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Knowledge and Attitudes of Seniors about Diabetes Mellitus

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ABSTRACT

Objective(s): To evaluate the knowledge and attitude towards diabetes and their association with age, marital status, education level, and monthly income among seniors with diabetes mellitus.

Methods: A cross- sectional descriptive study was carried out among 69 seniors with diabetes mellitus who were attending the Center for Endocrinology and Diabetes in AL-Muthanna Governorate. Data were collected using two scales; one for knowledge (DKN) and the other for attitudes through self-reporting. Data were analysed using IBM-SPSS.

Results: The study indicated that the knowledge of senior patients was very poor in all items of the DKN scale and, only 6 (8.7%) had acceptable knowledge, while 63 (91.3%) of them lack information about diabetes mellitus type2. As well as, their attitude was negative in most items of attitude scale, with a mean total of 2.43 ± 0.584. In addition, there is a statistically significant association between patients' knowledge and monthly income at the level of 0.05.

Conclusion: The seniors had a poor knowledge with negative attitudes toward diabetes.

Recommendations: Significant efforts are required to enhance seniors' understanding and attitudes toward effectively managing their health and illnesses

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معارف واتجاهات كبار السن حول مرض السكري

المستخلص

الأهداف: تقييم المعارف والاتجاهات المتعلقة بداء السكري وارتباطهما بالعمر والحالة الاجتماعية ومستوى التعليم والدخل الشهري، لدى كبار السن الذين يعانون من هذا الداء.

المنهجية: أُجريت دراسة وصفية مقطعية على 69 مريضًا مصابا بداء السكري من كبار السن المراجعين لمركز الغدد الصماء والسكري في محافظة المثنى. جُمعت البيانات باستخدام مقياسين؛ أحدهما للمعرفة (DKN) والآخر للاتجاهات. إستُخدمت طريقة التقرير-الذاتي للإجابة على المقياسيين. أما تحليل البيانات فتمت بإستخدام IBM-SPSS.

النتائج: أشارت الدراسة إلى إن معارف المرضى المسنين في جميع بنود مقياس (DKN) هي ضعيفة جدا، حيث إن 6 (8.7%) من المشاركين كانت معارفهم بالمرض مقبولة، بينما إفتقر 63 (91.3%) منهم للمعارف بالنوع الثاني من داء السكري. أما فيما يتعلق باتجاهاتهم فقد كانت سلبية في معظم بنود مقياس الاتجاهات، بمتوسط إجمالي 2.43 ± 0.584. هذا وقد ظهر ارتباط بين المعارف والدخل الشهري للمريض إرتباطا ذو دلالة إحصائية معنوية عند مستوى (0,05).

الاستنتاج: إن معارف كبار السن المشاركين في الدراسة هي ضعيفة واتجاهاتهم سلبية تجاه مرض السكري.

التوصية: نحتاج الى بذل جهود كبيرة من أجل تحسين معارف وإتجاهات كبار السن حول العناية بصحتهم وبمرضهم.

الكلمات المفتاحية: المعارف، المواقف، الرعاية الذاتية، كبار السن، داء السكري

Introductions

Diabetes is one of the fastest growing diseases of this century. The indications estimate that 535 million people had diabetes in 2021, and the number is likely to rise to 643 million by 2030 and 783 million by 2045" [(1)]. Its prevalence in the Middle East and North Africa region is 9.2%, which represents the second highest rate of diabetes. It is estimated that the increase in the prevalence of diabetes between 2017 and 2045 will rise by 110% in the MENA region [(2)]. Iraq is following suit, where one out of every five Iraqi adults in Basra suffers from diabetes [(3)]. As the population ages(4) , diabetes mellitus grows exponentially [(1,2)]. Globally, the number of people between the ages of 65 and 99 who suffer from diabetes is estimated at 135.6 million people, representing 19.3% of the total number of older people in the world [(5)], and even exceed 20% [(6)]. The number of people with diabetes in this age group is expected to increase by 2030 to 195.2 million, and to 276.2 million by 2045 [(1)], causing public health concern and economic burden [(1, 6)].

The diabetes mellitus is the main cause of death, in developing countries, due to alteration in the trace elements in the body [(7)] and increase risk of microvascular and macrovascular complications [(8)]; retinopathy [(9)], nephropathy [(10)], neuropathy [(11)], respiratory disorder [(12)], and foot amputation [(13)]. However, following a specific treatment regimen along with lifestyle changes is important to prevent and/or delay its complications [(14)].Therefore, to manage and treat seniors with diabetes, it is essential to evaluate the knowledge and attitude of patients firstly [(15)], to find out how much patients know about the disease and then educate them with the necessary information that will preserve their life. Hence, this study was planned to assess these two variables in the Center for Endocrinology and Diabetes in AL-Muthanna Governorate. The expected outcome of this empirical research will be reflected in designing tailored national health care policy aiming for enhancing the prognosis of such a highly prevalent non-communicable chronic disease.

Methods

Study Design and Setting

This is a cross- sectional descriptive study that was conducted to assess diabetic seniors' knowledge and attitudes at Center for Endocrinology and Diabetes in AL-Muthanna Governorate. This design was selected to spot a light on the targeted population aiming for a detailed description of the pivotal variable at the specified time and setting.

Sample and Sampling

The sample was collected from September 1st, 2023- December 1st /2023, sample size was calculated using Raosoft© (2004) calculator (confidence level 95% with 5% error), 67 subjects represented the minimum sample. Only 70 patients with diabetes of both sexes, aged 65 years and above, agreed to participate in the study, while one withdrawal and did not complete the study, inclusion criteria were diabetic without psych-mental disability or coma, and aged 65 and older. while exclude of patients with impaired cognition and younger than 65-years old.

Data Collection and Study Instruments

The study instrument contained a demographic model, that included gender, age, history of diabetes diagnosis, education level, occupational status, and type of treatment.

Under the license of the American Diabetes Association, the Diabetes Knowledge Scale (DKN) was used to test participants' knowledge [(16)]. It is prepared, to be self-administered by patients. The DKN scale contains 15 multiple-choice items each related to a key aspect of diabetes or its treatment. The maximum attainable score was "15" and the minimum score was "0". Meanwhile, the scale for attitude about self-care contained 7 items. It was used with permission from Dove Medical Press Ltd. Attitude scale scores were determined based on a five-point Likert scale. A positive trend was considered when the subscale score was equal to or above 2.5 [(17)].

Ethical Considerations

Informed consent from ethics Committee at the College of Nursing at the University of Baghdad (approval number 8 in 21/5/2023). The participants were also assured of full anonymity and the voluntary status of the study.

Data Analysis

The data were analysed using the descriptive (frequency, percentage) statistical inferential (Kruskal- Wallis H and Mann-Whitney) test.

Results

Table 1. Participants' sociodemographic characteristics (N = 69)

Variable	Frequency	Percent
Age (Years)		
≤ 69	38	55.1
70-74	27	39.1
≥ 75	4	5.8
Sex		
Male	42	60.9
Female	27	39.1
Marital Status		
Married	49	71.0
Widow/Widower	19	27.6
Separated	1	1.4
Level of education		
Read and write	46	66.7
Elementary school	12	17.4
Middle school	3	4.3
High school	3	4.3
Diploma	3	4.3
College and above	2	2.9
Monthly Income		
Not enough	56	81.2
Somewhat enough	12	17.4
Enough	1	1.4

The study results display that more than a half age younger than 69-years (*n = 38*; 55.1%),

followed by those who age 70-74-years (*n = 27*; 39.1%), and those who age 75-years or older (*n = 4*; 5.8%).

Concerning sex, most are males (*n = 42*; 60.9%) compared to females (*n = 27*; 39.1%). Regarding marital status, most are married (*n = 49*; 71.0%), followed by those who are widow/widowers (*n = 19*; 27.6%), and one who is separated (*n = 1*; 1.4%).

With respect to level of education, most read and write (*n = 46*; 66.7%), followed by those who are elementary school graduates (*n = 12*; 17.4%), those who each of middle school graduates, high school graduates, and hold diploma degree (*n = 3*; 4.3%) for each of them, and those who are college graduates and above (*n = 2*; 2.9%).

As per monthly income, the majority reported that their income is not enough (*n = 56*; 81.2%), followed by those who reported it as somewhat enough (*n = 12*; 17.4%), and one who reported it as enough (*n = 1*; 1.4%).

Table 2. The Patient's Responses to their Knowledge About Diabetes Mellitus (n= 69)

No	Item	Correct Response Frequency (%)	Incorrect response frequency (%)
1.	In uncontrolled diabetes the blood sugar is	22 (31.9)	47(68.1)
2.	Which one of the following is true?	23 (33.3)	46(66.7)
3.	The normal range for blood glucose is	22 (31.8)	47(68.1
4.	Butter is mainly	19 (27.5)	50(72.5)
5.	Rice is mainly	19(27.5)	50(72.5)
6.	The presence of ketones in the urine is	24(34.8)	45(65.2)
7.	Which of the following possible complications is usually not associated with diabetes?	16(23.2)	53(76.8)
8.	A diabetic on insulin who finds his urines are constantly testing brown with Diastix should probably	18(26.1)	51(73.9)
9.	When a diabetic on insulin becomes ill and unable to eat the prescribed diet	16(23.2)	53(76.8)
10.	If you feel the beginnings of a hypo reaction, you should	11(15.94)	58(84.1)
11.	You can eat as much as you like of which one of the following foods	20(28.98)	49(71)
12.	A hypoglycemia is caused by	15(21.7)	54(78.3)
13.	A kilogram is	17(24.6)	52(75.4)
14.	Two of the following substitutions are wrong. Which are they?	14(20.3)	55(79.7)
15.	If I don't feel like the egg allowed on my diet for breakfast, I can	10(14.49)	59(85.5)

No= number, **%**= Percentage.

Patients' Knowledge about Diabetes Mellitus

The mean score and standard deviation of participants' knowledge was found to be 3.81±2.03 (range: 0-9) with the maximum possible score being 15. The majority of participants had very poor knowledge 63 (91.3%) about diabetes, while only 6 (8.7%) of the participants received an acceptable score. All cognitive items were scored as weak (poor). However, more than a third of the participants answered items one, two, three, and six correctly; 22 (31.9), 23 (33.3), 22 (31.8), and 24 (34.8), respectively (Table 2).

Table 3. Attitude Toward Self-care Among T2DM Patients on Center for Endocrinology and Diabetes in AL-Muthanna Government (n= 69)

Attitude Test Item	Participants' response				
	Strongly Disagree n (%)	Disagree n (%)	Neutral n (%)	Agree n (%)	Strongly Agree n (%)
If I see a problem in my feet I report to my health provider immediately	3(4.3)	45(78.3)	3(4.3)	9(13.0)	0(0)
Self-care practices are as effective as medication for my condition if followed	5(7.2)	54(78.3)	4(5.8)	5(7.2)	1(1.4)
It's my responsibility to do regular checkups to ophthalmologist	2(2.9)	60(87.0)	5(7.2)	2(2.9)	0(0)
Person with diabetes are responsible in addition to their doctor and family in the care of diabetes.	3(4.3)	46(66.7)	12(17.4)	6(8.7)	2(2.9)
Support from family and friends are important in self-care practice	1(1.4)	36(52.2)	19(27.5)	10(14.5)	3(4.3)
I can prevent the complications of diabetes mellitus by using self-care practices appropriately	3(4.3)	48(69.6)	12(17.4)	5(7.2)	1(1.4)
Self-care management practice is importance for diabetes patient.	1(1.4)	19(27.5)	27(39.1)	16(23.2)	6(8.7)

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Table 4. Assessment the Respondents Toward Diabetic Self-care

Attitude	**Mean ± Standard Deviation**	**Range**	**Assessment**
	2.43 ± 0.584	2.10 ± 0.458 - 3.10 ± 0.957	Negative

Negative attitude (1-2.5); Positive attitude (2.6-5)

Status of Attitude About Diabetes Self- Care

Table (3) and Table (4) illustrate that the participants had a negative attitude toward diabetes self-care, with the mean being 2.43 ± 0.584 and ranging from 2.10 ± 0.458 to 3.10 ± 0.957. less than one fifth, 12 (17.4%) had positive attitude. Furthermore, the majority 60 (87%) of participants did not agree that “It is my responsibility to have regular check-ups with the eye doctor.” As well as, more than three-quarters of them 54 (78.3) disagreed with the statement “If I see a problem in my feet, I report to my health provider immediately” and with “Self-care practices are as effective as medication for my condition if followed.”

Discussion

In accordance with the global increase in population age (18), the prevalence of type 2 diabetes is increasing throughout the world including Asia [1,5]. In the current study, younger senior (65-74) constituted the largest category (94.2%), while older senior constituted the smallest category (5.8%). This observation may be related to the limitation of patients who agreed to participate in the study, or the older senior may have undiagnosed diabetes as reported by Puzianowska-Kuznicka et al. [6]. Therefore, they did not visit a diabetic center. Although diabetes is more prevalent among women than men [3], yet, our results showed that more than two-thirds of participants (60.9%) were men. The researchers attribute this result probably to that elderly women were less interested in participating in the study, as well as the men were more readily able to come to the diabetic centre.

This study illustrates that the participating patients had weak knowledge about diabetes and there was a significant association between knowledge with monthly income of the patients. Therefore, these results lead to attributing insufficient knowledge to; first, their primary education, as more than two-thirds of them could only read and write and about one-fifth have primary school attainment, second, their age, where all patients were seniors, and third, their monthly income, the majority of participants have either not or somewhat enough. A longitudinal study with 751 older adult patients with diabetes observed that literacy declined with age and little decrement in those with higher level of education [19]. It is known that knowledge of the disease plays an essential role in making the patient understand clearly and correctly the importance of adhering to taking medication, monitoring blood glucose levels, following a healthy diet, practicing appropriate physical activity, and acquiring self-care skills [20]. In other words, patients with personal health literacy have the ability to use knowledge and services to make health-related decisions and actions for themselves [21]. On the other hand, elderly people with low school education, who only write and read, have less opportunity and less ability to learn, even with those topics related to their health, this may be due to that educational attainment is robustly associated with level of cognitive function [22,23]. Other factors interfere with learning is family monthly income which had positive relationship with knowledge as reported by Putra et al. [20]

Indeed, there is variance in studies regarding patients' knowledge of their disease. So, some of them indicated that knowledge of patients is low or insufficient [6,15,24–27], others mentioned that there is an acceptable level of knowledge [28,29] while third studies showed a good level of knowledge [17,29]. This difference could be related to age [28,29], education level [30], income [31], region of residence [32], and time of diagnosis [15]. Generally, regardless of the type of disease, several studies indicated that the Iraqi patients and even their care-giver at home know little about their illness [33,34], adherence to medication [35], the diet and life style that maintain their health [36,37].

On the other hand, the results showed that the patients had a negative attitude toward self-care practices. The negative attitude may be a result of low knowledge, as mentioned above. Several studies on patients' attitudes are consistent with our results and opinion, in other words, patients with low knowledge have negative attitudes and vas versa [17,33,38]. Mekonnen and Hussain attributed the positive attitude of patients to the place of residence as urban patients have better access to health education leading to changes toward diabetes self-care attitudes [17]. However, a study conducted in the United

Arab Emirate found that patients with low knowledge have a positive attitude [25]. and this may be related to monthly income, so higher monthly income leads to the development of a positive attitude.

Conclusion

The seniors attending Diabetic Center in the Al Muthanna Governorate with DM have low knowledge and a negative attitude.

Recommendations

Significant efforts are required to enhance seniors' understanding and attitudes toward effectively managing their health and illnesses

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