

Diabetes mellitus complications and causes of medication non-adherence among diabetic patients in Iraq

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Abstract

Background: Diabetes mellitus is a most main global health problem covering nearly 415 million persons globally. Glycemic regulator has the main role in its management which mainly depends upon patient adherence to the treatment strategy. A perfect assessment of Iraqi medication adherence is necessary for the effective management of diabetes.

Objective: To an awareness of Diabetes mellitus complications and causes of medication non-adherence among diabetic Iraqi patients.

Materials and Methods: Study participants filled out a detailed questionnaire about Diabetes mellitus to awareness of diabetes mellitus complications and causes of medication non-adherence among diabetic patients who participated in the survey. The data collection was from 200 DM patients online from August 2021 to October 2021.

Result: The study was conducted on 200 study participants. 68.5 percent of the patients were female table (1). The mean age was 60.935 years (SD \pm 1.46). The majority of 158 (79%) have higher education. More than half of the respondents (65%) had an average monthly income, (11.5%) of the participants had a high monthly income, and (23.5%) had a poor monthly income. One hundred and eighty four (92%) of the participants in the study lived in urban, and (8%) only lived in rural areas

Conclusion: This study provided data on awareness of diabetes complications among diabetic patients in Iraq. A comprehensive calculation of the awareness of 200 patients about the difficulties of diabetes showed that less than half of the participants had awareness.

Keywords: Awareness, Diabetes mellitus complication, Iraqi patients.

INTRODUCTION

The World Health Organization has established that approximately 415 million people worldwide suffer from diabetes [1]. It is estimated that undiagnosed diabetes may affect about one million people in the Middle East. It usually takes 5 to 7 years before the condition is diagnosed. In addition, based on the results of previous research and studies, the authors have established that approximately 5.5 million people are at risk of developing diabetes [1,2,3].

Diabetes mellitus is defined as a chronic metabolic disease characterized by elevated blood glucose levels resulting from defects in insulin secretion and/or the effect of insulin [4]. Based on the study of human genetics and human pathophysiology, two broad types of diabetes have been identified:

type 1 diabetes and type 2 diabetes, with the latter studying approximately 90% of all disease states. This disease develops in adults, especially the elderly, and persists for many years, often unnoticed or undiagnosed during this period. The condition can and should be treated by modifying the diet in the first place and increasing the physical activity of the patient.

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In its advanced stages, the disease requires drug therapy with blood glucose-lowering drugs or insulin therapy. Often this diagnosis is symptomatic or caused by the appearance of complications of diabetes mellitus in the affected patient and in the long term [3].

Diabetes, like all other chronic conditions, leads to a large number of complications for the patient, including premature death, which occurs earlier than in people without diabetes and at a younger age than is usually known. Prevention measures should provide for the monitoring of changes in the health status of the population. The objectives of these public health measures are not only quantitative measures, but also aim to prolong life and quality of life for the patient, meaning prolonging the number of years a diabetic patient lives in good health free of burdens or restrictions in carrying out activities of daily living due to the patient's health [5].

Materials and methods:

Setting and design

A simple randomized, cross-sectional, population-based study of diabetes mellitus was conducted in Iraq between August (2021) to October (2021). Using a google map, we made a survey of these patients. And assess the extent of their knowledge of diabetes and its complications.

Study subjects

People were invited through the media. A structured questionnaire, pre-tested by several hubs, quoted from different sources, was used to collect data [6-9]. The questionnaire contains 24 educational materials related to diabetes. Possible correct answers to assess awareness of diabetes complications. The questionnaire was prepared in Arabic first and translated into English to facilitate the process of taking the questionnaire randomly for people with diabetes.

Data analysis procedure

The data is checked for completeness and entered into Epi Info version 7 for ease and accuracy of information entry and exported to SPSS version 20 for analysis. Descriptive statistics such as frequencies and percentages were used. A binary logistic regression test was used to identify and predict the complications of diabetes mellitus. For bivariate analysis, variables with a p-value <0.2 were entered into a

multivariate logistic regression model. A p-value of 0.05 was used to declare statistically significant variables in the final model.

Results:

The study was conducted on 200 study participants. 68.5 percent of the patients were female table (1). The mean age was 60.935 years (SD ± 1.46). The majority of 158 (79%) have higher education. More than half of the respondents (65%) had an average monthly income, (11.5%) of the participants had a high monthly income, and (23.5%) had a poor monthly income. One hundred and eighty-four (92%) of the participants in the study lived in the urban, and (8%) only lived in rural areas table (2).

Table 1: gender distribution of DM patients

Variable	number	percent%
Male	63	31.50%
Female	137	68.50%
Total	200	100%

Table 2: Demographic characteristics of DM patients

variable		Number	percent%
Residence	urban	184	92
	rural	16	8
	total	200	100
Education	post-graduation	158	79
	under graduation	42	21
	total	200	100
Income	low	47	23.5
	medium	130	65
	high	23	11.5
	total	200	100

Table 3: Socio demographic characteristics of DM Iraqi patients.

Variables	Frequency	Percent (%)
Do you know that uncontrolled DM can lead to complications?		
Yes	188	94
no	12	6
Can DM affect the brain?		
Yes	5	2.5

No	195	97.5
Can DM affect the lungs?		
Yes	zero	zero
No	200	100
Can DM affect the heart?		
Yes	80	40
No	120	60
Can DM affect the Eyes?		
Yes	171	85.5
No	29	14.5
Can DM affect the gastrointestinal tract?		
Yes	29	14.5
No	171	85.5
Can DM affect the sexual function?		
Yes	134	78
No	44	22
Can DM affect the kidney?		
Yes	102	51
No	98	49
Can DM affect the blood pressure?		
Yes	Zero	Zero
No	200	100
Can DM affect your feet?		
Yes	181	90.5
No	19	9.5
Forgetfulness		
Yes	63	31.5
No	137	68.5
High cost of the drug		
Yes	165	82.5
No	35	17.5
Lack of trust in the efficacy of the drug		
Yes	43	21.5
No	157	78.5
Nature or schedule of my work		
Yes	12	6
No	188	94
Traditional and/or religious belief		

yes	43	21.5
no	157	78.5
Side effect of the drug		
yes	182	91
no	18	9
Feeling better		
yes	118	59
no	82	41
Feeling worse		
yes	13	6.5
no	187	93.5

All variables that were independent for crude association with sensation were tested by binary logistic regression. However, after adjusting for potential confounding factors in a multivariate analysis test, it runs; Male (assessment region: 4.67, 95% CI (2.53, 8.61)), elementary education (assessment region: 3.79, 95% CI (1.78, 8.06)) graduate (assessment region: 7.46, 95% CI (3.02, 18.44)), Table 4.

Table 4: Factors associated with awareness of DM complications among DM Iraqi patients

Variable	OR (95% CI)	
	COR	AOR
Sex		
Male	3.06 (2.005, 4.465)	4.167 (2.053, 8.61)***
Female	1	1
Income		
Low	1	1
Medium	1.108 (0.64, 2.189)	1.805 (0.175, 4.517)
High	2.217 (1.30, 3.950)	3.221 (1.28, 8.110)*
Residence		
Rural	1	1
Urban	2.106 (1.37, 3.120)	1.776 (0.113, 3.211)

COR crude odds ratio, AOR adjusted odds ratio, CI confidence interval, DM diabetes mellitus, N number

* p-value < 0.05, ** p-value < 0.01, *** p-value < 0.001.

Discussion:

one of the most common diseases of life, diabetes is undoubtedly a growing problem in our time, both locally and globally. The pace of life is accelerating as many are working harder and for longer, leaving less and less time for leisure. Unfortunately, this lifestyle is not without a cost and

a significant impact on our health. As a result, diabetes was the first non-communicable disease worldwide recognized by the World Health Organization as a spreading epidemic [12]. This is confirmed by the results of the current research that the burden and severity of disease for diabetes is greater than for other non-communicable diseases, such as breast cancer or heart disease. For illustrative purposes, one can take into account the absolute true death numbers. In 2012, there were 1.5 million deaths worldwide that could be directly attributable to diabetes. Diabetes was the eighth cause of death for both sexes, and the fifth leading cause of death for women in 2012 and increased in the following years [13].

This study provided data on awareness of diabetes complications among diabetic patients in Iraq. A comprehensive assessment of the awareness of 200 patients about the complications of diabetes showed that less than half of the participants had awareness. This result is consistent with the study previously conducted in Ethiopia (40%) [13], Bangladesh (42%) [13] and Pakistan [12]. On the contrary, it is inconsistent with a study on diabetes conducted in Saudi Arabia on awareness of diabetes complications in patients which reported that 80% of the participants were aware of the complications of diabetes. The reason for the difference may be due to the difference in social, economic and environmental conditions, beliefs and cultural habits of countries, as studies have shown that differences in these variables had an impact on the pattern of personal awareness of diabetes complications in people with this disease [15].

Also, the reason for this result may be the cultural influence of the country that allows females to spend their time at home, but males spend most of their time outside the home, which gives them a greater opportunity to obtain more information and attend various awareness and diagnostic meetings and conferences. Age was also significantly associated with awareness of complications of diabetes which is similar to that conducted in a previous study [14].

As patients get older they receive more counseling and health education during their follow-up at the diabetes clinic and

from direct and indirect education. Higher education level was an important predictor of better awareness, and this finding coincides with other studies [11, 12]. Those with a higher level of education are more aware of the complications of chronic diabetes, as the more knowledge the individuals have, the greater the chance of obtaining information about the complications of diabetes from various sources. In addition, individuals with a higher educational level can read various medical books. Another interesting finding of this current study is the association between occupation and patient knowledge of the complications of chronic diabetes. These results are also consistent with those of Obirikorang et al. [15].

In addition, increasing income plays an important role as individuals can access or purchase any electronic media such as awareness lectures for the disease, which is one of the means of obtaining information or participating in seminars and conferences and traveling to obtain more information. This result is consistent with the study previously conducted in India [16].

Age, gender, and educational level were important predictive factors for awareness of diabetes complications. Health education about the complications of diabetes for diabetic patients should be promoted by health professionals and the media and guidelines for them should be intensified.

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