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THE ASSESSMENT OF KNOWLEDGE, ATTITUDES AND PRACTICES REGARDING DIET AND EXERCISE AMONG TYPE 2 DIABETES MELLITUS PATIENTS IN DERNA, LIBYA

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ABSTRACT

Introduction: Diabetes mellitus is one of the prevalent chronic diseases that can be managed by life style modification. Disease can be controlled effectively by providing proper knowledge and awareness regarding disease. The lack of knowledge among the patients has been regarded as the major factor in disease propagation. The present study aims to assess the knowledge, attitude and practice of type II diabetic patients. **Objective:** to assess the knowledge, attitude and practice of type II diabetic patients attending governmental diabetes care unit in Derna city, Libya. **Methodology:** A cross- sectional study design was to conduct. Respondents were type 2 diabetes mellitus patients attending governmental diabetes care unit for regular follow-ups from May to July 2017. Data was collected using a questionnaire and analyzed by SPSS. **Results**: Among 80 patients 43 were male and 37 were female. Diabetes was more prevalent among people age of 35 to 75 years. Most of the patients had positive family history of Diabetes (60%). Majority of the patients had inadequate knowledge about disease (88.8%). 42.5% of patients had bad attitude. Only 4 (5.0%) of patients had good practices towards disease. Malepatients reported higher percentage of level of knowledge than female (X^2= 5.037, P= 0.026). **Conclusion:** The study shows that knowledge, attitude and practices of type 2 diabetes mellitus patients attending governmental diabetes care unit about the diet and exercises are generally low. The study shows that male patients reported higher knowledge percentage than females (18.6% and 2.7%, respectively, p=0.026). There is no significant relation between attitude and practice and their personal characteristics.

INTRODUCTION

Diabetes mellitus is a major emerging clinical and public health problem. According to WHO estimates in 2007, 190 million people suffer from diabetes world-wide and about 330 million are expected to be diabetic by the year 2025.[1] Diabetes mellitus has become a cause of growing public health concern in developing countries, as it has been for a long time in the most developed ones.[2]

Diabetes mellitus (DM) is a chronic disease that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces. Insulin is a hormone that regulates blood sugar.[3] The common effect of uncontrolled diabetes over time causes many complications especially the nerves and blood vessels. In 2012, diabetes was the direct cause of 1.5 million deaths and high blood glucose was the cause of another 2.2 million deaths worldwide. It is now a leading cause of morbidity and mortality throughout the world; it is associated with high rates of hospitalization, blindness, renal failure and non-traumatic amputation.[4]

The classification of diabetes mellitus given by the Report of the Expert Committee on the Diagnosis and Classification of Diabetes Mellitus in 1997 is universally adopted. Type 1 diabetes appears as a result of autoimmune destruction of beta cells or may be idiopathic. The more common type 2 DM, affecting mostly adults manifests as a result of insulin resistance. The other specific types are impaired fasting glucose (IFG), impaired glucose tolerance (IGT), gestational diabetes and some genetic defects of Beta cells. The glycosylated hemoglobin (A1c) is one of the best indicators of diabetes control.[5]

The prevalence of type 2 is expected to increase, making type 2 DM a pandemic.[6] The reasons for the increase in the prevalence of diabetes mellitus in developing countries may include unhealthy lifestyle, rapid westernization, poor knowledge, negative attitude and poor practices towards DM among the general population. There exists a large gap between the knowledge, attitude and practice towards diabetes among diabetic patients.[7] Knowledge about diabetes mellitus,

appropriate attitude and practices are vital to reduce the prevalence and morbidity associated with DM.[8]
Diet and exercise play an important role in maintaining normal blood glucose level and prevention of complications in diabetic patients. Most of the diabetic patients do not have enough knowledge about their diet plan and exercise which play an important role in controlling normal blood sugar level. A diabetic diet simply means, eating the healthiest food in moderate amounts at regular mealtimes. It is naturally rich in nutrients and low in fat and calories, the key elements are fruits, vegetables and whole grains, fish, chicken and eggs etc. In fact, a diabetes diet plan is the best eating plan for every diabetic patient.[9]

AIM

This study was conducted to assess the knowledge, attitude and practice regarding diet and exercise among type 2 diabetes mellitus patients attending governmental diabetes care unit in Derna city in Libya.

METHODS

A cross-sectional study conducted among type 2 diabetes mellitus patients attending governmental diabetes care unit in Derna city for regular follow-ups from May to July 2017. Convenience sampling techniquewas used.

Data regarding patient's characteristics, knowledge, attitude and practices was collected through questionnaire derivedfrom the American Diabetes Association Diabetes Self Management Assessment Research Tool (D-SMART).[10] The questionnaire were administrated by thirdauthor. The patients filled the questionnaire. The questionnaire had 4 components: knowledge assessment, attitude assessment and practice assessment parts.

Statistical analyses

Data from the questionnaire was transferred to SPSS. Data Editor Software version 23 was used for analysis. Descriptive statistics, including percentage, mean, range and standard deviation. Chi-square test was performed and p value $\leq$ 0.05 were considered statistically significant.

Appropriate scoring was done for the assessment of knowledge, attitude and practice regarding diet and exercise among participants. Each correct answer = 1 mark; each incorrect answer = 0 mark. Minimum score was "0" and maximum score was 12 for knowledge questions, 9 for attitude questions, and 8 for practice questions.

Patients score 70% and above was taken as having good knowledge, attitude and practice less than was taken as having bad knowledge, attitude and practice.

RESULT

A total of 80 type 2 diabetic patients were included in this study. Their ages ranging from 35 to 75 years (mean 55.7±10.18), 43 (53.8%) were males and 37 (46.3%) were females. The majority of the patients were married (80%). Few 12.5% were illiterate and 48.8% were formal employment. Most of the patients had positive family history of diabetes(60%) (Table1).

Overall knowledge regarding diet and exercise was not very good whereas 71 (88.8%) of participants had poor knowledge while only 9 (11.3%) of participants had good knowledge. The highest level of knowledge was observed regarding what is diabetic diet, the importance of preparing food and content of diabetic diet 98%, 92.5% and 87.3% respectively, while the lowest level of knowledge was detected regarding which of the food is highest in carbohydrates and effect of unsweetened fruit juice on blood sugar 2.5% and 15% respectively (Table 2).

Concerning attitude, 46 participants (57.5%) had a good attitude towards the dietary management of DM and exercise, while 34 participants (42.5%) had bad attitude. Also, reveals that, 85.0% of participants considered dietary instructions should be written out even if the diabetic patient is illiterate. 68.8% of participants said the alcohol effect diabetic drugs. 62.5% of participants said diet and exercise are not as important as treatment in control of diabetes. The participants has been asked if the known what parts of controlling their diet, 55% said they satisfied, and 42.5% said they ready to change their diet.

However, 46.0% of the participants motivate themselves to managed diet and 42.0% of the participants make diet any choice that are. Also, 43.8% of the participants know the barriers to diet management as part of diabetes management (Table 3).

A practice regarding diabetes was very poor. Only 4 (5.0%) of participants had good practices, while 76 (95.0%) had bad practices. The participants has been asked if they skipping their meal in the past week, found 23.8% never skipping their meal, 23.8% skipping once following by 22.5% skipping their meal twice.

The participants have been asked if they overeaten in the past week, found 23.8% never, 21.3% overeaten once and 21.3% twice. The participants also have been asked if they ate high fat foods in the past week, observed equal percentage twice and three time (21.3%). The participants has been asked how able there are to fit dietary management into their life in a positive manner, found 23.8% had neutral practices. The result indicates 17.0% of participants reported involving their family in meal plan. Regarding control/ avoid sweet, or limit fatty food, 18.8% of participants reported very well. The participants also has been asked if they ate only that which is available, found 28.8% of participants had neutral practices.

The participants also has been asked if diabetes interfere with or prevent them from doing normal daily activities,

found 21.3% not it does not, while 2.5% much of the time. Regarding food and drinks taken in the last 24 hours, 67.5% of participants had healthy diet, while 32.5% of them had unhealthy diet **(**Table 4).

Attitude towards diet and exercise and with socio demographic characteristics. The result demonstrated that, none of these findings had statistical difference P>0.05. The distribution of the studied sample of the type II diabetes mellitus attending governmental diabetes care unit according to their practices towards diet and exercise and their socio demographic characteristics. The table demonstrated that, none of these findings had statistical difference P>0.05 (Table 5).

The result demonstrated that male patients reported higher percentage of level of knowledge than female (18.6%, 2.7% respectively), and level of knowledge difference was found to be statistically significant (X^2= 5.037, P= 0.026) (Table 6).

The study shows that male patients reported higher knowledge percentage than females (18.6% and 2.7%, respectively, p=0.026). And there is no significant relation between attitude and practice and their personal characteristics (Table 7).

Table 1: Personal characteristics of type II diabetes patients attending governmental diabetes care unit (n = 80).

Some personal characteristics	No	%
Age (year)		
35 – 45	18	22.5
46 – 55	23	28.8
56 – 65	25	31.3
66 – 75	14	
Gender		
Male	43	53.8
Female	37	46.3
Marital status		
Married	64	80
Single	1	1.3
Divorced	8	10.0
Widowed	7	8.8
Educational level		
Illiterate	10	12.5
Primary	11	13.8
Secondary	27	33.8
Tertiary	21	26.3
Postgraduate	11	13.8
Employment status		
Employment	39	48.8
Worker	5	6.3
Retire	23	28.8
Others	13	16.3
Is there any other family member with		
Yes	48	60
No	32	40

Table (2): Shown the distribution of knowledge of the study sample of type II diabetes patients attending governmental diabetes care unit regarding diet and exercise.

Items	Frequency	Percent
What effect docs unsweetened fruit juice have on your blood sugar?		
Lower it	21	26.2
Raises it	12	15.0
Has no effect	47	58.8
Which of these should not be used if you sense that your blood sugar is low?		
3 pieces of chocolate	1	1.3
Half a cup of orange juice	4	5.0
1 cup of soft drink(soda)	55	68.8
1 cup of full cream cow's milk	20	25.0
Which of the following is a free food?		
Any unsweetened food	8	10
Any diabetic food	51	63.8

Any food labeled sugar free	15	18.8
Which of the following is highest in fat?		
Low fat milk	31	38.8
Orange juice	1	1.3
Corn	43	53.8
Honey	5	6.3
Which of the following is highest in carbohydrates?		
Roasted chicken	3	3.8
Chocolate	2	2.5
Baked potato	64	80.0
Peanut butter (ground nut paste)	11	13.8
The diabetic diet is:		
A healthy diet for most people	79	98.7
Too high in carbohydrates for most people	1	1.3
Eating food low in fat reduces the diabetic patients' risk for:		
- Nerve disease	1	1.3
- Kidney disease	6	7.5
- Heart disease	57	71.3
- Eye disease	16	20.0
Eating too much sugar and other sweet foods is a cause of Diabetes mellitus?		
- Yes	55	68.8
- No	20	25.0
- I don't know	5	6.3
Medication is more important than diet and exercise to control my Diabetes ?		
- Yes	33	41.3
- No	43	53.8
The way I prepare my food is as important as the foods I eat .		
- Yes	74	92.5
- No	4	5.0
- I don't know	2	2.5
Diabetic diet consists of mainly specially prepared foods		
- Yes	70	87.5
- No	7	8.8
- I don't know	3	3.8
The diabetic diet is:		
- The way most Ugandans eat		
- A healthy diet for most people	79	98.0
- Too high in carbohydrates for most people	1	1.3
Eating food low in fat reduces the diabetic patients' risk for :		
- Nerve disease	1	1.3
- Kidney disease	6	7.5
- Heart disease	57	71.3
- Eye disease	16	20.0
Eating too much sugar and other sweet foods is a cause of Diabetes mellitus?		
- Yes	55	68.8
- No	20	25.0
- I don't know	5	6.3
Medication is more important than diet and exercise to control my Diabetes?		
- Yes	33	41.3
- No	43	53.8
The way I prepare my food is as important as the foods I eat .		
- Yes	74	92.5
- No	4	5.0
- I don't know	2	2.5
Diabetic diet consists of mainly specially prepared foods		
- Yes	70	87.5
- No	7	8.8
Maintaining a healthy weight isn't important in the management of diabetes.		
- Yes	23	28.8
- No	54	67.5
- I don't know	3	3.8

Table (3): The distribution of the study sample of type II diabetes patients attending governmental diabetes care unit according to their attitude regarding diet and exercise.

Items	Frequency	Percent
Dietary instructions should be written out even if the diabetic patient is illiterate. Someone at home should be available to interpret it for him/her.		
- Yes	68	85.0
- No	8	10.0
- Don't know	4	5.0
Being drunk while on diabetic drugs is not a serious problem		
- Yes	13	16.3
- No	55	68.8
- I don't know	12	15.0
Diet and exercise are not as important as treatment in control of Diabetes		
- Yes	24	30.0
- No	50	62.5
- I don't know	6	7.5
Know what parts of controlling my diet as part of the management of diabetes I'm satisfied with		
- Strongly agree	27	33.8
- Agree	44	55.0
- Neutral	6	7.5
- Disagree	2	2.5
- Strongly disagree	1	1.3
I know what parts of controlling my diet as part of management of diabetes I'm dissatisfied with		
- Strongly agree	17	21.3
- Agree	16	20.0
- Neutral	16	20.0
- Disagree	29	36.3
- Strongly disagree	2	2.5
I know what parts of controlling my diet as part of management of diabetes I'm ready to change		
- Strongly agree	26	32.5
- Agree	34	42.5
- Neutral	15	18.8
- Disagree	4	5.0
- Strongly disagree	1	1.3
I can motivate myself to manage my diet		
- Strongly agree	31	38.8
- Agree	37	46.3
- Neutral	11	13.8
- Strongly disagree	1	1.3
I know enough about myself as a person to make dietary choices that are right for me		
- Strongly agree	32	40
- Agree	34	42.5
- Neutral	10	12.5
- Disagree	2	2.5
- Strongly disagree	2	2.5
I know the barriers to managing my diet as part of my management of diabetes		
- Strongly agree	25	31.3
- Agree	35	43.8
- Neutral	10	12.5
- Disagree	9	11.3
- Strongly disagree	1	1.3

Table (4): Shown the distribution of the study sample of type II diabetes patients attending governmental diabetes care unit according to their practices regarding diet and exercise.

Items	Frequency	Percent
In the past 1week how often have you missed or skipped meals?		
0 Not at all	19	23.8
1	19	23.8
2	18	22.5
3	13	16.3
4	4	5.0
5	1	1.3
6	1	1.3
7 Very frequently	5	6.3
In the past 1 week how often have you overeaten (eaten more than you know you should)?		
0 Not at all	19	23.8
1	17	21.3
2	17	21.3
3	7	8.8
4	8	10.0
5	7	8.8
6	1	1.3
7 Very frequently	4	5.0
In the past 1 week how often have you eaten high fat foods like fried animal protein?		
0 Not at all	4	5.0
1	11	13.8
2	17	21.3
3	17	21.3
4	13	16.3
5	7	8.8
6	3	3.8
7 Very frequently	8	10.0
Please circle the number that indicates how able you are to fit dietary management into your life in a positive manner		
0 Not at all able	2	2.5
1	4	5.0
2	16	20.0
3	12	15.0
4	19	23.8
5	13	16.3
6	3	3.8
7 Very able	11	13.8
How many do you involve your family in helping you follow a meal plan?		
0 Not at all	5	6.3
1	6	7.5
2	6	7.5
3	9	11.3
4	9	11.3
5	15	18.8
6	13	16.3
7 Very often	17	21.3
How empowered are you to control/avoid sweets or limit fatty foods?		
0 Not at all	8	10.0
1	9	11.13
2	9	11.13
3	12	15.0
4	11	13.8
5	9	11.13

6	7	8.8
7 Very Well	15	18.8
How often do you eat only that which is available or only what you can afford irrespective of content?		
2	1	1.3
3	27	33.8
4	23	28.8
5	15	18.8
6	13	16.3
7 Most of the time	1	1.3
How often does diabetes interfere with or prevent you from doing your normal daily activities?		
0 No it does not	17	21.3
1	10	12.5
2	16	20.0
3	11	13.8
4	8	10.0
5	6	7.5
6	2	2.5
7 Much of the time	10	12.5
May you please write down the food and drinks taken in the last 24 hours indicating the amounts taken and the quantities of each.		
- healthy	54	67.5
- un healthy	26	32.5

Table (5): Distribution of the study sample of the type II diabetes mellitus patients attending governmental diabetes care unit according to their level of knowledge concerning diet and exercise and their socio demographic characteristics.

Variables	**High knowledge**		**low knowledge**		**X^2**	**P**
Age	N	%	N	%		
35 – 45	3	16.7	15	83.3	1.77	0.622
46 – 55	1	4.3	22	95.7		
56 – 65	3	12	22	88		
66 – 75	2	14.3	12	85.7		
Gender						
Male	8	18.6	35	81.4	5.037	0.026
Female	1	2.7	36	97.3		
Marital status					1.127	0.771
Married	18	12.5	56	87.5		
Single	0	0	1	100		
Divorced	1	12.5	7	87.5		
Widowed	0	0	7	100		
Education level					4.336	0.362
- Illiterate	0	0	10	100		
- Primary	0	0	11	100		
- Secondary	4	14.8	23	85.2		
- Tertiary	4	19	17	81.0		
- Postgraduate	1	9.1	10	90.9		
Employment status					5.900	0.0117
- Employment	4	10.3	35	89.7		
-Worker	2	40	3	60		
- Retire	3	13	20	87		
- Others	0	0	13	100		

Table (6): Distribution of the study sample of the type II diabetes mellitus patients attending governmental diabetes care unit according to their attitude towards diet and exercise and their socio demographic characteristics.

Variables	Good attitude		Bad attitude		X^2	P
Age	N	%	N	%		
35 – 45	11	61.1	7	83.9	7.095	0.069
46 – 55	9	39.1	14	60.9		
56 – 65	19	76	6	24		
66 – 75	7	50	7	50		
Gender						
Male	25	58.1	18	41.9	0.016	0.540
Female	21	56.8	16	43.2		
Marital status					4.954	0.175
Married	36	56.3	28	43.8		
Single	0	0	1	100		
Divorced	7	87.5	1	12.5		
Widowed	3	42.9	4	57.1		
Education level					20.88	0.720
- Illiterate	4	40	6	60		
- Primary	6	54.5	5	45.5		
- Secondary	16	59.3	11	40.7		
- Tertiary	14	66.7	7	33.3		
- postgraduate	6	54.5	5	45.5		
Employment status					0.857	0.836
- Employment	21	53.8	18	46.2		
-Worker	3	60	2	40		
- Retire	15	65.2	8	34.8		
- Others	7	53.8	6	46.2		

Table (7): Distribution of the study sample of the type II diabetes mellitus patients attending governmental diabetes care unit according to their practices towards diet and exercise and their socio demographic characteristics.

Variables	Correct practices		Incorrect practices		X^2	P
Age	N	%	N	%		
35 – 45	0	0	18	100	1.577	0.665
46 – 55	1	4.3	22	95.7		
56 – 65	2	8	23	92		
66 – 75	1	7.1	13	92.9		
Gender					0.024	0.633
Male	2	4.7	41	95.3		
Female	2	5.4	35	94.6		
Marital status					1.382	0.710
Married	3	4.7	61	95.3		
Single	0	0	1	100		
Divorced	1	12.5	7	87.5		
Widowed	0	0	7	100		
Education level					3.810	0.432
- Illiterate	0	0	10	100		
- Primary	0	0	11	100		
- Secondary	3	11.1	24	88.9		
- Tertiary	1	4.8	20	95.2		
- Postgraduate	0	0	11	100		
Employment status					4.201	0.241
- Employment	1	2.6	38	97.4		
-Worker	1	20	4	80		
- Retire	2	8.7	21	91.3		
- Others	0	0	13	100		

DISCUSSION

Diabetes is an important cause of morbidity and mortality all over the world. Because of lack of awareness about diabetes, most patients with diabetes suffer from its complications.[11] WHO report predicts that the main increase in diabetes would be in >65years age group in developed countries, and other developing countries, the highest increase would occur in the age group of 45 – 64 years which includes people in the peak of their lives. This study revealed that 31.3% of the participants were in the age group of 56 – 65 years. The preponderance of these age groups is also consistent with findings in the 1998 and 2003 South African Demographic and Health Survey in which the majority of South Africans who attended public health facilities in the preceding 30 days period were in the over 45 year age group.[12,13] Also, 60% of the participants had positive family history of diabetes, which implies that study population had a genetic contribution to their diabetes etiology.

This finding is similar with the results ofa study conducted in Pondicherry, which showed that 50% of their study patients had positive family history of diabetes.[14]

Knowledge of diabetes was assessed by questions related to the cause and complications of diabetes, also questions comparing the importance of diet, medication and exercise in the management of diabetes. This study revealed that 88.8% of the participants had poor knowledge regarding diabetic diet and exercise.

In our study 53.8% of the participants were well aware that diet control and drug therapy for control of diabetes. This finding is disagree with the results of a study conducted in Pondicherry which showed that 42% agreed with diet control and drug therapy for control of high blood sugar level.[14]

As regard a diabetic diet, 87.5% of the participants know that diabetic diet consist of mainly specially prepared foods. This finding is disagree with Zeb et al., (2017) study in Peshawar, which reported that 68% know that special diabetic food is used in diabetes.[15]

This study showed that males were significantly knowledgeable. The reason of that may be because males are more likely to be more educated and working outside home. This finding was in accordance with Al-Maskari et al., in UAE.[16]

Type II diabetes patient's attitude regarding diet and exercise

Diet is considered the backbone of any treatment plans for diabetes mellitus in its self-care component and the American Diabetic Association emphasizes this issue.[17] This study indicated that 62.5% of the participants said the diet and exercise are not as important as treatment in control of diabetes. However the results of another study performed in Pondicherry in 2012 disagreed with findings of the present work where 81% of the diabetic patients believe mostly on drugs to control their disease condition.[14]

As regarding controlling diet, the studied sample has been asked if the known what parts of controlling their diet, 55% said they satisfied.

These results was different than other study was done by El-Khawagaet al., (2015) found about 93.2% of participants had positive attitude toward food control. And 42.5% from this study said they ready to change their diet. These results are in harmony with a study performed in Mansoura et al, (2015) found only 40.1% of them had same attitude toward change of diet plan with.[18]

Dietary intake appears to be one of the most important factors related to diabetes. Cooking and eating practices are related to deeply root cultural beliefs and values, which may pose difficulty for patients' adherence to dietary guidelines.[19] In the present study concerning missed or skipped meals, the participants has been asked if they skipped their meal in the past week, we found 23.8% of participants never skipping their meal, 23.8% one skipping following by 22.5% skipped twice (Table 4). These results are in contrast with a study performed in Kingdom of Saudi Arabia (KSA) where nearly 72.8% usually or sometimes skipped meals. These deviations from recommended levels may be due to non-compliance with healthy dietary practices among diabetic patients.[20]

The participants has been asked if they ate high fat foods and animal protein in the past week, we observed equal percentage twice and three times (21.3%). These results are in contrast with a study performed in Kingdom of Saudi Arabia (KSA) this study also showed that fat consumption was one-three times (78.8%). This might be the result of obtaining more information from media, family members, friends or health care professionals.[20]

Concerning the dietary management, the participants asked how able there are to fit dietary management into their life in a positive manner, the present study indicated that 23.8% of the participants were neutral. These results are in contrast with a study conducted to assessment of Diabetic Patient Perception on Diabetic Disease and Self-Care Practice in Dilla University Referral Hospital, South Ethiopia whichrevealed that 49.7% of patients followed the recommended dietary intake for controlling DM.[21] This difference may be because the studied sample had poor knowledge on DM, Self-care practice that include adherence to diet.

The present study revealed that 21.3% of the participants said doing normal daily activities does not affect DM. These results disagreed with a study performed in Mansoura at el., (2015) where nearly 73.4% of patients

mentioned that their capacity to work had been affected.[18]

The 24-hour diet recall method was used to give an idea about the regularity and/or frequency of meals plus the common components of the participants' diets. The present study revealed that, 67.5% of the participants had healthy diet while, 32.5% of them had unhealthy diet. The reason of that may be because of socio-economic barriers (lack of finances) were unable to acquire the right kind of food. Education and counseling about all the aspects of diabetes is needed. Group education as well as individualized education programmes should be planned which can lead to better preventive and management techniques in diabetes.

In Conclusion, the study shows that knowledge, attitude and practices among diabetics about the diet and exercise is generally low.

Lack of awareness among diabetic patients is the prime factor causing diabetic complications. Education and awareness regardingdisease etiology, risk factors, management, complications and lifestyle modification should be provided to patients for achievingbetter outcome.

So we recommended

Special dieticians should be established in all public and private hospitals for preparing diet plans and providing health education program regarding the importance of diet and exercise for diabetic to prevent and control diabetic and related complications. Print and electronic media might be used for creating awareness.

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