Knowledge and practice about diabetes among adult diabetic patients in Erbil, Iraq

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Abstract

Background and objective: Successful management of diabetes requires high degree of patient participation; this can be achieved by providing diabetic person with the knowledge and skills to perform self care on a day-to-day basis. This study aimed to assess the knowledge and practices of diabetic patients about diabetes in Erbil city.

Methods: A cross-sectional study was carried out during the period of April 2011 to April 2012 at Shahid Layla Qasm health center for diabetic care in Erbil city. The study involved a convenience sample of 400 diabetic patients aged ≥ 18 years old, both male and female. A specially designed questionnaire was used for data collection, which included socio-demographic characteristic of patients and other questions related to knowledge and practice about diabetes. SPSS was used for data entry and analysis.

Results: Out of 400 study subjects, 18 (4.5%) had good knowledge score, 209 (52.3%) had acceptable knowledge score, and 137 (43.3%) had poor knowledge score about the diabetes. A statistically significant association was found between knowledge levels and age of patients (P=0.02). This study also showed that, only 51 (12.8%) of patients had good practices, while 213 (53.3%) of them had acceptable practices and 136 (33.9%) had bad practices. A statistically significant association was found between practice levels with occupation (non manual skilled or semiskilled); (P value <0.001) and educational level (institute and more); (P value <0.001).

Conclusion: The rate of knowledge and practice was significantly associated with participants' occupation and educational level. Those with low and acceptable knowledge had better practice than those who had good knowledge about diabetes.

Keywords: Knowledge, Practice, Diabetes, Diabetic Patients, Erbil.

Introduction

The prevalence of both types of diabetes varies considerably around the world, and is related to differences in genetic and environmental factors[1-5]. It is estimated that, in the year 2000, 171 million people worldwide had diabetes, and this is expected to double by 2030[4]. This increase in diabetes is occurring in all countries; however, developing countries are particularly at risk. The prevalence rate of diabetes in Iraq is estimated to be 10%[6]. Several factors contribute to this raising, including greater longevity, obesity, unsatisfactory diet, sedentary lifestyle and increasing urbanization[1]. Diabetes management depends not only on drug therapy but also on physical exercise, diet, and other lifestyle changes[7]. Diabetic education helps to equip patient with self-care knowledge that includes nutritional management, sedentary lifestyle changes and proper foot care. Such education, if integrated into the structured diabetic care in the primary care setting, results in improved patients' disease knowledge and self-care behavior. Several interventions should be carried out to improve the knowledge level of diabetic patients. Obtaining information about the level of awareness about diabetes in a population is the first step in formulating a

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prevention program for diabetes. Successful management of diabetes requires high degree of patient participation; this can be achieved by providing diabetic person with the knowledge and skills to perform self care on a day-to-day basis[8]. Thus, the study of knowledge, skills and attitudes of diabetics towards their disease is considered a basic first step in the education process. Up to the researchers' knowledge, no study in Erbil highlights this situation. Therefore, this study aimed to assess the knowledge and practices of diabetic patients about diabetes in Erbil city and to find out associations between knowledge and practice of patients with certain socio-demographic characteristics.

Methods

This is a cross-sectional study that was carried out during the period of April 2011 to April 2012 at Shahid Layla Qasm health center for diabetic care in Erbil city. This public center was inaugurated officially on 1st December 2007 and aims to introduce diabetic health care services to diabetic patients six days per week, from 8.00 am to 2.00 pm. This center was supposed to provide services to 20-30 diabetes patients daily, especially those of low socioeconomic state. Services provided are mainly clinical with advices by clinicians about nutrition, foot care and screening for complication (Personal communication; Directorate of Health, Director of Planning Department, April 2011, Erbil). By using Epi Info (version 7), a representative sample size of 384 adult diabetes patients was selected using a confidence interval of 95%, with 5% allowed error with expected prevalence rate of the knowledge to be 50%, and population size of 868,000[9]. However, by using convenience sampling technique a sample of 400 was selected. Diabetic patients aged ≥ 18 years old, both male and female are included in the study. The study protocol was approved by Scientific Committee of College of Medicine of Hawler Medical University and an informed consent was obtained from all

patients prior to participation in the study. All selected patients were cooperative and agreed to participate in the study. A modified closed-ended questionnaire on diabetes[10] was used and approved by colleagues including a biostatistician for validation of the questions. The questionnaire then piloted on ten respondents before starting the study in order to assess the suitability of the contents, clarity, sequence, and flow of the questions. The questionnaire was refined for final use. The questionnaire was in English language, and the researchers themselves involved in data collection by direct interview with patients. The first part of the questionnaire covered the respondent's demographic information which included: age, sex, level of education, occupation, and average monthly income in Iraqi dinar. The second part covered knowledge about diabetes and causes of diabetes which was based on responses to a question on what they knew to be the cause of diabetes. The options given were: lack of insulin, failure of the body to use insulin, consumption of lots of sugar, or don't know. Knowledge about signs and symptoms of diabetes five options were provided: frequent urination, excessive thirst, excessive hunger, weight loss, and high blood sugar. Knowledge about complications of diabetes was assessed by asking respondents to describe what complications of the disease they knew. Options listed included: loss of vision, kidney failure, heart failure, stroke, poor wound healing and amputation, etc. Each correct answer was given a score of 'one' and each wrong answer was given a score of 'zero'. Depending on scoring system used in a study in Western Nepal[11], the knowledge status of the patient was divided arbitrarily into three main categories: poor knowledge (<11 score), acceptable knowledge (12-22 score) and good knowledge (23-33 score); according to their answers to the correct question about knowledge which was 33 correct answers each one took one point. The third part assessed what the

respondents practiced in terms of adopting healthy lifestyles that promote diabetes prevention. This section highlights the consumption of regular physical activity, healthy diet, taking diabetic medication regularly and regular medical checkups. The practice status of the patient was divided arbitrarily into three main catego-ries: bad practice (1-2 score), acceptable practice (3-4 score) and good practice (5-6 score) according to their answers to the practice question which was 6 questions and 6 correct answers each one took one point.

Data analysis: The Statistical Package for Social Sciences (SPSS, Chicago, IL, USA, version 18) was used for data entry and analysis. Two approaches were used; descriptive and analytic. The descriptive approach included calculation of frequen-cies, percentages, means, standard devia-tions, while in the second approach; Chi-square test of association was used to test the significant association between categorical variables, fisher exact test was used when chi-square was inappropriate. P value of ≤ 0.05 was considered as statistically significant[12].

Results

This study involved 400 diabetic patients, 140 (35%) males and 260 (65%) females, with male: female ratio of 0.53:1.47. Age ranges between 18-75 years with mean ± standard deviation of 50.4 ± 10.3. The mean ± standard deviation of duration of diabetes mellitus was 82.5 ± 66.7. showed that 53.3% of patients knew what diabetes is, and most of participants 167(41.8%) had good knowledge about signs and symptoms of diabetes, only 36 (9%)

patients could correctly identify the probable causes of diabetes; 122 (30.5%) could identify complications of diabetes, and only 82(20.5%) had good knowledge about risk factors of diabetes, Table 1. Out of 400 patients, 18 (4.5%) had good knowledge score, while 209 (52.3%) had acceptable knowledge score of diabetes, and 137 (43.3%) had poor knowledge score about the diabetes. A statistically significant association was found between knowledge levels and age of patients in which acceptable level of knowledge was declining with advanced age (P=0.02). A statistically non significant association between gender and knowledge, (P= 0.102) was revealed in the current study. On the other hand, there was a statistically significant association between knowledge and family income, educational level and occupation, acceptable and good knowledge were high among high income patients; (P value <0.001), high education level; (P value <0.001) and high professional and non-manual skilled or semi-skilled occupation; (P value <0.001), Table 2. This study showed that, only 51 (12.8%) of patients had good practices, while 213 (53.3%) had acceptable practices and 136 (33.9%) had bad practices. A statistically significant associa-tion was found between practice levels and occupation (non manual skilled or semiskilled); (P value <0.001), educational level (institute and more); (P value <0.001). On the other hand, a statistically non significant association was found between practices, in relation to age and gender. Details of the relationship between patient practices and different variables are shown in Table 3 and 4.

Table 1: Levels of patients' knowledge on different aspects of diabetes

Knowledge of diabetes	Signs and symptoms		Causes		Complications		Risk factors	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Good	167	(41.8)	36	(9.00)	122	(30.5)	82	(20.5)
None	243	(58.2)	364	(91.0)	278	(69.5)	318	(79.5)
Total	400	(100)	400	(100)	400	(100)	400	(100)

Table 2: Relationship between knowledge and socio-demographic characteristics of participants.

Variable	Knowledge						Total No. N=400	P value
	Poor(0-11)		Acceptable(12-22)		Good(23-33)			
	No.	(%)	No.	(%)	No.	(%)		
Age								
<40	11	(28.2)	28	(71.8)	0.0	(0.0)	39	
40-49	50	(45.9)	57	(52.3)	2	(1.8)	109	0.02*
50-59	69	(40.1	91	(52.9)	12	(7.0)	172	
>60	43	(53.8)	33	(41.3)	4	(5.0)	80	
Gender								
Male	54	(38.6)	76	(54.3)	10	(7.1)	140	0.1
Female	119	(45.8)	133	(51.2)	8	(3.1)	260	
Marital statues								
Single	5	(29.4)	12	(70.6)	0.0	(0.0)	17	0.24
Married	168	(43.9)	197	(51.4)	18	(4.7)	383	
Family income in ID								
<500000	95	(61.3)	58	(37.4)	2	(1.3)	155	
500000 - 1000000	66	(35.5)	108	(58.1)	12	(6.5)	186	<0.001
>1000000	12	(20.3)	43	(72.9)	4	(6.8)	59	
Home ownership								
Owned	147	(45.8)	158	(49.2)	16	(5.0)	321	0.04
Rented	26	(32.9)	51	(64.6)	2	(2.5)	79	
Occupation								
High professional	0.0	(0.0)	6	(100)	0.0	(0.0)	6	
Non manual skilled or semiskilled	6	(11.1)	42	(77.8)	6	(11.1)	54	
Manual partly skilled or unskilled	52	(54.7)	39	(41.1)	4	(4.2)	95	<0.001*
House wives	115	(47.3)	120	(49.4)	8	(3.3)	243	
Students	0.0	(0.0)	2	(100)	0.0	(0.0)	2	
Education								
Illiterate	106	(57.9)	75	(41.0)	2	(1.1)	183	
Read and write	24	(46.2)	28	(53.8)	0.0	(0.0)	52	
primary graduate	33	(53.2)	25	(40.3)	4	(6.3)	62	<0.001*
Intermediate and secondary	10	(13.7)	51	(69.9)	12	(16.4)	73	
Institute and more	0.0	(0.0)	30	(100)	0.0	(0.0)	30	

* Fisher exact test used

Table 3: Relationship between practice and demographic characteristics of participants.

Variable	Practice						Total No. N=400	P value
	Poor (1-2)		Acceptable (3-4)		Good (5-6)			
	No.	(%)	No.	(%)	No.	(%)		
Age								
<40	14	(35.9)	25	(64.1)	0.0	(0.00)	39	
40-49	39	(35.8)	57	(52.3)	13	(11.9)	109	0.19
50-59	53	(30.8)	91	(52.9)	28	(16.3)	172	
>60	30	(37.5)	40	(50.0)	10	(12.5)	80	
Gender								
Male	50	(35.7)	69	(49.3)	21	(15.0)	140	0.43
Female	86	(33.1)	144	(55.4)	30	(11.5)	260	
Marital statues								
Single	5	(29.4)	10	(58.8)	2	(11.8)	17	0.93
Married	131	(34.2)	203	(53.0)	49	(12.8)	383	

Table 4: Relationship between practice and socio-economic status of participants.

Variable	Practice						Total No. N=400	P value
	Poor (1-2)		Acceptable (3-4)		Good (5-6)			
	No.	(%)	No.	(%)	No.	(%)		
Family income in ID								
<500000	60	(38.7)	71	(45.8)	24	(15.5)	155	<0.001
500000- 1000000	66	(35.5)	100	(53.8)	20	(10.8)	186	
>1000000	10	(16.9)	42	(71.2)	7	(11.9)	59	
Home ownership								
Owned	113	(35.5)	174	(54.2)	34	(10.6)	321	0.03
Rented	23	(29.1)	39	(49.4)	17	(21.5)	79	
Occupation								
High professional	0.0	(0.0)	5	(83.3)	1	(16.7)	6	
Non manual skilled or semiskilled	6	(11.1)	34	(63.0)	14	(25.9)	42	
Manual partly skilled or unskilled	45	(74.4)	38	(40.0)	12	(12.6)	95	<0.001*
House wives	85	(35.0)	134	(55.1)	24	(9.90)	243	
Students	0.0	(0.00)	2	(100)	0.0	(0.00)	2	
Educational level								
Illiterate	70	(38.3)	91	(49.7)	22	(12.0)	183	
Read and write	20	(38.5)	32	(61.5)	0.0	(0.00)	52	
Primary graduate	21	(33.9)	35	(56.5)	6	(9.70)	62	<0.001
Intermediate and secondary	25	(34.2)	36	(49.3)	12	(16.4)	73	
Institute and more	0.0	(0.00)	19	(63.3)	11	(36.7)	30	

* Fisher exact test used

A statistically significant association between knowledge and practice was noticed, in which 100% of people with good knowledge of diabetes had acceptable practices (P value <0.001), Table 5.

Table 5: Relationship between patients' knowledge and practices.

Knowledge scores	Practice								P value
	Poor (1-2)		Acceptable (3-4)		Good (5-6)		Total		
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	
Poor (0-11)	78	(45.1)	82	(47.4)	13	(7.50)	173	(100)	
Acceptable (12-22)	58	(27.8)	113	(54.1)	38	(18.2)	209	(100)	<0.001
Good (23-33)	0.0	(0.00)	18	(100)	0.0	(0.00)	18	(100)	
Total	136	(34.0)	213	(53.2)	51	(12.8)	400	(100)	

Discussion

Management of chronic diseases is strongly linked to lifestyle modifications. For effective disease prevention and treatment, behavioral changes are required. This is true for diabetic patients who also need enough knowledge about their illness in order to manage it effectively[13]. In the present study, housewives constitutes the largest category (61%), while professional workers constitutes the least category (1.5%); more than (50%) of patients were above 50 years old. This may explain high percentage of illiterates (45.7%) in study sample and this might affect actual outcome of knowledge about diabetes. In the current study, about (56.7%) of patients were able to answer more than (50%) of knowledge questions correctly. This finding is less than that reported in studies done in Saudi Arabia (90%)[13],and Malaysia (87%)[14], while it is more than that reported in Kenya (27.2%)[15], and Nigeria (30.2%)[16]. The overall knowledge of participants about symptom, complication and risk factors of diabetes in this study were (41.8%, 30.5 % and 20.4% respectively). These figures are similar to findings found in a study done in Gujarat, North India[17]. The lack of information and understanding of patients to complications and risks

of diabetes mellitus may indicate the deficiency of health educational program of diabetes or may be due to patient's ignorance for the seriousness of the condition and this is may be partially explained by the fact that diabetes being almost asymptomatic and in the beginning usually not interfere with their daily life activities and patient generally tend to ignore the condition until the disease get advanced[18,19]. This study showed that more than 50% had acceptable practice in daily life. Nearly the same finding was reported by a study done in Saudi Arabia in which 49% had acceptable practice, on the other hand, a Malaysian study revealed that 99% of participants had acceptable practice in daily life[14]. This might be attributed to studied sample size and socio-demographic characteristics of participants in two studies in which housewives and illiterates constitutes a high percentages in our study and this might affect the knowledge and practice of individuals about diseases in general and diabetes in particular. A statistically significant association between knowledge levels and age of patients, in which the knowledge level was declining with advanced age and highest among those aged <40, this might be explained by the

fact that the majority of old age patients are illiterate which might affect their knowledge level. The knowledge level was significantly highest among those who had good family income, higher educational level and high professional occupation. This finding is similar to what reported in a study done in Kenya[15] and in Nigeria[16]. This might be explained by the fact that those who have good socio-economic state have better awareness about the health and the diseases. The better the knowledge the better the practice was clearly revealed in this study with a statistically significant association between knowledge and practice in which 100% of people with good knowledge of diabetes had acceptable practices. This finding is similar to that reported in a study done in Thailand [20]. Meanwhile; there was a statistically significant association between good practice and poor and acceptable knowledge; this may be due to lack of motivation by diabetic patients for good practice.

Conclusion

The overall rate of knowledge (acceptable and good) about diabetes among patients was more than half. The overall rate of practice (acceptable and good) about dia-betes among patients was high. The rate of knowledge was significantly declining with advance age. The rate of knowledge and practice was significantly associated with patients' occupation and educational level, in which the highest level was among high professionals and non-manual skilled or semi-skilled workers. Those had low and acceptable knowledge had better practice than those who had good knowledge about diabetes.

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