

Diabetes mellitus (DM) is the consequence of inadequate blood glucose management. Type 1, type 2, infant diabetes, maturity-onset diabetes of the young (MODY), and steroid-induced diabetes are a few of its numerous subclassifications. Although both type 1 and type 2 DM subtypes can cause hyperglycemia, they differ in their origin, presentation, and course of treatment. This exercise covers the diagnosis, evaluation, and treatment of diabetic mellitus (DM) and highlights the role that the interprofessional team plays in providing patient care [1]. 0% of persons with diabetes mellitus (DM) have type 2 diabetes (T2DM), which affects almost one in eleven adults globally [2]. Gradually, T1DM increases from infancy and peaks between the ages of 4 and 6 as well as between 10 and 14 [3]. Children under the age of ten make up little less than half (45%) of the arrivals [4]. The incidence is roughly 2.3 per 1000 people under 20. An autoimmune process often causes the pancreatic beta cells to be destroyed in patients with type 1 diabetes. As a result, Since all of the beta cells are gone, the body either generates very little or no insulin [7]. A subtler form of T2DM development is an insulin functional deficit caused by an imbalance between insulin sensitivity and levels. While there are a number of causes of insulin resistance, aging and obesity are the most common ones [8]. Polyuria and polyphagia, weight loss without exerting effort. Also becoming worn out and feeling fatigued, irritated, or experiencing another mood swing, and getting recurrent infections [9]. It is possible for someone with diabetes to have symptoms of hyperglycemia. DM frequently results from a combination of causes, hence its pathophysiology may not be entirely understood. Insulin release from pancreatic beta cells can be hampered by hyperglycemia. Hyperglycemia thus produces an infinite loop that affects metabolic activity.

In this context, hyperglycemia does not have a defined threshold, however levels of blood glucose greater than 180 mg/dL are commonly considered to be high ^[10]. Insulin resistance is caused by excessive fatty acids and pro-inflammatory cytokines, which accelerates the breakdown of fat and inhibits glucose delivery. When there is insufficient response to the production of insulin, the body reacts by mistakenly increasing glucagon, which exacerbates the occurrence of hyperglycemia. Although insulin resistance is a component of type 2 diabetes, the illness's full severity develops when a patient's insulin manufacturing is inadequate to compensate for their insulin resistance ^[11]. Additionally, complications of this disease including cardiovascular disease, diabetic neuropathy, a nerve injury associated with diabetes, nausea, vomiting, diarrhea, or constipation, diabetic nephropathy, a kidney condition associated with diabetes, kidneys' glomeruli, raise the risk of many foot problems oral and skin ailments, impaired hearing, alzheimer's condition ^[13]. The purpose of this study is to evaluate diabetic patients' knowledge, attitudes, and practices regarding DM since it is a crucial indicator of diabetes care.

Methodology

This observational study included 100 Diabetics patients collected between August 2022 and May 2023. Some of the patients were randomly selected from the outpatient clinic in Immam Hassan Diabetic and endocrine center in Kerbala, the other participants were diabetic patients admitted to Alhussain teaching hospital, some relatives in the pediatric teaching hospital, and also an online questionnaire was sent to the other patients, then designed questionnaires were filled in. This research project is accomplished during the academic study year.

Statistical analysis

Patients information's were recorded in the excel worksheets and then SPSS. The data placing as symbols that represent it. The steps that we did are encoding the data,

putting data in the program, choosing the appropriate form, and testing and analyzing the data and defining the variable data to be analyzed and achieving the statistics process. Analyzing and scoring the responses to knowledge, attitude, and practice questions. Then Data were reported as mean \pm standard deviation. Then we have done the statistical work by IBM SPSS version 21.

Ethical approval

The study was approved by the human ethics committee of Immam Hassan Diabetic and endocrine center in Kerbala, Alhussain teaching hospital and pediatric teaching hospital Everyone who took part in the study was told about it and asked to sign a consent form. The patient was also guaranteed that his information would be kept private.

Results

Demographic Characteristics of Participants

100 participants were included in this study, Females made up 62% and male (38%). With age ranging from 20 to 60. Majority of participants were the ages of 20–29 (43%), 30–39 (12%), 40–49 years (13%) and >50 years was (32%). As regards educational levels those who were in college and had bachelor's or and above were (63%) while those with a secondary certificate were (21%), primary certificate (12%) and illiterate (4%). The majority of participants were unemployed (51%). Those who live in urban area was (79%) while those in rural area (21%). Table 1 summarizes the sociodemographic information and key clinical information of the sample.

Knowledge and attitudes towards diabetes management

We found that participants with normal BMI were (36%), overweight (33%), obese I (17%) and obese II (11%). Smoking percentage was (79%). Participants answered questions about their knowledge of diabetes mellitus. The outcome demonstrated the participants' good level of understanding.

Table 1: Gender, Age, Education, Employment, Setting, and Maternal Status Distribution

Variables	Categories	Frequencies	Percentage %
Gender	Male	62	62
	Female	38	38
Age group	20-29 years	43	43
	30-39 years	12	12
	40-49 years	13	13
	50-60 years	32	32
Level of education	Illiterate	4	4
	Primary certificate	12	12
	Secondary certificate	21	21
	College & above	63	63
Job	Employed	49	49
	Unemployed	51	51
Setting	Urban	79	79
	Rural	21	21
Maternal status	Single	37	37
	Married	50	50
	Divorced	4	4
	Widow	9	9

Attitudes of study participants towards diabetes mellitus: Participants in the current study provided information about their attitudes toward diabetes mellitus.

The findings indicated that participants had a moderate mean of attitude.

Table 2: Survey Results on Understanding, Beliefs, and Practices Related to Diabetes Care

Variables	Categories	Frequency	Percentage %	Mean
True definition about diabetes millets	Yes	80	80	0.86
	Not sure	12	12	
	No	8	8	
The normal range of glucose in blood was 70-100	Yes	53	53	0.7
	Not sure	34	34	
	No	13	13	
The normal HbA1c was below 5.7%?	Yes	56	56	0.715
	Not sure	31	31	
	No	13	13	
Do you inject insulin well	Yes	35	35	0.625
	Not sure	65	65	
	No	0	0	
Is diabetes hereditary?	Yes	59	59	0.735
	Not sure	29	29	
	No	12	12	
Is diabetes possible to cause damage to other organs	Yes	84	84	0.895
	Not sure	11	11	
	No	5	5	
Does it cause complications?	Yes	92	92	0.95
	Not sure	6	6	
	No	2	2	
Does regular exercise have a positive effect on the disease?	Yes	58	58	0.76
	Not sure	36	36	
	No	6	6	
Does eating salts a lot have a positive effect on the disease?	Yes	4	4	0.165
	Not sure	25	25	
	No	71	71	
Does eating too much sugar have a positive effect on the disease?	Yes	8	8	0.91
	Not sure	3	3	
	No	89	89	
Does smoking have a positive effect on the disease?	Yes	3	3	0.86
	Not sure	23	23	
	No	74	74	
Diabetes medication can manage the disease	Yes	4	4	0.165
	Not sure	25	25	
	No	71	71	
Diabetes medications must be taken for life	Yes	69	69	0.815
	Not sure	25	25	
	No	6	6	
You should stop taking medications when you do not feel ill	Yes	11	11	0.81
	Not sure	16	16	
	No	73	73	
Lack of control over diabetes has a significant impact on the appearance of complications	Yes	81	81	0.89
	Not sure	16	16	
	No	3	3	
Eating less bread helps to lose weight	Yes	74	74	0.815
	Not sure	15	15	
	No	11	11	
Diabetes medications can cause swollen feet.	Yes	33	33	0.54
	Not sure	42	42	
	No	25	25	
Foot ulcers are prevalent in diabetics	Yes	61	61	0.745
	Not sure	27	27	
	No	12	12	
Diabetics have a lack of blood supply to the feet	Yes	42	42	0.64
	Not sure	44	44	
	No	14	14	
Exercise has an important effect for diabetics	Yes	65	65	0.765
	Not sure	23	23	
	No	12	12	
Physical work and sports have a role in weight loss and sugar regulation	Yes	90	90	0.93
	Not sure	6	6	
	No	4	4	
Factors that worsen diabetes (high blood pressure, epilepsy and excess weight)	Yes	57	57	0.68
	Not sure	22	22	
	No	21	21	
Mean				0.72

Table 3: Perspectives on Blood Sugar Control, Treatment Options, and Personal Impact of Diabetes

Variables	Categories	Frequency	Percentage %	Mean
Do you think that controlling blood sugar is necessary for diabetics?	Yes	91	91	0.94
	Not sure	6	6	
	No	3	3	
Do you think that regular exercise helps control diabetes?	Yes	56	56	0.7
	Not sure	29	29	
	No	15	15	
Do you think smoking impairs blood sugar control?	Yes	48	48	0.66
	Not sure	36	36	
	No	16	16	
Do you think that controlling blood pressure is necessary in controlling? Blood sugar?	Yes	44	44	0.625
	Not sure	33	33	
	No	23	23	
Do you think alternative treatments are good?	Yes	38	38	0.52
	Not sure	28	28	
	No	34	34	
Do you believe that good blood sugar control is important for diabetes?	Yes	94	94	0.96
	Not sure	4	4	
	No	2	2	
Do you think that the diet to control blood sugar is better than Diet with dope?	Yes	49	49	0.545
	Not sure	11	11	
	No	40	40	
Do you think fruits and vegetables are good for controlling sugar in Blood?	Yes	57	57	0.67
	Not sure	20	20	
	No	23	23	
Do you think alcohol increases the complications of the disease?	Yes	50	50	0.68
	Not sure	36	36	
	No	14	14	
Do you think that insulin has harmful effects on the organs of the body?	Yes	38	38	0.52
	Not sure	30	30	
	No	32	32	
Do you think that traditional treatments are better than modern treatments for diabetes?	Yes	30	30	0.42
	Not sure	24	24	
	No	46	46	
Do you think diabetes has an impact on your mood, behavior, personality?	Yes	59	59	0.645
	Not sure	11	11	
	No	30	30	
I don't like being badged as a diabetic	Yes	43	43	0.495
	Not sure	13	13	
	No	44	44	
Diabetes is the worst thing that ever happened to me in my life.	Yes	43	43	0.495
	Not sure	13	13	
	No	44	44	
Most people find it difficult to cope with diabetes.	Yes	67	67	0.77
	Not sure	20	20	
	No	13	13	
There is little hope of living a normal life with the disease	Yes	53	53	0.61
	Not sure	16	16	
	No	31	31	
Good control of diabetes requires a lot of sacrifice and lack of sacrifice comfort	Yes	50	50	0.58
	Not sure	16	16	
	No	34	34	
I avoid telling people that I have diabetes.	Yes	34	34	0.39
	Not sure	10	10	
	No	56	56	
There is nothing you can do if you have diabetes	Yes	16	16	0.7
	Not sure	27	27	
	No	57	57	
Sometimes I find it unfair to have diabetes when Others are healthy.	Yes	28	28	0.66
	Not sure	12	12	
	No	60	60	
Mean				0.59

Table 4: Frequency of Vegetable Consumption, Monitoring, Medical Consultations, and Health Maintenance Activities

Variables	Categories	Frequency	Percentage%	Mean
Repeat eating vegetables	Daily	42	42	0.66
	2-3/ week	17	17	
	Weekly	7	7	
	Irregular	34	34	
Number of times cumulative glucose is measured	Monthly	5	5	0.81
	Every 3 months	34	34	
	Every 6 months	25	25	
	Yearly	36	36	
How often to consult a doctor about diabetes	Monthly	4	4	0.27
	Every 3 months	9	9	
	Every 6 months	12	12	
	Irregular	42	42	
Daily physical exercise	Yes	22	22	0.22
	No	78	78	
Commitment to medication/treatments	Yes	75	75	0.75
	No	25	25	
Control/maintain body weight	Yes	58	58	0.58
	No	42	42	
Check your blood sugar regularly	Yes	66	66	0.66
	No	34	34	
Cigarette smoking	Yes	36	36	0.64
	No	64	64	
Extra sugars/salts in regular diet	Yes	26	26	0.74
	No	74	74	
Drinking alcohol	Yes	0	0	1
	No	100	100	
Eat on time	Yes	35	35	0.35
	No	65	65	
Eye Care	Yes	68	68	0.68
	No	32	32	
Foot Care	Yes	80	80	0.8
	No	20	20	
Mean				0.63

Practices of Study Participants Regarding Diabetes Mellitus: According to the practice of diabetic patients, in this study it was found that they had moderate practice mean.

Discussion

In this study, it was discovered that the mean age was 30 ± 6.7 years. Females made up 62% of study participants, this result is similar (60%) to [14], whom females participate account for 60% compared to previous studies Alqurashi KA, *et al.*, 2011 [15], male made up 60%. As regards the age of participants in this study found that our participants were much younger than other studies as in Bani, Ibrahim A, *et al.*, 2015 [17], study found that the majority of participants were between 40-49 years compared to this study result that shows the majority of them were between 20-29 years. This study participant demonstrated good overall knowledge about DM and this result matches previous studies Abougalambou SI, *et al.*, 2019 [17], and Mohieldein AH, *et al.*, 2011 [12], And compared to Mahzari, Mohammad A., *et al.*, 2022 [14] and Al-Aboudi IS, *et al.*, 2016 [6]. It was found in this study that the score of practice and attitude was moderate and this result matches previous studies [14] and [6]. It was discovered that 80% of the study participants know the meaning of diabetes, and those who know the normal range (53%) and this result was almost similar to Alsalem, Mohammed A., *et al.*, 2018 [5], that show 85% of participants know diabetes and those with good knowledge about normal range (60%). In the present study. 89% of study participants had a good diet and less sugar eat, and

this result was almost similar to Al-Aboudi IS, *et al.*, 2016 [6]. According to the practice of study participants, 91% of them thought that is necessary to control blood sugar, and 94% believed that good blood sugar is important. Compared to Mahzari, Mohammad A., *et al.*, 2022 [14], only 35% of the participants in this study thought that is necessary to control blood sugar, and 44% believed that good blood sugar is important. In this study, only 22% of participants did physical exercise compared to other previous studies that show most of the participants believed that exercise had positive feedback to control blood sugar, Abougalambou SI, *et al.*, 2019 [17] and Mohieldein AH, *et al.*, 2011 [12]. Results showed that 80% of participants take care of their foot and this result match the result of Bani, Ibrahim A, *et al.*, 2015 [16]. Also, eye care is present in 68% of study participants and this result is almost similar to Abougalambou SI, *et al.*, 2019 [17].

Conclusion

The study results regarding patients' practice, attitude, and knowledge about T2DM show that all participants' knowledge levels were deemed to be good with a mean of 0.72. Attitude and practice of participants among DM in this study were moderate with a mean (0, 59, 0.63).

Conflict of Interest

Not available

Financial Support

Not available

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