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Awareness of Regular Checkups In Type 2 Diabetes Mellitus Among The Population of Hail City In Saudi Arabia.

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Abstract:
Background:*Type 2 Diabetes Mellitus (T2 DM) awareness is vital for its managementand control of complications. However, low number ofstudies was carried out in Hail, KSA even though the conditionconstitutes a major public health problem in Hail. T2 DM is a major public health problem in Saudi Arabia so regular checkups will be a great help to reduce the risk of developing complications of T2DM.*
Aim*; This study aimed at evaluating the awareness of regular checkups in Type 2 Diabetes Mellitus patients of Hail city in Saudi Arabia.*
Methods*: 200 patients attending the KKH. A questionnaire was used, containing questions onpatient's demographic characteristics and awareness of various aspects of T2 DM including general knowledge on T2 DM,causes, complications, management and prevention.*
Results*: Out of the 1530 patients, 1015 were in age group (40-60) years with percent (66.3%). 89.4% were married and majority were High School education (37.6%), Most cases received health awareness about the importance of periodic checkups for T2DM with percent (51.0%), while the rest didn't receive any health awareness before. (49.0%). Also 47.1% of cases reported that the cause of type II diabetes was lake of regular exercise. Only 15.3% always checked their blood sugar, who were aware of their condition, and that the period between each blood test performed were (annual) (18.0%), ,monthly (34.1%) , weekly (32.2%) and daily (15.7%) . 61.2% didn't know the complications yet.Moreover, 40% of cases showed family history of diabetesand 20.4% had other associated diseases*
Conclusion*: The present study showed that 49.0% of Type 2 patients attending DM clinics in Hail city have poor knowledge on regular checkups of T2 DM. Therefore, there is a need for mindful efforts of all health care providers towards improving the level of awareness through healtheducation and encouragement, not limited to the hospital but also within the general population, malls, schools, colleges and media as part of nationalstrategies toprevent, manage and control T2DM*

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I. Introduction

Globally, Diabetes mellitus (DM) remains to be an expandinghealth disaster, The number of cases is increasing all over the world[1]. An estimated excepectation of

300 million by 2025 was reported [2]. As a consequence of changes in life style In Saudi Arabia, the disease has become more obvious in the last 20 years [3]. The disease in Saudi Arabia was recorded to be one of the highest prevalencein the world (23.7%)[4]. Type 2 DM can cause death of patients worldwide [5]. Furthermore; it gave rise to complication such as, nervous system disease, blindness, heart disease, stroke, high blood pressure, kidney disease[1-5].

As T2 DM is a major public health problem in Saudi Arabia so regular checkups will be of a great help to reduce the risk of developing complications of T2DM. This is because prevention is better than cure, and the financial cost of the disease will be diminished to our country, KSA.

Aims:

This study aimed at evaluating the awareness of regular checkups in Type 2 Diabetes Mellitus patients of Hail city in Saudi Arabia. T2 DM is a major public health problem in Saudi Arabia so regular checkups will be a great help to reduce the risk of developing complications of T2DM.

Material

The present study participants were randomly selected from T2 DM patients attending diabetic clinics at KKH, Hail city as well as Type 2 DM teachers and administrative staff in 20 schools in Hail, KSA. The

researchers interviewed a total of 1530 patientsfrom November 2017 to March 2018. A questionnairewas designed and distributed to the study participants. Thequestionnaire contained series of questions on participant'sdemographic characteristics and awareness of T2DM includinggeneral knowledge on DM, checkups, causes, complications,management and prevention.

Methods

Awareness of the different aspects of T2DM was estimated using statistics. The data of complete 1530 questionnaires wasanalyzed using SPSS program [6].

II. Results

Statistical analysis of questionnaires showed the following

Table I: Age distribution among T2DM cases

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	15-25	128	8.4	8.4	8.4
	25-40	170	11.1	11.1	19.5
	40-60	1015	66.3	66.3	85.8
	60 And more	217	14.2	14.2	100.0
	Total	1530	100.0	100.0	

Table I data indicated that the ages (15-25) years were 128 (8.4%), and (25-40) were 170 with percent (11.1%) , and (40-60)years were 1015 cases with percent (66.3%) .Ages from 60 years and more were 217 in number (14.2%) , Total number of cases were 1530 (100%).

Table II: Gender distribution among T2DM cases

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	901	58.9	58.9	58.9
	Female	629	41.1	41.1	100.0
	Total	1530	100.0	100.0	

Table II data showed that the number of males cases (58.9%) were more than females (41.1%), Total Frequency (1530) Percent (100).

Table III: Social status of cases of T2DM

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single	123	8.0	8.0	8.0
	Married	1368	89.4	89.4	97.5
	Absolute / divorced	39	2.5	2.5	100.0
	Total	1530	100.0	100.0	

TableIII data indicates that 123 (8%) cases were Single, while 1368 (89.4%) were married. Only 39 (2.5%) cases were divorced. Total Frequency (1530) Percent (100)

Table IV: Academic qualificationof cases of T2DM

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	uneducated	330	21.6	21.6	21.6
	Less than secondary	240	15.7	15.7	37.3
	High School	576	37.6	37.6	74.9
	University education	192	12.5	12.5	87.5
	high education	192	12.5	12.5	100.0
	Total	1530	100.0	100.0	

Table IV data showed that uneducated patients were (21.6%), and 15.7% were Less than secondary education. High School education were (37.6%), University education (12.5 %) , high education were 192 cases (12.5%) Total Frequency (1530) Percent (100) .

Table V: Question: Have you ever received health awareness about the importance of periodic checkups for diabetes?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	780	51.0	51.0	51.0
	no	750	49.0	49.0	100.0
	Total	1530	100.0	100.0	

Table V showed that most cases received health awareness about the importance of periodic checkups for diabetes with percent (51.0%), while the rest didn't receive any health awareness before. (49.0%) , Total Frequency (1530) Percent (100) .

Table VI: Question:What do you think is the cause of type 2 diabetes?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	obesity	294	19.2	19.2	19.2
	Do not exercise regularly	720	47.1	47.1	66.3

	nutrition	516	33.7	33.7	100.0
	Total	1530	100.0	100.0	

Table VI indicated most of the cases (47.1%) reported that the cause of type II diabetes was lake of regular exercise, while 33.7% of them denoted that nutrition was the cause. Only 19.2% of cases gave that obesity was the cause of the disease.

Table VII:Question: Did you know what symptoms and signs of type 2 diabetes?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	396	25.9	25.9	25.9
	no	396	25.9	25.9	51.8
	Almost	738	48.2	48.2	100.0
	Total	1530	100.0	100.0	

Table VII data asked about the symptom of type 2 diabetes. Most of the cases.(48.2%)almost knew the symptoms, while 25.9% knew the symptoms well and 25.9% didn't know any.

Table VIII: Question: Do you periodically check your blood sugar level?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Always	234	15.3	15.3	15.3
	frequently	138	9.0	9.0	24.3
	Sometimes	474	31.0	31.0	55.3
	Scarcely	258	16.9	16.9	72.2
	No	426	27.8	27.8	100.0
	Total	1530	100.0	100.0	

Table VIII clarified that only 15.3% always checked their blood sugar , 9% frequently did, 31% sometimes checked , 16.9% rarely checked while 27.8% didn't check at all.

Table IX: Question: What is the period between each blood test you performed?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	annual	276	18.0	18.0	18.0
	Monthly	522	34.1	34.1	52.2
	Weekly	492	32.2	32.2	84.3
	Daily	240	15.7	15.7	100.0
	Total	1530	100.0	100.0	

Table IX data indicated that the period between each blood test performed were (annual) (18.0%), monthly (34.1%), weekly (32.2%) and daily (15.7%)

Table X: Question: What type of treatment do you use for type 2 diabetes?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Sugar regulator only	246	16.1	16.1	16.1
	Sugar regulator + grain	486	31.8	31.8	47.8
	Sugar regulator + injection of insulin	612	40.0	40.0	87.8
	I do not use drugs	126	8.2	8.2	96.1
	Other	60	3.9	3.9	100.0
	Total	1530	100.0	100.0	

Table Xdata indicated that the treatment used for type 2 diabetes were sugar regulator only in (16.1%), sugar regulator + grain in 31.8% and sugar regulator + injection of insulin (40.0%) . 8.2 % didn't use drugs at all and 3.9% use others

Table XI: Question: Did you know of type 2 diabetes complications?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	594	38.8	38.8	38.8
	no	936	61.2	61.2	100.0
	Total	1530	100.0	100.0	

Table XI data indicated that 38.8 % knew complications of type 2 diabetes,while 61.2% didn't know.

Table XII: Question: Do you have a member of your family or relatives with diabetes?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	612	40.0	40.0	40.0
	no	918	60.0	60.0	100.0
	Total	1530	100.0	100.0	

Table XII dataindicated that only 40% of cases showed family history of diabetes, while 60% didn't have a family history..

Table XIII: Question: How long have you been diagnosed with diabetes?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 5 years	816	53.3	53.3	53.3
	5 - 10 years	474	31.0	31.0	84.3
	More than ten years.	240	15.7	15.7	100.0
	Total	1530	100.0	100.0	

Table XIII data showed that cases diagnosed in less than 5 years were 53.3% and (5 - 10 years) were 31.0%, and (more than ten years.) (15.7%),

Table XIV: Question: Do you have any other diseases?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	312	20.4	20.4	20.4
	no	1218	79.6	79.6	100.0
	Total	1530	100.0	100.0	

Table XIV data indicated that 20.4% had other associated diseases 79.6% didn't have.

III. Discussion

The Kingdom of Saudi Arabia faces one of the highest prevalence rates of type 2 diabetes mellitus (T2DM) in the world.The present study was undertaken to evaluate the level of awareness of regular checkups of T2DM among diabetics attending the diabetes clinics in Hail city, KSA.Also to determine the level of knowledge of T2DM, regarding its causes, management as well as complications.

The present work showed that 66.3% of cases were in age group (40-60) years which were similar to previous studies [1, 7]. Unfortiontly, 8.4% of the present cases were in age group 15-25 years. This reflected that the T2DM appeared in youth age. The explanation of that was the globalization of junky foods and the change of dietary habits which predispose to early appearance of T2DM in young age [2, 3,7].Age is an important risk factor for T2DM , it was estimated that the prevalence of DM increased with age [7]

The present study data showed that the number of males cases (58.9%) were more than females (41.1%).89.4% of cases were married. Similar finding was reported by many researchers in Quassim and Western areas in KSA [1, 3].

The present research data showed that uneducated patients were (21.6%), and 15.7% were Less than secondary education. High School education were (37.6%), University education (12.5 %), high education were 192 cases (12.5%). Also the present work showed that most cases received health awareness about the importance of periodic checkups for T2 diabetes with percent (51.0%), It was reported that there were association between level ofeducation and the increase in knowledge of DM. Thedata was consistent with other previous studies [5, 7, 8, 9,10].

The present study indicated most of the cases (47.1%) reported that the cause of type II diabetes was lake of regular exercise, while 33.7% of them denoted that nutrition was the cause. Only 19.2% of cases gave that obesity was the cause of T2DM. This reflected the high knowledge of the causes of T2DM in Hail region. Similar findings were reported in previous papers in Quassim and ineastern Saudi Arabia[1, 11] and in Oman [8] .

In the present work, most of the cases.(48.2%)almost knew the symptoms of T2DM, while 25.9% knew the symptoms well and 25.9% didn't know any. This means that majority of cases were aware of disease symptoms. It can be explained by increasing the level of education as well as the adventure of social mediaassisted the level of awareness of the disease.[1,7] .

The data of the present study clarified that only 15.3% always checked their blood sugar, 9% frequently did, 31% sometimes checked, 16.9% rarely checked while 27.8% didn't check at all. Also, the data indicated that the period between each blood test performed were (annual) (18.0%), monthly (34.1%), weekly (32.2%) and daily (15.7%) . It was reported that controlling blood glucose at a normallevel can prevent many diabetes-related complications, suchas retinopathy, nephropathy, neuropathy, coronary disease and macroangiopathy[7,11] .

The present workresults indicated that the treatment used for type 2 diabetes were sugar regulator only in (16.1%), sugar regulator plus grain in 31.8% and sugar regulator plus injection of insulin (40.0%) . 8.2 % didn't use drugs at all and 3.9% use others. This is high compared with the studies done before [7,12] .The results of our study also showed an increasing trend in the treatment rate of diabetes. The treatment of diabetes is not only related to public awareness of the disease, but also, diagnostic methods play an essential role in the treatment of diabetes. Convenient, economic, and effective detection toolscould improve the treatment rate of this disease [7] .

In the present research, it was foundthat 38.8 % knew complications of type 2 diabetes,while 61.2% didn't know. Similarly, knowledge of diabetes was suboptimal.[8] . Attendees of a primary care center in eastern Saudi Arabia were found to have poor knowledge on DM risk factors and preventative measures [11] . Education and age were found to be the most important predictors of knowledge [1, 7, 8, 11].

The presentdata indicated that only 40% of cases showed family history of diabetes, while 60% didn't have a family history.This finding was consistentwith many authors, who reported that most of their patients

were unaware that diabetes runs inthe family [13-15] .Contrary, it was reported that about80% of their participants knew a family member whowas diabetic; however, only about a third of them knewthat diabetes could be familial[16-18]. The present resultsshowed that most of cases were diagnosed in less than 5 years (53.3%), while 31% of cases were diagnosed since 5 - 10 years. Also**,** data indicated that 20.4% had other associated diseases and 79.6% didn't have. Knowledge of associated diseases was consistent with findings reported previously, such asloss of vision, poor wound healing and amputations[1, 7]. Also it was noticed that knowledge of non-visible complications, such as heart failure, kidneyfailure and stroke, was much less than visible complications [12, 13, 16-18].

IV. Conclusions

The present study had shown that T2DM appeared in youth age in Hail. Thus healthy food, regular exercises is a must for this age group. Also the present results reflected the high knowledge of the causes of T2DM in Hail region and (48.2%) almost knew the symptoms, while61.2% were unaware about the complications ofT2DM. In addition, 51% received health awareness about the importance of periodic checkups for diabetes while the rest didn't receive any health awareness before (49.0%).Moreover,only15.3% always checked their blood sugar. The results of our study also showed an increasing trend in the treatment rate of diabetes. To raise the awareness of diabetes, a formal, structuredapproach should be designed to deliver the necessaryeducational information, through mass media and health campaigns. This could easily be accomplished bydistributing pamphlets of information which could behanded out at small temporary group stations set up on locations such as malls, gardens supermarkets,schools and colleges. Additionally, large public speakingsessions could be arranged addressed to the general public.This study has thrown lighton the need for both patient andpublic education regardingT2 DM periodic checkups in order to prevent complications.

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