

Quality of Life in Turkish Diabetic Patients

Türk Diyabetik Hastalarda Yaşam Kalitesinin Değerlendirilmesi

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Abstract

Objective: To examine the effects of type I and type II diabetes on patient perceptions of their quality of life and compare the psychometric properties of a generic versus a diabetes-specific quality of life measure.

Materials and Methods: Physical functioning using SF- 36 questionnaire were determined in 1500 (1150) Type 2 diabetes mellitus, 350 Type 1 diabetes mellitus) diabetic patients.

Results: The mean scores referring to the HRQL in the various categories included in SF- 36 in type 2 diabetic women were 54.7±19.4 for mental health, 65.3±27.9 for social functioning, 60.3±14.4 for bodily pain, 46.2±19.1 for role-physical, 56.7±20.1 for vitality, 43.0±14.7 for general health, 53.9±13.9 for role emotional and 59.3±13.2 for physical functioning. In type 2 diabetic men, mean scores of SF- 36 were 70.5±14.6 for mental health, 68.8±13.4 for social functioning, 76.3±17.7 for bodily pain, 80.5±23.8 for role-physical, 61.3±15.0 for vitality, 55.7±16.4 for general health, 57.3±10.9 for role emotional and 55.4±24.1 for physical functioning. In type 1 diabetic women, mean scores of SF- 36 were 69.43±19.7 for mental health, 74.9±11.3 for social functioning, 71.3±14.4 for bodily pain, 55.3±14.4 for role-physical, 65.3±19.3 for vitality, 62.3±27.6 for general health, 57.3±10.9 for role emotional and 75.4±14.1 for physical functioning. In type 1 diabetic men, mean scores of SF- 36 were 70.4±27.4 for mental health, 80.5±25.3 for social functioning, 76.3±19.1 for bodily pain, 59.4±15.6 for role-physical, 69.1±15.7 for vitality, 70.3±15.3 for general health, 88.3±13.9 for role emotional and 80.1±15.7 for physical functioning.

Conclusion: Type 2 diabetes is associated with poor levels of health status than type 1 diabetes, particularly in terms of physical and social well-being. *Türk Jem 2007; 11: 48-53*

Key words: Quality of life, diabetes mellitus, SF-36

Özet

Amaç: Tip 1 ve Tip 2 diabetes mellitus olan hastalarda, diyabetin yaşam kalitesi üzerine etkisinin araştırılması amaçlandı.

Gereç ve Yöntem: Çalışmaya 1500 diyabetik (1150 Tip 2 diabetes mellitus, 350 Tip 1 diabetes mellitus) hasta alındı. Tüm hastalara, fiziksel ve psikometrik ölçümleri kapsayan SF- 36 ölçeği uygulandı.

Bulgular: Tip 2 diyabetik kadınlarda ortalama skorlar; mental sağlık için 54.7±19.4, sosyal sağlık için 65.3±27.9, ağrı için 60.3±14.4, rol kısıtlılığı (fiziksel) için 46.2±19.1, vitalite (enerji) için 56.7±20.1, genel sağlık için 43.0±14.7, rol kısıtlılığı (emosyonel) için 53.9±13.9 ve fiziksel fonksiyon için 59.3±13.2 olarak bulundu. Tip 2 diyabetik erkeklerde ortalama skorlar; mental sağlık için 70.5±14.6, sosyal sağlık için 68.8±13.4, ağrı için 76.3±17.7, rol kısıtlılığı (fiziksel) için 80.5±23.8, vitalite (enerji) için 61.3±15.0, genel sağlık için 55.7±16.4, rol kısıtlılığı (emosyonel) için 57.3±10.9 ve fiziksel fonksiyon için 55.4±24.1 olarak bulundu. Tip 2 diyabetik kadınlarda ortalama skorlar; mental sağlık için 43±19.7, sosyal sağlık için 74.9±11.3, ağrı için 71.3±14.4, rol kısıtlılığı (fiziksel) için 55.3±14.4, vitalite (enerji) için 65.3±19.3, genel sağlık için 62.3±27.6, rol kısıtlılığı (emosyonel) için 57.3±10.9 ve fiziksel fonksiyon için 75.4±14.1 olarak bulundu. Tip 2 diyabetik erkeklerde ortalama skorlar; mental sağlık için 70.4±27.4, sosyal sağlık için 80.5±25.3, ağrı için 76.3±19.1, rol kısıtlılığı (fiziksel) için 59.4±15.6, vitalite (enerji) için 69.1±15.7, genel sağlık için 70.3±15.3, rol kısıtlılığı (emosyonel) için 88.3±13.9 ve fiziksel fonksiyon için 80.1±15.7 olarak bulundu.

Sonuç: Tip 2 diabetes mellituslu hastalar, tip 1 diabetes mellituslu hastalara göre; özellikle fiziksel ve sosyal olarak daha düşük yaşam kalitesiyle ilişkilidir. *Türk Jem 2007; 11: 48-53*

Anahtar kelimeler: Yaşam kalitesi, diabetes mellitus, SF- 36

Introduction

Health-related quality of life (HRQL) covers physical, mental, and social well-being (1- 7). Many questionnaire, either generic or disease targeted, have been developed for the evaluation of quality of life (6, 8). Generic measures of HRQL have an advantage over disease-specific measures in that they permit comparisons of the impact of various diseases on multiple dimensions of HRQL and allow comparisons across conditions or populations. Generic instruments that have been used with diabetes patients include the Nottingham Health Profile (8), Short Form 36- item Health Survey (9), and the Sickness Impact Profile (NHP) (10). Specific measures have the advantage of focusing on issues of particular concern to patients with the disease. Also, they may be better able to identify functional impairments arising for the illness under study and may be more sensitive to small changes in health resulting from treatment than generic HRQL measures. One of the generic instruments for measuring quality of life (QOL) in chronically ill patients is SF- 36. Its 36 items include measures of physical functioning, pain, daily activities, feelings, sleep, overall health, and relationships with relatives. Scoring is on a 0–100 scale, with higher scores indicating better health.

People with diabetes have a worse quality of life than people with no chronic illness, but a better quality of life than people with most other serious chronic diseases. Duration and type of diabetes are not consistently associated with QOL. Complications of diabetes are the most important disease-specific determinant of quality of life. Numerous demographic and psychosocial factors influence quality of life and should be controlled when comparing subgroups. Studies of clinical and educational interventions suggest that improving patients' health status and perceived ability to control their disease results in improved quality of life (3-8,11).

The objective of this study was to compare the interpretation of norm-based scoring of generic health status and preference-based HRQL measures in adult type 1 and 2 diabetes patients.

Materials and Methods

Physical functioning using SF- 36 questionnaire were determined in 1500 (1150 Type 2 diabetes mellitus, 350 Type 1 diabetes mellitus) diabetic patients. Informed consent was obtained from all patients. The study was carried out with patients attending diabetic outpatient clinic at Ege University in Izmir. Information collected included sociodemographic data and physical activities including average hours spent in sitting, standing, and walking and in mild and vigorous physical activities. Lifestyle factors included smoking, drinking, and dietary intake. The number of drinks consumed per week in the past 30 days, was used as the measure of current alcohol consumption (never use, less than 14 standart intake, more than 14 standart intake- standart intake contain 10gr alcohol). Women who had smoked at least ten cigarettes per day during the five postmenopausal years were classified as smokers (12). All patients classified, in terms of their reported current and life long smoking, into such group: 1) never use, 2) less than 1 packet, 3) 1–2 packet, and 3) more than 2 packets per day. They were also classified, in terms of their reported current and life-long caffeine use, into such groups: 1) never use, 2) 2 or

below cup caffeinated coffee per day, 3) 3 or above cups caffeinated coffee per day. The level of education is categorized in four groups according to the number of school years and the highest qualification received; no education, elementary (8 years or less), high school and university (9–14 years).

Medical Outcomes Study Short Form- 36 (SF-36)

The original questionnaire was developed by Ware et al. (1, 3). It is a self-evaluation instrument consisting of 36 items which provide assessment in eight domains: physical functioning, social functioning, role limitations due to emotional problems (role-emotional), role limitations due to physical problems (role-physical), bodily pain, vitality, mental health, and general health perception (5, 9- 11). This survey asked for their views about their health. Their information was kept track of how he/she felt and how they feel to do their usual activities.

A. Physical health (physical functioning, role limitations due to physical problems (role-physical), bodily pain, general health):

1. In general, would you say your health is; 1.excelent, 2.very good, 3.good, 4.fair, 5.poor.

2. Compared to one year ago, how would you rate your health in general now? 1.much beter than one year ago, 2.somewhat beter now than one year ago, 3.about the same as one year ago, 4.somewhat worse now than one year ago, 5.much worse now than one year ago.

3. Physical functioning includes many items. Does your health now limit you in many activities? , how much? 1. yes, limited much, 2. yes limited a little, 3. no, not limited at all. These are: 3a.vigorous activities such as running, lift heavy objects, 3b.moderate activities

such as moving a table, 3c.carry groceries, 3d. climb several flights of stairs, 3e.climb one flight of stairs, 3f.bending, kneeing or stooping, 3g.walking more than one kilometre, 3h.walking several blocks, 3i.walking one block, 3j.bathing and dressing him or herself.

4. Role limitations due to physical problems (role-physical); have you had any problems with your work (past 4 weeks) ? 1. yes, 2. no; 4a.cut down on the amount of working time, 4b.accomplished less, 4c.limited in the kind of work or other activities, 4d. have difficulty performing the work or other activities.

7. Pain magnitude; how much bodily pain? 1.none, 2.very mild, 3.mild, 4.moderate, 5.severe, 6.very severe.

8.pain-interfere with normal work (during the past 4 weeks); how much bodily pain have you had? 1.not at all, 2.slightly, 3.moderately, 4.quite a bit, 5.extremely.

11. General health includes many items. How true or false is each of the following statements for you? 1. definitely true, 2. mostly true, 3. don't know, 4. mostly false, 5. definitely false. a.sick easier, b.as healthy, c.health to get worse, d.health excellent.

B. Mental health (vitality, social functioning, role-emotional, mental health):

5. Role-emotional; have you had any problems with your work? 1. yes, 2. no; 5a.cut down on the amount of working time, 5b.accomplished less, 5c do not work as carefully.

6. Social functioning; 6.social extent (during the past 4 weeks); what extent has your physical health or emotional problems interfered with your normal social activities. 1.not at all, 2.slightly, 3.moderately, 4.quite a bit, 5.extremely,

10. Physical health problems interfered with social-time (during

the past 4 weeks); 1.all of the time, 2.most of the time, 3.some of the time, 4.a little of the time, 5.none of the time.

9. Vitality includes many items. How things have been with you during the past 4 weeks? 1. all of the time, 2. most of the time, 3. a good bit of the time, 4. some of the time, 5 a little of the time, 6. none of the time. 9a.full of pep, 9e. have a lot of energy, 9g.worn out, 9i.tired

9. Mental health dimension includes 5 questions (during the past 4 weeks); how things have been with you during the past 4 weeks? 1. all of the time, 2. most of the time, 3. a good bit of the time, 4. some of the time, 5 a little of the time, 6. none of the time. 9b.nervous, 9c.down in dumps, 9d.peaceful, 9f.worn out, 9h.happy,

SF- 36 scoring rules

Precoded numeric values are recorded per the scoring key given in Table 1. Note that all items are scored so that a high score defines a more favorable health state. In addition, each item is scored on a 0 to 100 range so that the lowest and highest possible scores are set at 0 and 100, respectively. Scores represent the percentage of total possible scores. Scale scores represent the average for all items in the scale that the respondent answered. Example; items 6 and 10 are used to score the measure of social functioning. Each of the two items has 5 response choices. However, a high score (response choice 5) on item 6 indicates extreme limitations in social functioning, while a high score (response choice 5) on item 10 indicates the absence of limitations

Table 1. Scores of SF-36 domains are shown.

Domains	Number of items	To recorded value of
General health perception	1. 1- 2- 3- 4- 5	100- 75- 50- 25- 0
	2. 1- 2- 3- 4- 5	100- 75- 50- 25- 0
	11a	0 (definitely true)-25 (mostly)-50- 75 (mostly false)- 100 (definitely false)
	11b	0 (definitely true)-25 (mostly)-50- 75 (mostly false)- 100 (definitely false)
	11c	0 (definitely true)-25 (mostly)-50- 75 (mostly false)- 100 (definitely false)
	11d	0 (definitely true)-25 (mostly)-50- 75 (mostly false)- 100 (definitely false)
Physical functioning	3a	0 (1. yes, limited)-50 (2. yes, limited a little)-100 (3. no)
	3b	0 (1. yes, limited)-50 (2. yes, limited a little)-100 (3. no)
	3c	0 (1. yes, limited)-50 (2. yes, limited a little)-100 (3. no)
	3d	0 (1. yes, limited)-50 (2. yes, limited a little)-100 (3. no)
	3e	0 (1. yes, limited)-50 (2. yes, limited a little)-100 (3. no)
	3f	0 (1. yes, limited)-50 (2. yes, limited a little)-100 (3. no)
	3g	0 (1. yes, limited)-50 (2. yes, limited a little)-100 (3. no)
	3h	0 (1. yes, limited)-50 (2. yes, limited a little)-100 (3. no)
	3i	0 (1. yes, limited)-50 (2. yes, limited a little)-100 (3. no)
	3j	0 (1. yes, limited)-50 (2. yes, limited a little)-100 (3. no)
Role-physical	4a	0 (1. yes)-100 (2. no)
	4b	0 (1. yes)-100 (2. no)
	4c	0 (1. yes)-100 (2. no)
	4d	0 (1. yes)-100 (2. no)
Role-emotional	5a	0 (1. yes)-100 (2. no)
	5b	0 (1. yes)-100 (2. no)
	5c	0 (1. yes)-100 (2. no)
Social functioning	6. 1- 2- 3- 4	100-75-50-25-0
	10. 1- 2- 3- 4- 5	0-25-50-75-100
Bodily pain	7. 1- 2- 3- 4- 5	100-75-50-25-0
	8. 1- 2- 3- 4- 5	100-75-50-25-0
Vitality	9a	0 (all of time)-20 (most of)- 40 (bit of)- 60 (4. some of)-80 m(a little)-100
	9e	0 (all of time)-20 (most of)- 40 (bit of)- 60 (4. some of)-80 m(a little)-100
	9g	0 (all of time)-20 (most of)- 40 (bit of)- 60 (4. some of)-80 m(a little)-100
	9i	0 (all of time)-20 (most of)- 40 (bit of)- 60 (4. some of)-80 m(a little)-100
Mental health	9b	0 (all of time)-20 (most of)- 40 (bit of)- 60 (4. some of)-80 m(a little)-100
	9c	0 (all of time)-20 (most of)- 40 (bit of)- 60 (4. some of)-80 m(a little)-100
	9d	0 (all of time)-20 (most of)- 40 (bit of)- 60 (4. some of)-80 m(a little)-100
	9f	0 (all of time)-20 (most of)- 40 (bit of)- 60 (4. some of)-80 m(a little)-100

in social functioning. Table 1 shows that responses 1 through 5 for item 6 should be recorded to values of 0, 25, 50, 75, and 100, respectively. These two recoded items should be averaged together to form the social functioning scale. If the respondent is missing one of the two items, the person's score will be equal to that of the nonmissing item.

Statistical Evaluation

Anthropometric parameters of obese and control group were compared by the two tailed t test. The statistical significant set if the p-value was less than 0.05.

Results

Demographic characteristics all of patients are shown in Table 2. The mean ages of patients with type 2 and type 1 were 53.1 ± 17.2 yr (BMI 27.4 ± 6.2 kg/m²) and 34.1 ± 9.1 yr (BMI 23.5 ± 8.1 kg/m²), respectively. The mean systolic blood pressure (BP) of type 2 and type 1 patients were 133.9 ± 22.1 mmHg, and 130.1 ± 12.6 mmHg, respectively. Mean diastolic BP of type 2 and type 1 patients were 59.9 ± 13.4 mmHg and 50.4 ± 9.0 mmHg, respectively.

The prevalence of diabetic complications in type 1: retinopathy/diabetic eye disease (13.1%); neuropathy (16.8%); cardiovascular disease (4.1%); nephropathy (2.5%). In type 2, retinopathy/diabetic eye disease (30.7%); neuropathy (57.9%); peripheral vascular disease (21.8%); cardiovascular disease (25.5%); nephropathy (8.5%).

Type 2 diabetic patients were separated into three groups according to the level of education, namely no education (150 patients), elementary (765 patients), high school and university (235 patients). In the Type 1, 140 patients had no education, 149 patients had elementary, 61 patients had high school and university. Only 35 patients with Type 2 diabetes and 4 patients with type 1 diabetes drank alcohol more than once per week (0.026%). Smokers (1 packet cigarette/week) were 192 (12.8%) patients (161 type 2, 31 type 1). The patients with type 2 could climb 14.1 stairs and walk 19.31 meters in average per day.

Six domains scores in type 2 were found significantly low levels; role-physical ($p=0.003$), physical functioning ($p=0.001$), social functioning ($p=0.004$), role-emotional ($p=0.002$), bodily pain ($p=0.001$), general health ($p=0.002$). Every answer was rated accordingly, over the 1500, as a percentage. The life quality was accepted as 'decreased' when the average of the SF-36 scale was scored under 50 over 100. The rate was calculated as a per-

centage. Similarly, SF-36 questionnaire was assessed in the normal weight subjects. Reduced quality of life was present in only 45.1% of type 2 diabetic women, 33.6% of type 2 diabetic men. Similarly, type 1 diabetic women had a reduced quality of life 28.2%. Reduction of quality of life was present in only 19.9% of type 2 diabetic men.

The mean scores referring to the HRQL in the various categories included in SF-36 in type 2 diabetic women were 54.7 ± 19.4 for mental health, 65.3 ± 27.9 for social functioning, 60.3 ± 14.4 for bodily pain, 46.2 ± 19.1 for role-physical, 56.7 ± 20.1 for vitality, 43.0 ± 14.7 for general health, 53.9 ± 13.9 for role emotional and 59.3 ± 13.2 for physical functioning. In type 2 diabetic men, mean scores of SF-36 were 70.5 ± 14.6 for mental health, 68.8 ± 13.4 for social functioning, 76.3 ± 17.7 for bodily pain, 80.5 ± 23.8 for role-physical, 61.3 ± 15.0 for vitality, 55.7 ± 16.4 for general health, 57.3 ± 10.9 for role emotional and 55.4 ± 24.1 for physical functioning. In type 1 diabetic women, mean scores of SF-36 were 69.43 ± 19.7 for mental health, 74.9 ± 11.3 for social functioning, 71.3 ± 14.4 for bodily pain, 55.3 ± 14.4 for role-physical, 65.3 ± 19.3 for vitality, 62.3 ± 27.6 for general health, 57.3 ± 10.9 for role emotional and 75.4 ± 14.1 for physical functioning. In type 1 diabetic men, mean scores of SF-36 were 70.4 ± 27.4 for mental health, 80.5 ± 25.3 for social functioning, 76.3 ± 19.1 for bodily pain, 59.4 ± 15.6 for role-physical, 69.1 ± 15.7 for vitality, 70.3 ± 15.3 for general health, 88.3 ± 13.9 for role emotional and 80.1 ± 15.7 for physical functioning.

Type 2 diabetic men had higher mental health and bodily domain scores than women. And also, male gender was associated with higher levels of bodily pain in type 1.

In type 2 subjects, state had difficulties when carrying bags, where as 65% had significant and 40.1% had moderate difficulty when climbing stairs. 20.4% of all the patients had significant and 31.5% had moderate difficulty when kneeling down. And it was observed that 3.99% of all type 2 diabetic patients had difficulties getting dressed and taking a bath. Type 2 diabetic patients had 69.0% shortening of their work and other activity time due to health problems and there was a 39.01% decrease in targeted success. When all the activities of these patients were evaluated, 25.11% choose easy activities and there was 20.22% less concentration at work.

In type 1 subjects, had difficulties when carrying bags, where as 9.22% had significant and 11.18% had moderate difficulty when climbing stairs. 6.2% of all the patients had significant and 11.51% had moderate difficulty when kneeling down. And it was

Table 2. Demographic characteristics of patients

	Type 2 DM			Type 1 DM		
	Women	Men	p	Women	Men	p
Age (year)	53.1 ± 17.2	61.1 ± 10.3	0.070	30.1 ± 6.9	37.7 ± 8.0	0.030
Body weight (kg)	81.7 ± 10.9	69.6 ± 11.9	0.030*	55.3 ± 10.1	60.4 ± 9.6	0.760
Body mass index (kg/m ²)	29.1 ± 5.2	25.3 ± 4.1	0.050*	22.5 ± 6.8	24.5 ± 5.3	0.650
Systolic blood pressure (mmHg)	131.7 ± 12.9	137.4 ± 25.7	0.785	127.8 ± 10.5	132.9 ± 8.6	0.800
Diastolic blood pressure (mmHg)	54.3 ± 10.8	60.4 ± 12.6	0.0008*	50.4 ± 9.0	54.1 ± 7.8	0.950
Waist circumference (cm)	79.3 ± 10.1	99.1 ± 14.7	0.020*	71.7 ± 10.7	76.2 ± 11.8	0.650
Diabetes duration (years)	14.1 ± 1.5	7.1 ± 1.1	0.0007*	8.1 ± 1.8	5.1 ± 1.1	0.854

observed that none of them had difficulties getting dressed and taking a bath in. When all the activities of normal subjects were evaluated, 9.5% of them choose easy activities and there was 14.2% less concentration at work.

Discussion

The measurement of HRQOL has attracted increasing attention as a clinically relevant outcome of research and clinical practice. Quality of life questionnaires reflect the impact of health care interventions on health aspects such as physical, mental and social well-being. However, either in clinical research and in practice, a lengthy questionnaire is problematic for both the health care personnel and the patient. Shortish measure attempt to minimize time and effort as well as to increase patient interest. Thus, shortish questionnaires need to be sufficiently psychometrically robust, proving that they are truly measuring what they set out to (validity), that they measure in a reliable way (reliability) and that they are capable of detecting real changes in perceived health status among patients with diabetes. SF- 36 is a 36 item questionnaire which measures health functioning on eight scales and is among the most widely used measure of quality of life in studies of patients and the general population (7, 13- 27, 29- 31). Diabetes can have a profound effect on quality of life in terms of social and psychological well-being as well as physical ill-health. It is one of the most psychologically demanding of the chronic diseases, with psychosocial factors pertinent to nearly every aspect of the disease and its treatment (17, 28).

The diabetics had lower QOL in almost all dimensions of health survey (27- 38). Naess et al. relied on questionnaire data from a diabetes and hypertension screening carried out on the entire adult population. Self-reported diabetic patients were compared with non-diabetics. The psychological well-being of the known diabetic patients was found to be significantly poorer than that of those without diabetes (37). Likewise, in many studies, type 2 diabetic patients had low levels QOL (19, 29- 31, 34, 35, 38, 39).

Factors related lower quality of life were longer duration of diabetes, less education, lower income, older age, being female, number of diabetes complications, number of comorbid illnesses, treatment unsatisfaction and lower levels of physical activity (33, 34). Severity

of complications has been shown to more predictive of QOL than the number of complications (35), and in the absence of complications, quality of life estimates for individuals with DM have been shown to be similar to those in the general population (36). A great proportion of the diabetic patients already have complications at the time of diagnosis, it is possible that the diagnosis itself and the associated label of being diabetic. In addition to the necessary modifications in lifestyle and the regular drug treatment may contribute to the patients' perceived QOL (38). The role of complications may be more pronounced on the pain and physical mobility items and can be associated with such conditions as neuropathy and atherosclerotic complications. And also, some other causes, such as a poorer overall physical health, higher number of other concomitant diseases other than those related to type 2 diabetes could explain this finding (39, 41).

In our findings suggested that reduced of quality of life was present in only 45.1% of type 2 diabetic women, 33.6% of type 2 diabetic men. Similarly, type 1 diabetic women had a reduced quality of life 28.2%. Reduction of quality of life was present in only 19.9% of type 2 diabetic men. Type 2 diabetic patients had poor quality of life than type 1 diabetic patients. Six domains scores in type 2 diabetic patients were found significantly low levels; role-physical, physical functioning, social functioning, role-emotional, bodily pain, general health.

In a study, population patients with type 2 diabetes had a poorer HRQOL, specifically in the physical dimensions, but neither their social function nor their mental health was affected. But we found lower scores of either physical and social functioning. Six domains scores in type 2 were found significantly low levels.; role-physical, physical functioning, social functioning, role-emotional, bodily pain, general health. Lower mean scores of SF- 36 might be related complications of diabetes. Because type 2 diabetic patients had higher complications rate. Male gender was associated with higher levels of QOL (34, 37, 40). Same findings were found in our study.

In conclusion, type 2 diabetes is associated with poor levels of health status than type 1 diabetes, particularly in terms of physical and social well-being. Vitality and mental status are similar in the type 2 and type 1.

Table 3. Scores in eight SF- 36 domains of Type 1 and 2 diabetic patients

	Type 2 DM			Type 1 DM		
	Women	Men	p	Women	Men	p
Physical functioning	59.3± 13.2	55.4±24.1	0.080	75.4±14.1	80.1±15.7	0.090
Role-physical	46.2 ± 19.1	50.5±23.8	0.090	55.3±14.4	59.4±15.6	0.077
Social functioning	65.3 ± 27.9	68.8±13.4	0.099	74.9 ± 11.3	80.5±25.3	0.010
Role-emotional	53.9± 13.9	57.3±10.9	0.007	57.3 ±10.9	88.3±43.9	0.730
Mental health	54.7±19.4	70.5±14.6	0.001*	69.4±19.7	70.4±27.4	0.087
Vitality	56.7± 20.1	61.3±15.0	0.632	65.3±39.3	69.1±15.7	0.098
Bodily pain	60.3 ± 14.4	66.3 ±17.7	0.090	71.3± 14.4	76.3±19.1	0.004*
General health perception	43.0± 14.7	55.7±16.4	0.050*	62.3± 27.6	70.3±15.3	0.097

Data are expressed as mean ± SD

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