

## Quality of life of patients with type 2 diabetes mellitus in Mosul

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(Ann. Coll. Med. Mosul 2012; 38 (1): 20-26).

Received: 23<sup>th</sup> Feb. 2011; Accepted: 4<sup>th</sup> Dec. 2011.

### ABSTRACT

**Background:** Prevalence of diabetes mellitus is increasing in developed and developing countries. Diabetes is known to strongly affect the health-related quality of life (HRQOL).

**Objectives:** To assess the quality of life of patients with type 2 diabetes mellitus and to determine the clinical and sociodemographic factors that affect the quality of life of these patients.

**Patients and methods:** This was a case series health center based study, the data for this research was taken from an MSc research during the data collection phase. A 300 patients with type 2 diabetes mellitus attending AL-Wafaa Diabetic Centre in Mosul. The world health Organizations quality of life assessment (WHOQOL-BREF), short version questionnaire was applied to assess quality of life after being modified and translated to local Arabic language.

**Results:** The overall QOL show that most of the respondents performed fairly well on the questionnaire used, 41% had good score, 46% had fair score and 13% had poor score. For physical activity domain 30% had poor score, for social domain 14% had poor score, for psychological and environmental domains 23% had poor score.

**Conclusion:** This study supports previous reports that QOL of patients with diabetes mellitus was fairly good and D.M significantly affects physical health especially in females. Further community based cross sectional studies is recommended for measuring QOL in DM.

**Keywords:** Type 2 diabetes mellitus, quality of life.

### الخلاصة

**الخلفية:** يعتبر مرض السكري وباء متزايد في النمو على صعيد العالم أجمع، ويكمن التأثير الأساسي لهذا المرض في التغيرات التي يحدثها مرض السكري في أسلوب وجودة نوعية الحياة في جميع المجالات وخاصة المجال البدني، الاجتماعي والعاطفي.

**الهدف:** تهدف هذه الدراسة إلى تقييم نوعية الحياة لمرضى السكري من النمط ٢ وتحديد العوامل السريرية والاجتماعية والسكانية التي تؤثر على نوعية الحياة لهؤلاء المرضى.

**المرضى وطرق العمل:** شملت الدراسة ٣٠٠ مريض من مرآعي مركز الوفاء في مدينة الموصل وقُتِمت نوعية الحياة باستخدام استمارة استبيان لمنظمة الصحة العالمية.

**النتائج:** نتج عن الدراسة أنه بصورة عامة ٤١% من المرضى يملكون نوعية حياة جيدة و ٤٦% متوسطة و ١٣% رديئة. بالنسبة للنشاط البدني ٣٠% كانت رديئة، وان العلاقات الاجتماعية كانت ١٤% رديئة، أما بالنسبة للوضع النفسي والبيئي فكانت نوعية الحياة عندهم ٢٣% رديئة.

**الاستنتاج:** أكدت هذه الدراسة بالإضافة الى الدراسات السابقة على تأثير نوعية الحياة على مرضى السكري في بلدنا والناحية البدنية وخاصة بالنسبة للمرضى الإناث، ومن الضروري العمل على زيادة الدراسات التي تهدف الى دراسة نوعية حياة مرضى السكري.

**D**iabetes mellitus is one of the chronic non-communicable diseases that is plaguing both developed and developing countries at an alarming rate <sup>(1)</sup>. It has reached epidemic proportion.

According to World Health Organization (WHO): there is an apparent epidemic of diabetes which is strongly related to economic and life style changes. It is now vastly visible as a growing health problem in developing economies as almost 80% of diabetes deaths occur in low and middle income countries <sup>(2)</sup>. In Iraq, according to the national chronic non-communicable diseases risk factor survey done in 2006, the prevalence of DM is 10.4% <sup>(3)</sup>.

Diabetes mellitus is a demanding disease that affects a person's health-related quality of life, a person's ability to function, they have to eat carefully, exercise, test their blood glucose and based on the result decide when to schedule their next meal or medication <sup>(4-7)</sup>.

Quality of life (QOL): is of central concern in evaluative research and improved quality of life is probably the most desired outcome of all healthcare policies <sup>(8)</sup>. QOL has been defined as a "descriptive term that refers to people's emotional, social and physical well being and their ability to function in the ordinary tasks of living" <sup>(9,10)</sup>. Health related quality of life (HRQOL), on the other hand, includes domains (aspects) of life that improve when a treatment option is successful. A clinically significant change in (HRQOL) is indicated by a decline in a domain that leads a physician or health care provider to alter a medication or medical treatment. (HRQOL) domains minimally include physical state, mental health or emotional wellbeing. These domains represent typical outcomes in medical and social science research <sup>(11,12)</sup>. Numerous studies have been done to evaluate the effect of DM on the sufferer's QOL in the developed world <sup>(2, 13, 14)</sup>.

We aim to assess the QOL of our patients with T2DM and to determine the clinical and socio-demographical factors that affect the QOL of these patients.

## Patients and methods

Approval of study proposal has been obtained through a seminar at the Community Medicine Department. Therefore essential official permissions have been obtained from Nineveh Health Office to conduct this study.

## Settings

The study was done in AL-Wafaa Diabetic Center during the period spanning from September 2010 to March 2011. The data in this study was a part of MSc research done in this centre. This centre is attached to Ibn – Sena Teaching Hospital at the West side of Mosul City – North of IRAQ which has been established in 1999.

This is a case-series study, the patients were aged twenty years and above of both sexes; all patients had T2DM diagnosed by the consultant endocrinologist; DM of the young (less than 20 years), gestational DM and duration since diagnosis less than 1 year are excluded from this study. The patients were interviewed by the researcher after being informed and consent of patients were obtained.

## Questionnaire

The instrument used is the World Health Organization quality of life questionnaire-short version (WHOQOL-BREF) which is a generic instrument with cross-cultural application and has been used as a measure of HRQOL for chronic medical illnesses in many researches in the Middle East and Asian countries <sup>(1,10,13,15,16)</sup>. This questionnaire is modified, translated and approved by the staff of Community Medicine department of College of Medicine, University of Mosul to fit with local tradition and language (Appendix). The WHOQOL-BREF contains four specific domains which include: physical health, psychological well being, social relationships and environmental condition.

Some limited socio-demographics characteristics (e.g. age, sex, marital status, educational level) and disease related information (e.g. duration of diabetes, family history of diabetes) were also considered.

Scores were used for each question, then the median score calculated in the four domains,

the scores of items within each domain are used to calculate domain scores.

A score of mean  $\pm$  1 standard deviation (SD) on each domain is graded 'fair', a score of  $<$  mean - 1 SD is 'poor', and a score of  $>$  mean + 1 SD is good<sup>(15)</sup>.

### Statistical analysis

Data collected were entered into Microsoft excel and loaded into the Statistical Package for Social Sciences (SPSS) software (version 16 Chicago IL USA) for descriptive statistical analyses.

### Results

Three hundreds consecutive attendees of the diabetes clinic met the inclusion criteria during the course of the study; 169 were females and 131 were males. For overall QOL, 123 (41%) had good score, 138 (46%) had a fair score and 39 (13%) had poor score, Table (1).

Those patients with mean age of (51.23) years had good score, while those with mean age of (54.34) had fair score and patients with poor score had mean of age (55.97), Table(2).

The QOL in both physical and psychological domain were inversely related to increasing age of the patients. Regarding duration of illness, those patients with mean duration of (8.86) years had poor score while those of good score mainly had a mean of (6.65) years, Table (3).

The QOL score is high in all the domains except in environmental domain at which the majority of patients had fair to poor score and only (38) patients had good score, in the four domains the QOL score is higher in males than in females, for example, in physical health domain more than half (79) patients from (126) patients who had good score were males and the remaining were females, Table (4).

Table (1): Relationship between qualities of life outcomes and sociodemographic variables.

Variables	Overall quality of life							
	Good	%	Fair	%	Poor	%	Total No.	%
All patients	123	41%	138	46%	39	13%	300	100%
Sex								
Female	46	27.2%	92	54.4%	31	18.3 %	169	55.9%
Male	77	58.7%	46	35.1%	8	6.1 %	131	43.5%
Marital Status								
Single	1	33.3 %	1	33.3%	1	33.3%	3	1%
Married	111	46%	107	44.7%	21	9%	239	79.8%
Widowed	9	16%	28	52%	17	31%	54	17.9%
Divorced	2	50%	2	50%	0	0%	4	1.2%

Table (2): Quality of life and patients' characteristics.

Variables	Overall quality of life		
	Good	Fair	Poor
Mean Age (SD) [Years]*	51.234 (9.199)	54.435 (7.797)	55.795 (7.164)
Mean Duration of Illness (SD) [Years]**	6.309 (5.105)	7.449 (5.588)	9.769 (7.143)
Family History of Diabetes Mellitus***	123	138	39
Yes (1)	88	113	33
No (2)	35	25	6

\*P<0.05 \*\*P<0.05 \*\*\*P<0.05.

Table (3): Quality of life and patients' characteristics according to domains.

Variables	Domain 1 Physical health			Domain 2 Psychological well being			Domain 3 Social relation ship			Domain 4 Environmental		
	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
Mean Age (SD) [Years]	49.169 (8.822)	55.762 (7.494)	56.156 (6.876)	51.070 (8.421)	54.049 (8.840)	56.362 (6.894)	53.430 (8.606)	53.090 (8.418)	53.310 (8.406)	52.447 (9.258)	53.539 (8.299)	53.113 (8.658)
Mean Duration of Illness (SD) [Years]	6.659 (5.229)	6.524 (5.217)	8.867 (6.401)	6.556 (5.338)	7.223 (5.728)	8.710 (6.037)	7.279 (5.317)	6.530 (5.931)	9.059 (6.160)	6.974 (5.370)	7.005 (5.329)	8.197 (6.663)
Family History of Diabetes Mellitus	126	84	90	129	102	69	158	100	42	38	191	71
Yes	99	61	74	100	80	54	119	76	39	29	148	57
No	27	23	16	29	22	15	39	24	3	9	43	14

Table (4): Relationship between quality of life outcomes and sociodemographic variables according to domains.

Variables	Domain 1 Physical health			Domain 2 Psychological well being			Domain 3 Social relation ship			Domain 4 Environmental		
	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
Sex	126	84	90	129	102	69	158	100	42	38	191	71
Female	47	50	72	53	62	54	74	60	35	7	110	52
Male	79	34	18	76	40	15	84	40	7	31	81	19
Marital Status	126	84	90	129	102	69	158	100	42	38	191	71
Single	1	1	1	1	1	1	1	2	0	0	1	2
Married	116	63	60	114	81	44	137	73	29	35	154	50
Widowed	7	19	28	11	19	24	19	22	13	2	35	17
Divorced	2	1	1	3	1	0	1	3	0	1	1	2

## Discussion

The present study found that the overall perception of (HRQOL) of patients with DM was actually affected by the disease. The result of a previous study showed that patients with DM experienced a good QOL in comparison to other chronic disease groups and even to healthy population and the majority of patients with T2DM experience a high degree of well-being, satisfaction and enjoyment<sup>(15)</sup>.

In this study it was seen that there is a decrease in HRQOL with increasing mean age of the patients; this is similar to the result of a study in Saudi Arabia<sup>(13)</sup>.

There is a clearly visible effect of gender on QOL; female patients had low score in QOL compared to males. This may be due to the

high prevalence of obesity in female patients in our locality, this result is similar to other studies<sup>(13,15-17)</sup>. Regarding to duration of illness, poor QOL is related to high mean of duration of illness; this is likely due to the appearance of complications with time. A study in Saudi Arabia showed that the duration of illness had no significant effect on QOL<sup>(13)</sup>, while Swedish bases population study which reported that the duration of disease significantly correlate with QOL, and notice that subject with duration more than 5 years had better QOL<sup>(18)</sup>. This may be due to good control and adaptation of the patients with diabetic life style. Another study in Kuwait<sup>(16)</sup> showed that the duration of illness had a significant impact only on the environmental domain.

The social domain which assesses personal relationships showed a high mean score in (HRQOL) of our patients; this probably is due to a very large extent to high degree of satisfaction to the items of this domain. This finding however was similar to a previous study by Awadalla *et al*<sup>(16)</sup> who reported no difference in the score of patients with diabetes in relation to general population on the social relationships domain. It is worthy of note that Awadalla *et al* patients had a good level of social support and had strong family care giver support system. It has been shown that the family is a major source of support reflecting better psychological adjustment of the patient to the disease<sup>(16)</sup>.

In respect to environment domain this research demonstrated that the majority of patients got fair score. This does not agree with other studies<sup>(17,19)</sup>, which revealed that: the score of the environment domain was much lower than the other three domains and this could be due to bad environmental condition in these localities.

The major limitations of this study are the health center based sample in that it may not be representative of patients with diabetes mellitus throughout Mosul, although it is the main center in the city. As there are no previous studies on QOL of patients with diabetes mellitus using the (WHOQOL-BREEF) in IRAQ, direct comparison with other studies is difficult.

## Conclusion

This study supports previous reports that QOL of patients with diabetes mellitus was fairly good and D.M significantly affects physical health especially in females.

Further community based cross sectional studies is recommended for measuring QOL in DM.

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## Appendix

### Study questionnaire form

Serial number                      Name                      Age:  
Sex: male    female  
Marital state: single    married    widowed    divorced  
Family history of diabetes: yes    no  
Duration of illness:(    ) years

### Quality of life questionnaire

#### A-Physical health:

- 1-Energy and fatigue.
- 2-Pain and discomfort.
- 3-Sleep and rest.
- 4-Activity on daily living.
- 5-Mobility.
- 6-Depend on medical.
- 7-Work capacity.

#### B- Psychological health

- 1-Bodily image and appearance.
- 2-Negative feeling.
- 3- Positive feeling.
- 4-Self esteem.
- 5-Thinking, learning, memory and concentration.

#### C-Social relationship

- 1-Personal relation.
- 2-Social support.

#### D-Environmental state

- 1 -Financial resources.
- 2-Freedom, physical safety and security.
- 3-Health and social care.
- 4-Home environment.
- 5-Opportunities for acquiring new information and skills.
- 6-Participation and opportunities for recreation and leisure.
- 7-Physical environment (noise, pollution, climate).
- 8-Transport.