Research Article

Perception of patients with Diabetes Mellitus about their disease and life style modification: A sample from Primary Health Care centres in Al-Resafa Sector in Baghdad

Sahar A E Al Shatari,[1] Yahiya B H Al-Juboori,[2] Sally A Witwit,[3] Khelowd Salih,[4] Alaa Safaa Abed,[5] Ahmed Sabbar Gabur,[6] Shams Wisam Talib Al-Tabtabaee,[7]

ABSTRACT

INTRODUCTION: DM prevalence has significantly increased due to the growing of obesity and increased life expectancy. Stop smoking, decrease saturated fat and switch to unsaturated fats, regular exercises, decrease salt intake, purified water intake are the most life modification measurements effect on the DM control.

OBJECTIVE: To measure the perception of DM patient visiting PHC centres in Al-resafa about health education and to measure their commitment to educational instructions offered by the health care providers.

METHODS: Across sectional study with analytic element was conducted by involving all non-pregnant type 2 diabetes mellitus patient in six of al-Resafa sector PHC centres, who were diagnosed for at least 6 months.

RESULTS: Across sectional study with analytic element was conducted by involving all non-pregnant type 2 diabetes mellitus patient in six of Al-Resafa sector PHC centres, who were diagnosed since 6 month and more.

Results: We involved 152 patients in this study; 56(36.8%) aged 50-59 years old, 108(71.1%) were females, and 76(50%) had hypertension. Of participants, (86.8%) were thinking that they understand their disease, (83.6 %) understand its seriousness, (81.6%) understand its drugs and treatments, and (80.3%) understand complications and dangers. Out of 49 smokers, 13 (26.53%) have stopped smoking and 22 (44.89%) have decreased smoking. Health Education about exercise received by 109 (71.71%) patients, only 54(49.54%) have committed to this instruction. More than 80% of participants have decreased saturated fat and increased unsaturated fat, decreased salt in food and water. .

CONCLUSION: The participant had a good perception about their disease, drugs and complication. in spite of good health education and good life modification; only one-third of participant was reaching the target blood sugar, two-third were reach the target blood pressure.

Key words: health education, Type 2 DM, hypertension, life style modification, Iraq.

INTRODUCTION

Type 2 diabetes mellitus (DM) is one of the most common chronic diseases worldwide.[1] DM prevalence has significantly increased due to the growing of obesity and increased life expectancy. It is a complex disorder which requires constant attention to diet, blood glucose monitoring, and medication consumption for glycemic control.[2]

Glycemic control largely depends on compliance with medication therapies. In fact, the most common problem in patients with DM is non-compliance with medications. Medication non-compliance leads to the increased prevalence of diabetes associated complications. It also reduces the patients' quality of life and increases mortality and morbidity rates. Patients and health care systems need to spend signif-

1 MBCHB. FICMS. Consultant Family Physician, Training PHC Centre for Family Health Approach at Bab Al-Moatham, Baghdad, Iraq.
2 MBCHB. FICMS. Al-Edresi PHC, Al-Resafa Health Directorate, Baghdad, Iraq.
3 MBCHB. FICMS. Department of Non-Communicable Diseases, Public Health Directorate, MoH, Baghdad, Iraq.
4 MBCHB. DFM. Family Physician, Training PHC Centre for Family Health Approach at Bab Al-Moatham, Baghdad / Iraq.
5 MBCHB. FICMS. Al-Resafa District for Primary Health, Al-Resafa Health Directorate, Baghdad / Iraq.
6 MBCHB. Fakher Aldeen Al-Jameel PHC, Al-Resafa Health Directorate, Baghdad, Iraq.
7 MBCHB. FICMS. Al-Zewaia PHC, Al-Resafa Health Directorate, Baghdad / Iraq.

Corresponding Author: **Sahar A E Al Shatari**, Training PHC Centre for Family Health Approach at Bab Al-Moatham, Baghdad, Iraq.
E mail: saharissa2020@yahoo.com

icant amounts of money for the management and treatment of diabetes and its acute and chronic complications.[3,4]

Unhealthy lifestyle behaviours are major public health problems. Promoting health behaviour is an ongoing challenge that warrants innovative solutions.[5] Health literacy is the degree to which individuals can obtain, process, and understand basic health information and services needed to make appropriate health decisions.[6] Health literacy is of concern to everyone involved in health promotion and protection, disease prevention and early screening, health care and maintenance, and policy making.[7] The consequences of inadequate health literacy include poor health status, lack of knowledge about medical care and medical conditions, decreased comprehension of medical information, lack of understanding and use of preventive services, poor self-reported health, poor compliance, increased hospitalization, and increased health care costs. Many countries, such as the United States, Canada, and Australia, have used health literacy as an indicator of National health.[6]

Stop smoking, decrease saturated fat and switch to unsaturated fats, regular exercises, decrease salt intake, purified water intake are the most life modification measurements affect the DM control, in addition to proper use of medication.[8, 9, 10, & 11]

In order to build a strategy to overcome health illiteracy in our community in DM, we need to know how the patients who have DM perceive and understand nature of their disease, its seriousness, complications and management. In addition to assess how much health education about life style modification that are provided by health care providers can be translated by the patients into behaviour.

So, this study aimed at measuring the perceptions of patients with DM who were visiting PHC centres in Al-Rasafa Health Directorate about understanding of DM and its complication and management. In addition to measure how many of them have received health education about life style modification and implement them in their daily life.

METHODS

Study design and setting: A cross sectional study with analytic element was conducted at six PHC centres in Al-Resafa sector in Baghdad from 1st January – 30th July 2018. Data were collected from 1st of February to 31st of May 2018.

Sampling technique used: The six PHC centres in al-Resafa sector were conveniently selected; all the participants who met the inclusion criteria during the data collection time were included in the study.

Ethical consideration: The study protocol has been approved by the research committee of Al-Resafa health directorate in accordance to the code of ethics of Ministry of Health in Iraq. The objectives of the study were explained to all the participants and an informed oral consent was taken before collecting the data which was kept confidential. Every patient has the right to participate or not in the study.

Inclusion and exclusion criteria: Patients who were already diagnosed of having DM for at least 6 months and had registered at the selected PHC centres and visited the centre for follow up during the study period were included in the study. Pregnant women and patients who refused to participate were excluded from the study.

Study tool: A questionnaire was prepared and translated by researchers and revised by three community physicians, five family physicians, and three internal physicians. The questionnaire was tested on a pilot of 18 patients who were not included in the final analysis of the data. The participants (152 DM patients) were interviewed and Socio-demographic data was collected (age, gender, educational level, marital status, and presence of hypertension). Then the questions branched out to include many aspects: two questions were for doctors' appointments and if the patients commit to these scheduled visits, one question for his/he perception about commitment to doctors instructions, four questions for their perceptions about their diseases and its seriousness, six questions were about their perceptions on life

style modification. Fasting/random blood sugar were measured, height, weight were measured and body mass index was calculated and were compared with body weight documented in the patient file at the beginning of the diagnosis.

Coding: In this study glycemic control was assessed by measuring random and fasting blood sugar only as glycated haemoglobin (HbA1c) was not available at the PHC centres. Uncontrolled DM was defined if random plasma glucose or capillary blood sugar >200 mg/dl or fasting plasma glucose >125 mg/dl on 2 occasions.[11, 12, &13] Body mass index was defined as weight (kg)/ height $(m)^2$. [14] and classified as underweight if it is < 18.5, normal or healthy if it is 18.5 to 24.9, overweight if it is 25.0 to 29.9, obese if it is 30 to 39.9, and morbid obese after that.

Table 1 | Some demographic features of patients with DM

		No.	%
Age	Less than 40	11	7.2
	40-49	25	16.4
	50-59	56	36.8
	60-69	44	28.9
	70 and above	16	10.5
Gender	Male	44	28.9
	Female	108	71.1
Educational level	Not read not write	24	15.8
	Read and write	15	9.9
	Primary School	53	34.9
	Secondary School	35	23.0
	College & above	25	16.5
Marital status	Single	5	3.3
	Married	117	77.0
	Widow	25	16.4
	Separated/ divorce	5	3.3
Blood Pressure	Normotensive	76	50.0
	Hypertensive	76	50.0
BMI	Normal weight	20	13.2
	Overweight	65	42.8
	Obesity	45	29.6
	Morbid obesity	22	14.5
Control of DM	Controlled	55	36.67
	Uncontrolled	97	63.82
Total		152	100

DM: Diabetes Mellitus, BMI: Body Mass Index,

Data entry and statistical analysis: was done by using SPSS ver.23, frequencies and percentage, chi square and P value<0.05consider significant.

RESULTS

In this study, 152 patients with DM were included, 56(36.8%) of them aged 50-59 years old, 108(71.1%) were females, 76 (50.0 %) patients had hypertension, In assessing the BMI, only 20(13.16%) of the patient had normal body weight, while the majority were overweight 65(42.76%), obesity 45(29.60%) &morbid obesity 22(14.47%). Most of the participants had uncontrolled DM 97 (63.82 %). See table 1

Most of the participants were visiting the PHC centres on a scheduled appointment 117 (73 %), 38 (25 %) were come to the PHC centres as walk in, and 3 of them were sometimes had an appointment for visiting. Out of 117, 64 (56%) had complied with their appointment, 9 (8%) were doing so sometimes, and 41 (36 %) had never complied to their appointment. Figure 1 shows that 106 (70%) participants thought that they complied with the instructions given by health care providers regarding health education, while only 9 (6%) participants did not.

Based on health education delivered by health care providers, more than 80 % of the

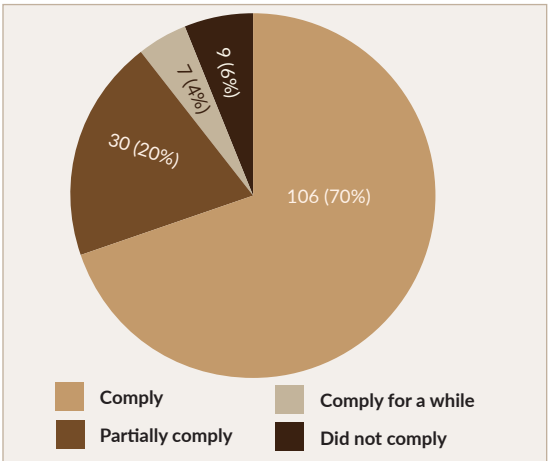

Figure 1 | Compliance of the participants to health care providers' instruction

Table 2 | Perception of participants towards DM and its treatment

	Frequency (N=152)	%
Understand his disease		
Yes	132	86.8
No	13	8.6
Sometimes	7	4.6
Understand his disease seriousness		
Yes	127	83.6
No	15	9.9
Sometimes	10	6.6
Understanding its drugs and treatments		
Yes	124	81.6
No	12	7.9
Sometimes	16	10.5
Understanding its complications and dangers		
Yes	122	80.3
No	21	13.8
Sometimes	9	5.9

participants thought that they understood DM, its seriousness, its drugs and treatments, and its complications and dangers; 132 (86.8 %), 127 (83.6 %), 124 (81.6 %), and 122 (80.3 %) respectively. Table 3

When we reflect how much health care instructions are implemented in patients' daily life, table 3 shows that only 12 out of 38 participants (31.57 %) who were smokers have quitted smoking and 54 out of 109 (49.54 %) were committed to regular exercise.

Table 4 shows how frequent patients with DM committed to the instructions of health care providers regarding life style modifications. We found that out of 132(86.84%) patients informed to decrease saturated fat, 98(74.24%) have said that they did, 19(14.39%) said they decreased them sometimes, and only 15(11.36%) of them said they did not which was statistically non-significant. In other side, 101 patients said they increased unsaturated fat (olive oil, nuts, fish oil .... est.), comparing to 18(13.36%) patients said they did not increase the unsaturated fat even they were told about, and this was statistically significant. For salt intake and salt free water intake see table 4.

Regarding weight reduction figure 2 shows that out of 123 participants who were overweight, obese, and morbid obese and were advised by health care providers for weight reduction, only 40 (26.3 %) has really lost weight, while 83 (55.3 %) failed to put down their body weight.

DISCUSSION

Aging is one of the major factors promoting the epidemic scale of DM. Currently diabetes is seen to be highly prevalence in the two age groups of 40-59 and 60-79 years. The distribution of DM patients according to their demographic features seems to be similar to other studies in the world. Over the past three decades, the prevalence of diabetes worldwide has constantly increased, especially in the elderly population.[16] Also, 108 (71.1%) participants were females. This may not reflect more women to be involved by DM but rather more tendency for women to visit PHC centres.[15,17]

Nearly half of patients in our study were having primary and secondary school education and this is similar to most countries; lower educational level was associated with high-

Table 3 | Relation between having health education on the response of the participants to quit smoking and doing exercise.

		Positive response (%)	Negative response (%)	Partial response† (%)	Total (%)	P value
Smoking Health Education	**Yes**	12 (31.57)	10 (26.31)	16 (42.10)	38 (77.55)	0.329
	No	1 (9.0)	4 (36.36)	6 (63.63)	11 (22.45)	
Total		13	14	22	49*	
Exercise Health Education	**Yes**	54 (49.54)	47 (43.11)	8 (7.33)	109 (71.71)	0.052
	No	12 (27.90)	27 (62.79)	4 (9.30)	43 (28.28)	
Total		66	74	12	152	

† Partial response means decreasing number of cigarettes for smoking and doing exercise sometimes for exercise.
* 103 of patients already not smoking from beginning.

Table 4 | Relation between having health education on doing some life style modification as perceived by participants.

	Underwent health Education			Total (%)	P Value
	Yes (%)	No (%)	Sometimes (%)		
Use decrease saturated fat					0.253
Yes	98 (74.24%)	10 (76.92%)	4 (57.14%)	112 (73.68)	
No	15 (11.36%)	2 (15.85%)	0 (0.0%)	17 (11.18)	
Sometimes	19 (14.39%)	1 (7.69%)	3 (42.86%)	23 (15.13)	
Use Increase unsaturated fat					0.000
Yes	101 (76.52%)	7 (53.85%)	1 (14.28%)	109 (71.71)	
No	18 (13.36%)	4 (30.77%)	1 (14.28%)	23 (15.13)	
Sometimes	13 (9.85%)	2 (15.38%)	5 (71.43%)	20 (13.16)	
Use Low salt					0.004
Yes	111 (84.09%)	7 (53.84%)	5 (71.43%)	123 (80.92%)	
No	13 (9.85%)	5 (38.46%)	0 (0.0%)	18 (11.84%)	
Sometimes	8 (6.06%)	1 (7.69%)	2 (28.57%)	11 (7.24%)	
Use Salt free water					0.014
Yes	78 (59.09%)	1 2(92.30%)	6 (85.71%)	96 (63.16%)	
No	51 (38.63%)	1 (7.69%)	0 (0.0%)	52 (34.21%)	
Sometimes	3 (2.27%)	0 (0.0%)	1 (14.28%)	4 (2.63%)	
Total	132 (86.84)	13 (8.55%)	7 (4.61%)		

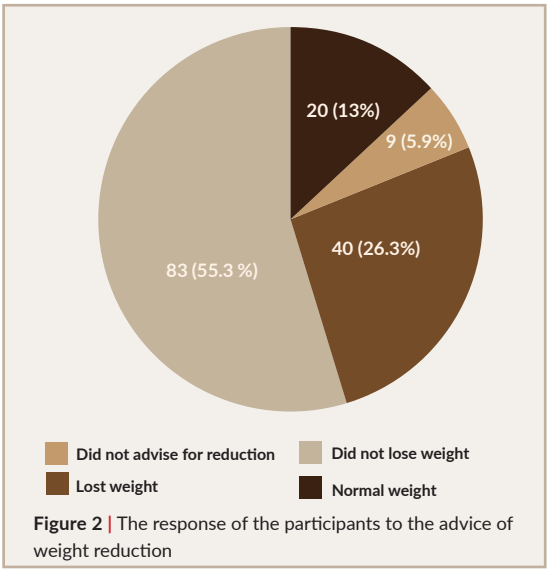

Figure 2 | The response of the participants to the advice of weight reduction

er prevalence of diabetes compared to better educated groups.[18] Most of participants were married, this is because the targeted age is usually married in Iraq will be married, and same result in study done Majmaah, Kingdom of Saudi of Saudi Arabia.[19, 20]

Low percentage of DM patients were not committed to scheduled visits by the doctor, this may be due to several factors, psychological, crowded PHC centres, unavailability of some drugs and facilities or may due to routine of health system in PHC. In fact, the most common problem in patients with diabetes is non-compliance, and also in study done in Tehran in 2010 and 2011 it's found the importance of psychological factors such as personality characteristics in medication compliance of patients with diabetes.[3]

The sample of our study have shown a good perceptions and understanding to his/her disease; its nature, seriousness, complications, and unhealthy lifestyle behaviours. Health literacy is the degree to which individuals can obtain, process, and understand basic health information and services needed to make appropriate health decisions. Many countries, such as the United States, Canada, and Australia, have used health literacy as an indicator of

National health.[5]

Nearly seventy percent of participants of our sample thought that they comply with doctors instruction completely; however, the study found that more than two-third of patients have not reached the target of blood sugar level. This is may be due to non-compliance, shortage of drugs, use of wrong treatment doses or following of the wrong health education.

We fount that about only one-third of patients had quitted smoking in response to their physicians' instructions. This is similar to many studies.[21,22] This is because simple advise, though important, is not enough and more integrated efforts are needed including psychological support and group therapy. American CDC centre states that smokers are 30 – 40% more likely to develop type 2 diabetes than nonsmokers. And people with diabetes who smoke are more likely than nonsmokers to have trouble with insulin dosing and with controlling their disease. The more cigarettes you smoke, the higher your risk for type 2 diabetes, smoking makes your diabetes harder to control, they are more likely to have serious health problems from diabetes. Smokers with diabetes have higher risks for serious complications, including cardiovascular disease, chronic renal diseases, retinopathy, and peripheral neuropathy.[23]

Out of 152 participants, 109 (71.71%) have received health education about exercise and about half of them thought they comply with these instructions. Indeed, in patients with type 2 diabetes, exercise may improve insulin sensitivity and assist diminishing elevated blood glucose level into the normal range.[24] In meta-analysis study and systematic review suggests that exercise interventions positively influence cognitive function in patients with chronic diseases. Beneficial effect was independent of the type of disease, type of exercise, frequency, and the intensity of the exercise intervention.[25]

Majority of participants received health education about food; about one-hundred of them said they were committed to educational instructions. This is considered a good result that may improve glycemic control. High mono-unsaturated fat diets improve lipoprotein profiles as well as glycemic control in patient with diabetes mellitus. Furthermore, there is no evidence that high mono-unsaturated fat diets induce weight gain in patients with diabetes mellitus. Diet rich in monounsaturated fat can be advantageous for both patients with type 1 or type 2 DM who are trying to maintain or lose weight.[26]

Majority of participants received health education about salt restriction, and many of them were using low salt diet. However, 73 of them are using salt free water. This may be due to deficiency in the knowledge about presence or amount of salt in water for drinking. Recent guidelines have emphasized that the target blood pressure levels for patients with diabetes should be lower than in other hypertensive groups. An increased total body sodium and enhanced vascular reactivity are found in people with diabetes and most type 2 diabetic patients are salt sensitive.[27,28] A study conducted in Naples in Italy has found that Mediterranean dietary model is a suitable model for type 2 DM, and its benefit may lie primarily in the synergy among various nutrients and foods rather than on any individual component.[29]

We found that only thirteen percent of the patients had normal healthy weight, others are distributed over the whole range of abnormal weight; overweight, obese, and morbidly obese. We have noted also that not all patients with abnormal BMI were advised by health care physicians to lose weight and only one-third of them had decreased their weight upon physicians' instructions. Obesity is an important modifiable risk factor for the development of both diabetes and hypertension, public health programs targeting obese groups through using body mass index (BMI) as a tool for screening is a promising for promotion and prevention of non-communicable diseases through a common risk factor approach.[30] High BMI may be the cause for poor control of sugar and blood pressure. In two other studies (shield- 2004, NHANES 1999- 2002), both found increased BMI was associated with increased prevalence of DM, hypertension and dyslipidaemia ($p<0.001$).[31]

CONCLUSION

The participant had a good perception about their disease, drugs and complication. In spite of good health education and good life modification; only one/third of participant was reaching the target blood sugar, and low percent of them reach the BMI target.

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Abbreviations list: Body Mass Index (**BMI**), Centers for Disease Control and Prevention (**CDC**), Diabetes mellitus (**DM**), Primary health care (**PHC**), Statistical package of social sciences (**SPSS**).

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