Evaluation of Self-Care Practice and Its Associated Factors in Diabetic Patients

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Abstract

Objective: Since diabetes is a lifelong disorder that has no cure, patients' lack of participation in the treatment process is one of the reasons for the failure to achieve the desired results in diabetes care. Therefore, the disease involves self-care behaviors by patients throughout their lives. Role of self-care practice is crucial to keep the disease under managed and prevent complications.

Methods: A cross-sectional study was conducted in a random sample of 200 diabetic patients in Derna City northeastern of Libya. The data were collected using a structured interviewer-administered questionnaire. The analysis and interpretation of data was in term of descriptive statistics. Chi–square test was used to assess the disease-related characters.

Results: The study showed that diabetes is more prevalent in women than in men. The participants were of age 12 to 83 years and the mean age was of 54.58 (± 13.58). The study also showed that 64% of participants had no difficulties in the practice of self-care while 36% did not practice any self-care activities. About 61.50% of participants had health problems and disease complications. The study indicated a significant association between regular self-monitoring of blood sugar, which is one of the most important self-care practices and the onset of disease complications ($P < 0.05$). About 74% of the participants did not undergo any diabetes education, which justifies the lack of a role for self-care in some of the participants.

Conclusion: There is an immense need of dedicated self-care behaviors in multiple domains, including food choices, physical activity, proper medications intake and blood glucose monitoring from the patients. Diabetes education is important but it must be transferred to action or self-care activities to fully benefit the patient.

Keywords: Evaluation, Self-Care, Associated Factors, Diabetes Education, Derna, Libya

Introduction

Diabetes is one of the most common chronic diseases, and because of its growing trend, is considered one of the most important public health problems in the world. The disease has led to 9% of all deaths worldwide, and it is the fifth leading cause of death in western societies. It also the fourth reason for going to a doctor [1]. Currently, more than 230 million people worldwide are suffering from this disease, which will increase up to 380 million until 2025, as World Health Organization has predicted. Therefore, according to this in developed countries, the number of patients will be from 51 million to 72 million that is 42 percent increase in number as compared to 170 percent in developing countries, that will be from 84 million to 228 million [2]. Many studies have shown that despite normal living conditions, diabetics are affected by complications of diabetes such as

neuropathy, nephropathy, stroke, etc. in the long term [3]. In other words, diabetes is the most important cause of blindness and chronic renal failure in adults. Moreover, diabetics are at risk of heart disease, 2 to 4 times more than the non-diabetic patients [4]. Therefore, it is important due to its direct and indirect financial burden on the health-care system and its impact on the quality of life, as well. The survey by the World Health Organization indicates that 16 percent of hospital costs and 58 percent of all amputations relates to diabetics [5]. Identifying barriers to diabetes management is necessary to improve the quality of diabetes care, including the improvement of metabolic control, and diabetes self-management. [6]. According to such type of studies, the most important reason for mortality in diabetics is lack of self-care behavior [7]. Self- care is patient's active participation in daily care activities such as regular drug use, diet, physical activity, blood glucose monitoring and foot care [8]. Inadequate self-care in diabetics is as a major problem, which health care providers encounter. This issue not only has an impact on mortality rates but also, increases treatment costs. The results of a lot of studies show that diabetics have not suitable self-care condition and do not participate in day care process while the treatment results of diabetes depends a lot on self-care behaviors [9]. There are seven essential self-care behaviors in people with diabetes, which predict good outcomes namely healthy eating, being physically active, monitoring of blood sugar, compliant with medications, good problem-solving skills, healthy coping skills and risk-reduction behaviors. All these seven behaviors have been found to be positively correlated with good glycemic control, reduction of complications and improvement in quality of life. Individuals with diabetes have been shown to make a dramatic impact on the progression and development of their disease by participating in their own care. Despite this fact, compliance or adherence to these activities has been found to be low, especially when looking at long-term changes. Though multiple demographic, socio-economic and social support factors can be considered as positive contributors in facilitating self-care activities in diabetic patients, role of clinicians in promoting self-care is vital and has to be emphasized.

Material and methods:

Study Design and Population

A cross-sectional study was conducted among diabetic patients at the Cardiac and Diabetic Centre in Derna City, northeastern of Libya, from March 1 to June 30, 2020. A total of 200 diabetic patients were randomly selected.

Collecting Data

The data were collected using a pre-tested structured interviewer-administered questionnaire. The questionnaire was used to collect all relevant information pertaining to the study variables.

Statistical Analysis

The study was descriptive and data were summarized as counts and percentages. The Chi-square test was used to test the difference between proportions. A P-value of less than 0.05 was considered significant.

Aim of the work:

The main aim of this study was to evaluate self-care practice and its associated factors in diabetic patients in order to determine self-care status of diabetics, required materials for intervention with diabetes education, and the demographic and disease-related characters.

Results:

Table 1: Socio-Demographic Characteristics of the Study Participants, n=200

Variables	Frequency	Percentage
Gender:		
Males	90	45
Females	110	55
Age (Years):		
12 – 23	8	4
24 – 35	4	2
36 – 47	36	18
48 – 59	72	36
60 – 71	62	31
72 – 83	18	9

Marital Status		
Single	14	7
Married	160	80
Divorced	4	2
Widowed	22	11
Residence:		
Town	180	90
Outside town	20	10
Educational Status:		
Educated	156	78
Uneducated (illiterate)	44	22
Job:		
Self-employed	45	22.50
Government employed	111	55.50
House wife	21	10.50
Student	11	5.50
Retired	12	6
Income Levels (LYD):		
Low	80	40
Moderate	105	52.50
High	15	7.50

A total of 200 diabetic patients, of which 90 (45%) were males and 110 (55%) were females. Many studies have also indicated a higher prevalence among females than males. The mean age (±SD) of the participants was 54.58 (± 13.58) years. About 134 (67%) of the participants were above 47 years old. With regard to marital status, 160 (80%) were married, 22 (11%) were widowed, 14 (7%) were single, and 4 (2%) were divorced. Most participants were from Derna City 180 (90%), and only 20 (10%) were from neighboring areas. Concerning participants' education, 156 (78%) were educated. Most of the participants were government employed 111 (55.50%) and 45 (22.50%) were self-employed. Other jobs were housewives 21 (10.50%), students 11 (5.50%) while the retirees reached 12 (6%). The majority of participants were of moderate income 105 (52.50%) and the low income comprised 80 (40%). High income had a percentage of 15 (7.50%) only. Education and income have a significant impact on self-management of the disease (Table 1).

Table 2: Clinical Characteristics of Study Participants, n=200

Variables	Frequency	Percentage
General Health Status:		
Had no Health Problems	77	38.50
Had Health Problems & Disease Complications	123	61.50
Years Living with DM:		
1 – 4	54	27
5 – 9	48	24
10 – 14	48	24
15 – 19	20	10
20 – 24	14	7
25 – 29	8	4
30 – 34	6	3
35 – 39	2	1
Family History with DM:		
Had Family History of DM	136	68
Had no Family History of DM	64	32
Medication:		
Insulin Injection	78	39
Oral Hypoglycaemic Agents	122	61
Source of Support:		
Family	160	80
Health Care Providers	10	5
No body	30	15
Diabetic Education:		
Yes (Sometimes)	52	26
No (Never)	148	74

Out of 200 respondents, 77 (38.50%) of participants had no health problems while 123 (61.50%) suffering from health problems and some of the disease complications. The years living with diabetes ranging from 1 year to 39 years. Most participants are diabetics for a period of 1year to 14 years. Oral hypoglycemic agents represent the high percentage as a type of medication used 122 (61%). More than half of the respondents 136 (68%) had family history of DM. Most of respondents 160 (80%) were supported by family, and only 10 (5%) got their support from health-care providers while 30 (15%) had no support. As for the diabetes education, 148 (74%) of the participants reported that they never got any diabetes education (Table 2).
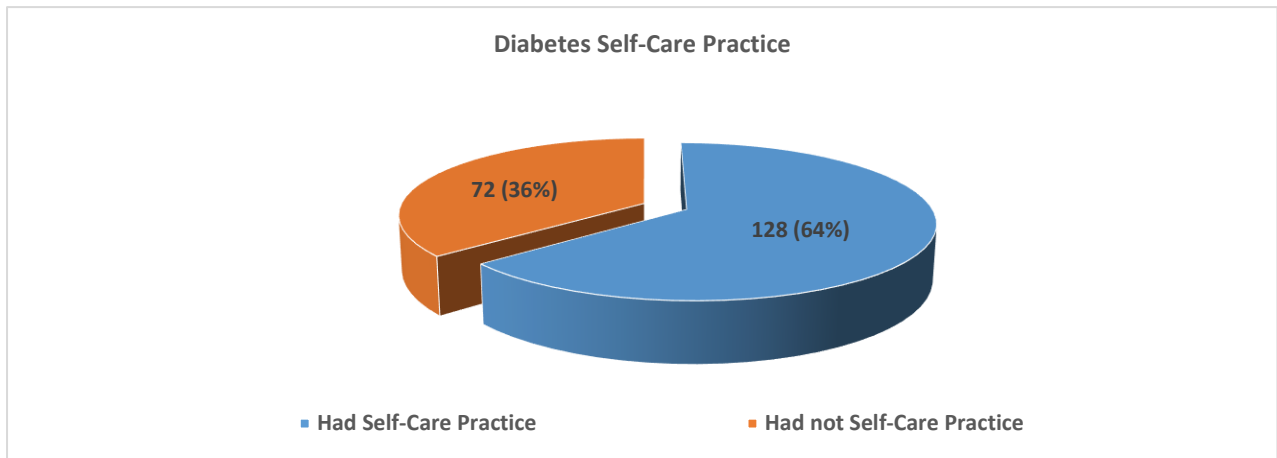

Figure 1: Prevalence of Self-Care Practice in Participants, n=200

Out of 200 respondents, 128 (64%) practice self-care satisfactorily, while 72 (36%) did not practice any self-care activities (Figure 1).
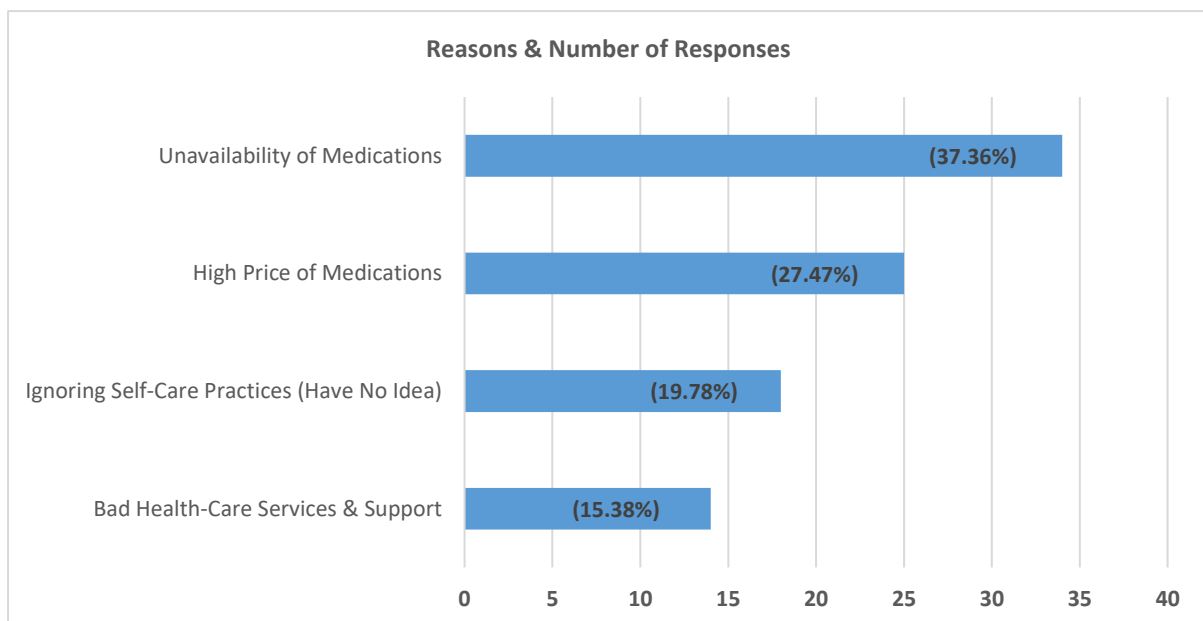

Figure 2: Reasons for Reluctance to Practice Diabetic Self-Care**,** n=72

Out of 72 respondents, who reluctance to practice diabetic self-care, there were four main reasons for their attitude, among which the unavailability and high prices of medications were most common (Figure 2).

Table 3: Diabetic Self-Care Activities in Participants, n=128

Variables	Frequency	Percentage
Special Diabetic Products:		
Used	55	43
Unused	73	57
Visiting the Physician:		
Adhering to physician visit	40	31
Non-adhering to physician visit	88	69
Self-Monitoring of Blood Sugar:		
Performed	104	81
Unperformed	24	19
Taking Recommended Medications:		
Rarely	5	4
Sometimes	10	8
Mostly	22	17
Always	91	71
Daily Physical Activity:		
Performed	44	34
Unperformed	84	66

Out of 128 respondents, 55 (43%) of the participants used nutritional diabetes products while 73 (57%) did not use any diabetic products. This may because of their high prices and patients' low income or due to ignorance of some patients with them. The study showed how many patients were adhering to the physician visit, where 40 (31%) visiting their physician regularly and 88 (69%) were do not doing so. As for the regular self-monitoring of blood sugar 104 (81%) of the participants monitor their blood sugar level on a regular base while 24 (19%) were do not doing so. Concerning taking the recommended medications, 91 (71%) of participants take their medications always, followed by 22 (17%) mostly, 10 (8%) sometimes, and 5 (4%) rarely. Regarding daily physical activity, 44 (34%) of the participants were performing their daily activity while 84 (66%) were not doing any daily physical activity (Table 3).

Table 4: Disease Complications and Regular Self-Monitoring of Blood Sugar, n=200

Variables		Regular Self-Monitoring of Blood Sugar				Total	Percentage	P-Value
		Yes		**No**				
		Frequency	Percentage	Frequency	Percentage			
Eye Problems (Retinopathy)	Yes	5	4.81	28	29.17	**33**	**16.50**	
	No	99	95.19	68	70.83	**167**	**83.50**	
Diabetes Foot Problems	Yes	3	2.88	17	17.71	**20**	**10.00**	
	No	101	97.12	79	82.29	**180**	**90.00**	
Kidney Problems	Yes	0	0	4	4.17	**4**	**2.00**	
	No	104	100	92	95.83	**196**	**98.00**	
Gum Disease & Other Mouth Problems	Yes	5	4.81	15	15.63	**20**	**10.00**	< 0.05
	No	99	95.19	81	84.37	**180**	**90.00**	
Numbness & Loss of Feeling	Yes	4	3.85	17	17.71	**21**	**10.50**	
	No	100	96.15	79	82.29	**179**	**89.50**	
High Blood Pressure	Yes	2	1.92	23	23.96	**25**	**12.50**	
	No	102	98.08	73	76.04	**175**	**87.50**	

Out of 200 respondents, 33 (16.50%) had reported diagnosis retinopathy followed by 25 (12.50%) had high blood pressure, 21 (10.50%) had numbness & loss of feeling, 20 (10%) had diabetes foot problems, 20 (10%) had gum disease & other mouth problems, and 4 (2%) had kidney problems. Here, it is worth mentioning that there are statistically significant difference between regular self-monitoring of blood sugar and the onset of disease complications (Table 4).

Discussion:

The baseline characteristics of this study revealed that females had a higher prevalence of Diabetes Mellitus than males. Many studies have also indicated a higher prevalence among females than males [10, 11]. The participants were of age 12 – 83 years and 134 (67%) of them were above 47 years old. Aging is one of the important risk factors for metabolic disorders, including obesity, impaired glucose tolerance, and type-2 diabetes [12, 13]. The results of the present study showed that 156 (78%) of participants are educated. The level of education and place of residence were important determinants of how quickly diagnosis was made. Studies from both developing and developed countries have found inverse associations between Diabetes Mellitus and educational level and household socio-economic status. It is possibly because the better-educated people were likely to be more health-conscious [14]. The years living with diabetes ranged from 1 year to 39 years. The years living with the disease had a prominent role in the occurrence of some health problems and onset of complications among some of the participants, especially in the absence of self-care support, whether from the family or from those in charge of providing health-care services in Derna City. In this study, 136 (68%) of the participants had family history with Diabetes Mellitus. Various studies revealed heredity as one of the most factors related to Diabetes Mellitus [15, 16, 17, 18]. The study showed also that 128 (64%) of participants had no difficulties in the practice of self-care and 72 (36%) did not practice any self-care activities. The reluctance to self-care practice can be tacked by working to improve the quality of health-care services provided to patients with diabetes, the provision of free treatment and medications, as well as planning educational campaigns on diabetes. There was 123 (61.50%) of participants suffering from health problems and the disease complications. In this regard, the study indicated a statistically significant relationship between regular self-monitoring of blood sugar and the onset of disease complications (P < 0.05). Studies have shown that despite normal living conditions, diabetics are affected by complications of diabetes such as neuropathy, nephropathy, stroke, Gum disease & other mouth problems etc. [19, 20]. In despite of three fourth of the participants were educated, the lack of awareness of self-care practices, activities, and behaviors of the disease sounded clear among some of the participants. Here, it is worth mentioning that the needs of diabetic patients are not only limited to adequate glycemic control but also correspond with preventing complications, disability limitation, and rehabilitation. Less than half of the participants were not adhering to the physician visit 88 (69%) while 40 (31%) were adhering to do so. Most of the participants in this study had been advised by their health-care givers to check their blood glucose regularly, and 104 (81%) of them checked it regularly while 24 (19%) did not do so. Continuous glucose monitoring (CGM) is becoming widely accepted as an adjunct to diabetes management. Compared to standard care, CGM can provide detailed information about glycemic variability in an internationally standardized ambulatory glucose profile, enabling more informed user and clinician decision making. [21]. Most of the participants were prescribed medication on a daily basis and take care of any wounds or injuries. However, the results do agree with the International Diabetes Institute (IDI) that monitoring of blood glucose depends on the available resources in the country and on the available resources for the individual [22].

Conclusion and Recommendations:

Diabetes is a complex and stressful disease that requires a person with diabetes to make many daily decisions regarding food, physical activity, and medications. It also requires that the person be proficient in a number of self-care skills. One of the biggest challenges for health-care providers in Derna City is addressing the continued needs and demands of individuals with diabetes. The importance of regular follow-up of diabetic patients with the health- care provider is of great significance in averting any long-term complications. Studies have reported that strict metabolic control can delay or prevent the progression of complications associated with diabetes. Individuals with diabetes have been shown to make a dramatic impact on the progression and development of their disease by participating in their own care. Despite this fact, compliance or adherence to self-care activities has been found to be low, especially when looking at long-term changes. Though multiple demographic, socio-economic and social support factors can be considered as positive contributors in facilitating self-care activities in diabetic patients, role of clinicians in promoting self-care is vital and has to be emphasized. Realizing the multi-faceted nature of the problem, a systematic, multi-pronged and an integrated approach is required for promoting self-care practices among diabetic patients to avert any long-term complications. It is important to point out to the diabetic patient that one can live a near-normal life if the diet is followed, medication is taken as

prescribed, and time is allowed for sufficient exercise and rest. The importance of eating all of the prescribed food must be emphasized. It is important for meals to be eaten at regular times so the insulin-glucose balance can be maintained. It is imperative that the patient learn to read carefully all labels on commercially prepared foods. This is necessary to avoid eating or drinking anything that might contain an unknown amount of sugar. It must be explained that prepared foods with unknown amounts of sugar added are not allowed because they upset the insulin-glucose balance. Adjustments must be made in the shopping, cooking, and eating habits so the diet plan can be followed. Family meals can be simply adapted for the diabetic diet. The diabetic patient soon learns which exchange lists are to be included at each meal and at snack times, and the foods within each exchange list. Successful self-management of Diabetes Mellitus requires that individuals with disease frequently monitors their blood glucose levels and take required action in order to keep blood sugar within physiological level. This can be achieved by self-management education, self-monitoring and social support. Cultural influences also have interfered with successful self-management of Diabetes Mellitus. In order to improve glycemic control, efforts should be employed to identify any barriers and the means to overcome them for good self-management of Diabetes Mellitus.

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