Assessment of Quality of Life for Patients with Diabetes Mellitus (type II)

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Abstract:

Objectives: The purpose of the study was to investigate the quality of life for patients with diabetes mellitus (type II) in Baghdad city.

Methodology: A purposive (non-probability) sampling of 100 patient with diabetes mellitus who attending to the medical public clinics in Baghdad city. Data was obtained through the interview for patients.
A questionnaire was adopted from the medical outcomes study short form-36(MOS- SF36). The questionnaire was to Arabic language and then exposed to a panel of experts-. Data were analyzed through the application of descriptive the inferential data analysis approach.
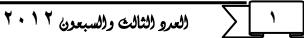
Results: Results show that most of the diabetes mellitus (74%) was male, high percentage (46%) of them at age group (50-59) years, (42%) living with insufficient monthly income, and (34%) were retired, (34%) had diabetes mellitus only and (39%) had suffer from hypertension, and more than two-third of patients their body mass index was normal weight and over weight. The outcome of the study also indicated that the diabetic patients(type II) who have other disease had poor quality of life than the patients with diabetic only, and the most quality of life aspects affects in female patients than males , low level of education, generally quality of life at moderate level. **Conclusion:** In conclusion there were deterioration in quality of life for diabetic patients and the quality of life was affected by many factors. Females had lower QOL than males, possibly because level of education. The poor quality of life in diabetic patients with coexisting disease more than patients with diabetes only. Improving QOL in diabetic patients is important.

Recommendations: The study recommended that, an educational program should be designed and manual should be distributed to diabetic patients to increase their information about diabetes mellitus and to improve their quality of life.

Key words: Diabetes Mellitus, (type II), Quality of Life.

Introduction

Diabetes mellitus is a chronic metabolic disease that involves insulin secretion abnormalities resulting in hyperglycemia (elevated blood glucose levels). In the United States, diabetes mellitus is the seventh leading cause of

death. It is estimated that 10.5 million people have a diagnosis of diabetes mellitus, of which 80% have type II diabetes and another 5.4 million people are estimated to have been undiagnosed with diabetes mellitus Hyperglycemia in people with diabetes mellitus is associated with microvascular (e.g., kidney and eye disease) and macro vascular (e.g., stroke and ischemic heart disease) complications, which can have additional medical squeal such as amputation, physical disability and blindness(1).

The prevalence of diabetes mellitus is reaching epidemic proportions in many parts of the world, is an increasingly important public health concern. In the United States, diabetes is present in 8% of the adult population, and is associated with a two-fold increase in age adjusted mortality, Several studies have demonstrated that diabetes has a strong negative impact on the health-related quality of life , especially in the presence of complications. However, most of the studies on diabetes and health related quality of life have been conducted in developed countries and studies of the health related quality of life in diabetic patients in developing countries are rare. Globally, the number of people with diabetes is expected to double between 2000 and 2030(2, 3).

In chronic conditions such as hypertension and diabetes, health-related quality of life (HRQoL)is an especially important outcome, given their lifelong nature and the need for daily self-management.(4).

Methodology

A purposive (non-probability) sampling of 100 diabetes mellitus patients type II who attending to the medical public clinics in Baghdad city. Criteria for the selection Patients were those who had type II diabetes mellitus for at least one year, who were aged 18 years or older and the exclusion criteria were those with a history of complication unrelated to diabetes mellitus. The study was initiated from August 2' , 2008 to April 14th 2009.

The study was conducted at six public medical clinics in Baghdad city (three public medical clinics in AL-Rusafa and three public medical clinics in AL-Karkh).

The data were collected through the utilization of the developed questionnaire and by means of structured interview with the subjects; the subjects were individually interviewed in the public medical clinics by using the Arabic version of the questionnaire. The interview with each participants took approximately 15-20 minutes. The validity of the instrument was achieved through a panel of experts, the developed questionnaire was designed and presented to (10) experts: Determination of reliability of Arabic SF-36 was based on test retest method, the reliability coefficient was (r=0.91). The instrument was consisting of two parts:

1 –a- Socio-demographic data:

This part was designed to measure the sample demographic characteristics which include: age, gender, marital status, level of education, occupational status, and monthly income.

b-clinical data This part was designed to measure the sample demographic characteristics which include: Onset of the diabetes mellitus, body mass index, controlling of blood sugar level and Coexisting disease (hypertension, and coronary artery disease).

2- **Quality of Life:**

The questionnaire was adopted from the medical outcomes study- short form-36 (MOS-SF36). The SF-36 is probably the most widely used measure of health status around the world (5). It assesses eight health concepts and has been used in large population and clinical studies involving a wide variety of patient of populations.(6,7).

The (SF-36) is a multipurpose short-form survey with 36 questions that measure eight healths attributes using multi-item scales containing 2 to 10 items each. These attributes are:

I-Physical health

(1) Physical functioning (PF): refer to the ability to perform activities (walking, climbing stairs, bending and stretching, lifting and carrying objects) without limitation.

(2) Role limitations due to physical health problems (RP), refers to the limitations that reduced physical health.

(3) Bodily pain (BP): Bodily Pain refers to the severity of pain and its impact on daily activities.

(4) General health (GH),

II-Mental health

(1) Vitality (energy/fatigue) (VT),

(2) Social functioning (SF): refers to the impact of physical and emotional health on the ability to perform normal social activities.

(3) Role limitations due to emotional problems (RE): refers to limitations that emotional problems place on the range and extent of activities one is able perform.

(4) Mental health (psychological distress and psychological well-being) (MH) : refers to the degree of nervousness or calmness and happiness or sadness.

A higher SF-36 score indicates better functioning. Data was obtained through the interview with each participant in the clinics and the data were analyzed through the application of descriptive statistical analysis (Frequency, Percentage, and Quartile) and the inferential data analysis approach (contingency coefficient, Regression).

- Quartile, after arranging the sum of quality of life ascending for participants with each participant to determine the quality of life levels (low, moderate, high).

Quartile of Life (QoL) was calculated as following :

$Q1 = I/4n$, $Q2 = 2/4n$, $Q3 = 3/4n$

Results:

Table (1) Distribution of Patients' with diabetes mellitus according to the socio-demographic characteristics.

Characteristics of sample		Diabetes mellitus N=100	
		F	%
Age	40 – 49	30	30
	50 – 59	46	46
	60 – 69	18	18
	70 – 79	6	6
Gender	Male	74	74
	Female	26	26
Marital status	Single	8	8
	Married	74	74
	Widow	16	16
Educational level	Not read and write	26	26
	Read and write	8	8
	Primary school graduate	20	20
	Intermediate school graduate	20	20
	Secondary school graduate	19	19
	Institute/College graduate	7	7
Occupational status	Government employee	11	11
	Self-employed	19	19
	Retired	34	34
	House wife	24	24
	Unemployed	22	22
Monthly income	Insufficient	45	45
	Mostly Insufficient	33	33
	Sufficient	20	20

F= frequency, % = percentage

Table (1) shows the highest percentage (46%) of sample was in age group (50-59) years, and 74% were male Concerning the marital status, the highest percentage (74) of diabetes mellitus patients were married, in regard to the level of education the highest percentage (26%) were unable to read and write. Concerning the occupational status the results show that the highest percentages (34 %) were retired and 22% patients was unemployed Regarding to monthly income the results revealed that the(45%)were insufficient.

Table (2) Distribution of patients' with diabetes mellitus according to the clinical characteristics

Characteristics of sample		F	%
Coexisting disease	No disease	34	34
	Hyper tension	39	39
	Coronary artery disease	27	27
Onset of the diabetes mellitus	1-3 years	10	10
	4-7 years	46	46
	8-10 years	29	29
	More than 10 years	15	15
Body mass index	Normal weight	39	39
	Over weight	49	49
	Obesity, BMI>30 kg/m2	12	12
Controlling of blood sugar level	yes	31	31
	no	69	69

F= frequency, % = percentage

Table 2 shows that the highest percentages (39%) of diabetes mellitus patients ' have had hypertension Regarding onset of diabetes mellitus the highest percentages (46%) of sample duration of disease were (4-7) years The table also shows that the highest percentage (49%) of patients were overweight. According to the controlling of blood sugar level the highest percentage was no controlling

Table 3: Distribution of the patients' with diabetes mellitus regarding to Physical health domains level

No	Physical health	Low		Moderate		High	
		F	%	F	%	F	%
1	General Health	28	28.0	42	42.0	20	20.0
2	Physical functioning	26	26.0	55	55.0	19	19.0
3	Role limitations due to physical health problems	30	30.0	46	46.0	24	24.0
4	Body Pain	52	52.0	34	34.0	14	14.0

F= frequency, % = percentage

Table (3) demonstrated physical aspect level the results indicated that the most patients rated moderate level of effect from disease for general health , physical function and role physical while body pain rated low quality of life.

Table (4 Distribution of the patients' with diabetes mellitus regarding to mental health domains level

No	Variables	Low		Moderate		High	
		F	%	F	%	F	%
1	Role limitations due to emotional problems	45	45.0	40	40.0	15	15.0
2	Mental health	48	48.0	38	38.0	14	14.0
3	Vitality	38	38.0	42	42.0	20	20.0
4	Social functioning	48	48.0	30	30.0	22	22.0

F= frequency, % = percentage

Table 4 shows that the emotion problem, mental health and social functioning of most diabetes mellitus patients rated at low level. Table also present the most of the sample in regard vitality rated at moderate level.

Table (5) Distribution of the patients' with diabetes mellitus regarding to total Quality of life .

Total Quality of life level	Frequency	Percentage %
Low	31	31,0
Moderate	49	49.0
High	20	20.0
Total	100	100.0

Table(5) reveals that most of the sample was rated at moderate and low quality of life.

Table (6) Regression Model of Quality of life Aspects in regard the socio-demographic and clinical variables for the patients' with diabetes mellitus

No	Independents Variables	Total quality of life			
		Beta	T	P. Value	Sig
1	Age	-1.687	0.199	0.844	NS
2	Gender	-7.390	-0.379	0.707	NS
3	Marital	-0.128	0.375	0.177	NS
4	Educational	-0.210	-1.462	0.001	S
5	Occupational status	-9.256	-1.407	0.167	NS
6	Monthly income	-5.975	-0.686	0.497	NS
7	Onset of disease	0.269	2.447	0.019	S
8	Coexisting disease	0.222	2.214	0.032	S
9	Controlling of blood sugar level	-4.561	-1.328	0,001	S
10	Body mass index	-1.389	0.265	0.091	NS

Table (6) shows the regression model of the quality of life aspects in regard the socio-demographic and clinical variables, this table present four socio-

demographic and clinical variables (educational status, onset of disease, coexisting disease and controlling of blood sugar level) was significant association with total quality of life (p. value < 0.05).

Table (7) Association between Quality of Life for Diabetic Patients with their Socio-demographic and clinical characteristics

No	Socio-demographic characteristics		Quality of life Aspects							
			Physical Component				Psychological Component			
			PF	RP	BP	GH	VT	RE	MH	SF
I	Age	C.C.	0.068	0.278	0.068	0.035	0.001	0.077	0.123	0.059
		Sig.	(NS)	(NS)	(NS)	(S)	(S)	(NS)	(NS)	(NS)
2	Gender	C.C	0.003	0.055	0.179	0.032	0.041	0.417	0.173	0.060
		Sig	(S)	(NS)	(NS)	(S)	(S)	(NS)	(NS)	(NS)
3	Marital status	C.C	0.168	0.409	0.015	0.327	0.329	0.585	0.574	0.951
		Sig	(NS)	(NS)	(S)	(NS)	(NS)	(NS)	(NS)	(NS)
4	Educational status	C.C	0.00	0.002	0.002	0.019	0.004	0.041	0.002	0.107
		Sig	(S)	(S)	(S)	(S)	(S)	(S)	(S)	(NS)
5	Occupational status	C.C	0.004	0.079	0.085	0.063	0.054	0.399	0.328	0.023
		Sig	(S)	(NS)	(NS)	(NS)	(NS)	(NS)	(NS)	(S)
6	Monthly Income	C.C	0.002	0.009	0.017	0.031	0.195	0.424	0.132	0.719
		Sig	(S)	(S)	(S)	(S)	(NS)	(NS)	(NS)	(NS)
7	Onset of disease	C.C	0.021	0.104	0.060	0.273	0.003	0.020	(0.217	0.083
		Sig	(S)	(NS)	(NS)	(NS)	(S)	(S)	(NS)	(NS)
8	Coexisting disease	C.C	0 000	0 000	0001	0000	0 154	0 005	0 000	0010
		Sig	(S)	(S)	(S)	(S)	(NS)	(S)	(S)	(S)

C.C. = Contingency Coefficient, S= Significant, NS= Non Significant, Physical functioning (PF), Role limitations due to physical health problems (RP), Bodily pain (BP), General health (GH), Vitality (energy/fatigue) (VT), Social functioning (SF), Role limitations due to emotional problems (RE), Mental health (MH)

Table (7) shows the association between quality of life for diabetic patients with their socio-demographic and clinical variables. Table shows association between age with General health, Vitality, and association between gender with PF, GH, Vitality, and association between marital status with HP, and association between educational status with all quality of life aspects except SF, and association between occupational status with PF, SF, and association between monthly income with physical component, and association between onset of disease with PF, Vitality, Role limitations, and association between coexisting disease with all quality of life aspects except Vitality.

Discussion:

This study demonstrated that the majority of sample was in age group (50-59) years and this result supported by other researcher (8, 9, 10, 11) who mentioned that most of patients were older age, in regard to the patients gender the present study shows that the male was approximately (74%) of sample and this result inconsistent with other studies (8, 9, 11) were reported the most of study sample was female.

In regard to the level of education the study reveals that the high percentage of study sample was illiterate and this result was supported by Papadopoulos et al (8) who reported that the majority of sample was in low educational status and having completed only primary school.

The present study shows most of study sample was married (74%) and retired (34%) and this result supported by other researcher (8, 9) who reported that the most of study sample was married and retired in regard to the employment status. Most of the diabetic patients with monthly income is Insufficient and mostly Insufficient.

The finding of the clinical characteristics of the type II diabetic patients showed that more than third (39%) of the type II diabetic patients, the coexisting disease was hypertension, this result consistent with other studies (12) who reported that the(37%)of diabetes mellitus patient had hypertension.

The present result revealed that the highest percentage (46%) of patients having diabetes mellitus during (4 – 7) years.

Body mass index of the diabetic patients revealed that the most of patients with normal weight, and. overweight While lowest percentage (12%) of them obese patient and also revealed that two third (69%) of the type II diabetic patients was not controlling their normal level of blood sugar as in (table 2)

The total QoL of the type II diabetic patients in present study was rated in moderate level of effect and the Physical health has the most domains that affect in the study sample and 52 out of 100 patients rated low QoL in regard the body pain .This means that these patients have limitations in the ability to perform activities such as walking, climbing stairs, bending and stretching, lifting and carrying objects. There is a need for extensive education and behavior change to manage the condition.

For mental health domains 45 and more than 45 out of 100 was rated low quality of life for role limitations due to emotional problems and mental health (psychological distress and psychological well-being), and social functioning as in (table 3,4,5,), this result supported by Glasgow et al and Issa & Baiyewu (5, 11) who reported that the most respondents reported a low to moderate quality of life when interviewed.

Eljedi et al (3) reported that the quality of life was significantly lower for diabetic patients than for controls in all of the domains.

The results of our linear regression models suggest that there is a statistical significant difference between the total QOL of diabetic and educational status, onset of disease, coexisting disease, and Controlling of blood sugar level) (P < 0.05). . This result was consistent with the study of Al-Shehri et al (14) who reported that Uncontrolled diabetic patients had a lower HRQOL than controlled diabetics .

Glasgow et al (11) who reported that the most factors that influencing quality of life in diabetic patients were low level of education, and lower monthly income.

There is a non statistical significant difference between the total QOL and other characteristic (age, gender, occupation status ,monthly income and body mass index this result disagree with Al-Shehri (14) who reported Females had lower HRQOL than males, possibly because of a higher incidence of obesity also showed no association between HRQOL and gender, age or marital status. And also disagree with other researcher (5,11,13 &14) who reported that the most factors that influencing quality of life in type II diabetic mellitus were age, gender, monthly income and body mass index. The reason for this finding in our study may be due to the fact that most of our diabetic subjects their age was less than sixty years old, period of disease less than 8 years and low percentage who are obese, which have been shown to have the greatest perceived burden on quality of life.

The physiological component most affected with education status, monthly income and coexisting disease as in (table 6,7), this result consistent with Papadopoulos et al (8) who reported that the educational status has a significant association with variable for Physical functioning (P <0.001), Bodily pain (P < 0.01), Role physical, Vitality, Social functioning and Mental health (P < 0.05),and also they reported that the gender has statistically significantly lower quality of life in all domains, specifically Physical functioning, Bodily pain, Vitality, and Social functioning (P < 0.001), General health, Role limitations and Mental health (P < 0.01) and Role physical (P< 0.05).

Wandell et al (15) reported that the Diabetic patients who they free from heart disease showed only a minor impact on the quality of life, while the presence of a heart disease showed a considerable impact.

Issa and Baiyewu (4) who shown that the quality of life with diabetes mellitus type 2 could be affected by the other chronic disease, their study has shown that the poor quality of life was generally associated with lower income

Recommendations:

The study recommended that, an educational program should be designed and manual should be distributed to diabetic patients to increase their information about diabetes mellitus (especially concern with the diet, medication, physical activity, measurement of blood sugar, rick factors and foot care) and to improve their quality of life.

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الخلاصة :

الهدف :تقويم نوعية حياة حية مرضى السكر(النوع الثاني)

طريقة العمل :: دراسة وصفية(غير احتمالية) أجريت على (100) مشارك من مرضى السكر النوع الثاني . حيث تم جمع البيانات من خلال المقابلة الشخصية للمرضى وملأ استمارة (MOS- SF36) بعد تعريبها وعرضها على خبراء من ذوي الاختصاص. بعد ذاك تم تحليل البيانات باستخدام الإحصاء الوصفي والاستنتاجي .

النتائج: أظهرت النتائج أن معظم مرضى السكر(74%) كان من الرجال ونسبة عالية(46%) أعمارهم تتراوح (50- 59) سنة و (42%) يعيشون بدخل غير كافي نسبيا و(34%) متقاعدين و (34%) لديهم مرض السكر فقط و(39%) يعانون من مرض ارتفاع ضغط الدم أيضا و أكثر من ثلثي العينة كانت كتلة أجسامهم طبيعي وفوق الطبيعي . وإشارة النتائج أن مرضى السكر النوع الثاني ولديهم أمراض أخرى نوعية حياتهم اقل من الذين لديهم مرض السكر فقط وأظهرت الدراسةُ بأنّ مجالات نوعية الحياة كان لها تأثير على النساء وقلة المستوى التعليمي وبصورة عامة كانت نوعية الحياة بمستوى متوسط.

التوصيات: وأوصت الدراسةَ بتصميم برنامجِ تثقيفيَ وتوزيع دليل خاص لمرضى السكر لزيادة معلوماتهم حول مرض السكر وتطوير نوعية الحياة.

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