



## ORIGINAL ARTICLE

# Evaluating eight aspects of Quality of life in type II Diabetic Patients referred to Diabetes center in Sanandaj in the year 2009

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### ABSTRACT

The aim of present study was to determine eight aspects of the quality of life of diabetic patients, hoping that findings of this study be useful for care and education planning in order to improve patient's quality of life. This cross-sectional study was performed on 198 patients with type II diabetes who referred to Sanandaj Tohid Hospital diabetes center in 2009. Patients were randomly selected by convenience sampling; SF-36 questionnaire was completed for each patient after conducting interview. Data were analyzed through Chi-square, t-test and ANOVA. Regarding eight aspects of quality of life, the results showed that physical function aspect of the majority of cases (55.6%) was desirable, physical role aspect (67.7%) was undesirable, physical pain aspect (45.3%) was undesirable, general health (45.6%) was relatively desirable, vitality aspect (35.4%) was undesirable, social functioning (38.5%) was relatively desirable, emotional well-being (75.8%) was undesirable and finally mental health aspect (49.5%) was relatively desirable. Variance analysis showed significant relationship between age and physical function and physical pain ( $p=0.04$ ) and ( $p=0.03$ ) respectively. Also between educational status and physical role and emotional well-being significant relationship was found ( $p=0.0009$ ) and ( $p=0.000$ ) respectively. T-test showed a significant relationship between gender and physical function ( $p<0.000$ ) and emotional well-being ( $p<0.03$ ). Results of this study showed that the quality of life for the majority of the study subjects was at the intermediate level. To improve the quality of life of these patients, it is recommended that managers pay more attention to the physical, mental and social support of the patients.

**Keywords:** quality of life, diabetes type II, diabetic neuropathy, diabetic retinopathy, non-insulin dependent diabetes

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### INTRODUCTION

Diabetes is a common and important disease that affects all age groups [1]. Diabetes is sometimes called 'the silent killer' because is a chronic metabolic disorder and a major health and physical problem that is increasing significantly particularly in developing countries [2]. The number of diabetic patients worldwide is more than 250 million and it is anticipated that over the next 17 years this rate will rise to 350 million [3]. Iranian Diabetes Society is estimated the number of diabetic patients in 2009 over 2 million and 700 thousands who are in the age group of 15 to 65 years. Three million people are suffering from impaired glucose tolerances and are not aware of their disease. This number triples every 15 years. According to World Health Organization estimation, if effective measures are not taken in diabetes prevention, statistics related to Iran in 2030, will increase to seven million people. Iran with prevalence of over eight percent is among the areas that comprise the highest percentage of diabetes worldwide [4]. Diabetes is the ninth leading cause of death of Iranian men [5]. It is the sixth leading cause of death in the United States and about 18 percent of deaths in people over 25 years old. The disease is the most common cause of ESRD, new cases of blindness and non traumatic lower limbs amputations. Cardiovascular disease is the leading cause of death in patients with diabetes. In these patients it is 2 to 5 times more common than others. In elderly patients, life expectancy is reduced by 5-10 percent [6]. Considering the high prevalence of diabetes in the world and Iran and its short term and long term complications and also the cost to cure its complications, the important concepts in chronic diseases such

as diabetes is the concept of quality of life [7, 8]. Over the past two decades, studies have shown that the main goal of treatment was not only to relieve physical symptoms of disease, but also improving the quality of life [1]. Quality of life is an important issue, because if ignored, it can lead to frustration, lack of motivation and decrease in social activities. Quality of life definition is difficult because it is a broad and complex concept. It is recognized as having a sense of satisfaction and happiness and is defined as individuals' perception of life [9]. Vanferburg had defined the quality of life as those features which are valuable for patient and are factors of good feeling or good perception. These features are in line with physical, emotional and intellectual functioning development, so that person with these abilities can maintain valuable activities in life [10] Also, Sanchez [11] found that the quality of life in patients with insulin-dependent diabetes is low. Thamason et al [12] showed that the quality of life of diabetic patients was lower than non diabetic patients in Canadian rural communities. In addition, quality of life of native diabetic patients was lower than non natives. Alavi, [1] has reported the quality of life in patients with diabetes as inappropriate and said that education and support for diabetic patients are effective steps to improve their quality of life .

In recent years, medical researchers have noticed the important role of the quality of life in treatment and care of patients with diabetes. Reviewing various studies worldwide represent different conclusions about the quality of life of these patients, thus improving quality of life of diabetic patients and effective care of them according to the culture of each community is different. Therefore it is necessary to have more information about quality of life of diabetic patients, their characteristics, disease status, and impact of acute and chronic complications of diabetes, health care system, and environmental and social features leading to the decrease in quality of life of these patients.

The Aim of present study was to determine eight aspects of the quality of life of diabetic patients, with the hope that findings of this study be useful for care and education planning in order to improve the quality of life of these patients. If the training is not performed based on specified criteria and measured needs of patients, it has no value in making the necessary changes [13].

## MATERIALS AND METHODS

The present study was a descriptive - analytical cross-sectional study that was conducted in 2009 to measure quality of life diabetic patient. The study population was type 2 diabetic patients who referred to diabetes center at Tohid Hospital in Sanandaj, Iran. Purposive sampling method was performed. 198 patients were randomly selected by convenience sampling based on estimated sample size with a confidence level of 95%. Consent form was obtained from patients. Inclusion criteria were: 1- Definitive diagnosis of type II diabetes by a physician, 2- More than 18 years of age, 3-absence of high risk chronic disorders such as cancer and multiple sclerosis, or respiratory diseases such as chronic obstructive pulmonary disease and congestive heart failure. Data collection instrument was demographic questionnaire and the Persian version of the short form 36 health survey to measure functional health status questionnaire (SF-36). SF-36 questionnaire was designed by Varo Sharbon (1992) in USA [14]. It is a short, general and flexible questionnaire to assess the health from patient's perspective and has been used in many countries. In Iran it is translated to Persian by Montazeri after cultural adaptation [15]. The questionnaire is used for people over 14 years old. This multi-purpose, short-form health survey is comprised of 36 questions which provide an eight-scale profile of functional health and well-being scores including; physical function, role function, physical pain, general health, vitality, social functioning, emotional well-being, and mental health.

Completing the questionnaires was conducted by a trained person using patients' medical records and after interviewing. For scoring the questionnaire, zero was the worst situation and 100 were considered as the best situation. Each sub measure was analyzed as desired level (67-100), relatively desirable (33-66) and undesirable (0-32). The classification was applied to the scores of patient's quality of life. For data analysis and comparison, descriptive statistics, Chi-square, t-test and ANOVA were used.

## RESULTS

Demographic characteristics of diabetic patients are shown in Table (1). The results showed that physical function aspect of the majority of cases (55.6%) was desirable, physical role aspect (67.7%) was undesirable , physical pain aspect(45.3%) was undesirable ,general health (45.6 %) was relatively desirable , vitality aspect (35.4 %) was undesirable , social functioning (38.5%) was relatively desirable ,emotional well-being (8/75%) was undesirable and finally mental health aspect (49.5%) was relatively desirable. Total mean and standard deviation of quality of life, is shown in Table (2). Also the mean and standard deviation of eight aspects of quality of life of diabetic patients is shown in Figure (1).

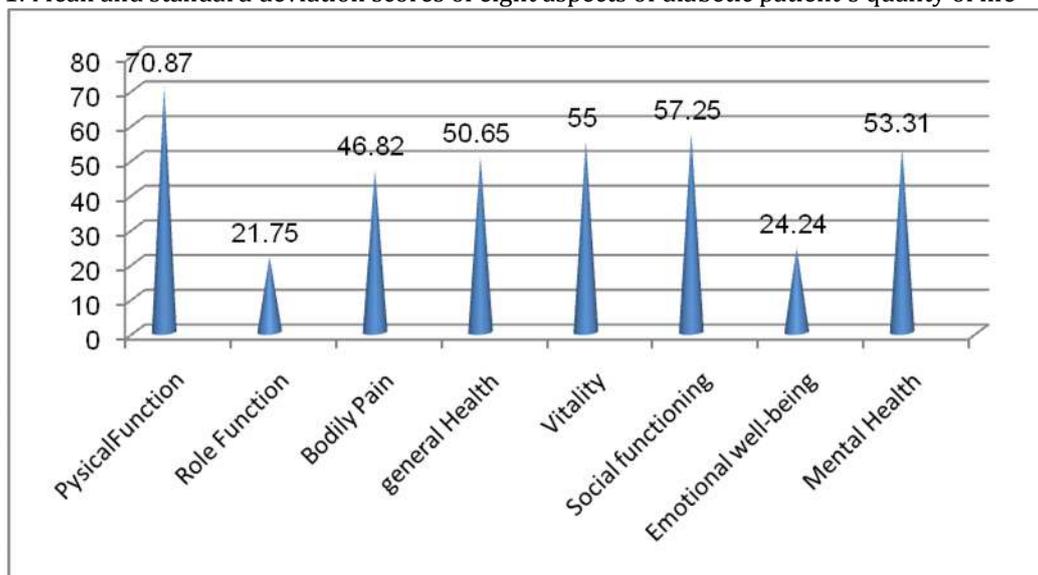
In connection with the first research hypothesis "to determine relationship between quality of life and some demographic characteristics of diabetic patients "ANOVA revealed that there was significant

relationship between age with physical function ( $p<0.04$ ) and physical pain ( $p<0.03$ ), marital status with physical function ( $p<0.05$ ), education status with physical role ( $p<0.0009$ ) and emotional well-being ( $p<0.000$ ), Job with physical role ( $p<0.02$ ), type of insurance with physical role ( $p<0.000$ ) and mental health ( $p<0.03$ ), Body mass index (BMI) with emotional well-being ( $p<0.03$ ) and mental health ( $p<0.01$ ).Also T-test showed a significant relationship between gender and physical role ( $p<0.000$ ) and emotional well-being ( $p<0.03$ ). There was a significant relationship between mean of quality of life with chronic diabetes complications ( $p<0.002$ ).

Table 1: The absolute and relative frequency of the subjects in terms of demographic characteristics

Demographic Characteristics		Number	Percent
Age	Under 39 years	24	12.1
	40-49	48	24.3
	50-59	74	37.3
	60 and above	52	26.3
	Sum	198	100
Gender	Female	166	83.8
	Male	32	16.2
	Sum	198	100
Marital Status	Single	10	5.1
	Married	160	80.8
	Widow	28	14.11
	Divorced	0	0
	Sum	198	100
Education	Illiterate	134	97.7
	Primary	30	15.2
	Guidance	14	7.1
	High school	12	6.1
	Collegiate	8	4
	Sum	198	100
Job	Unemployed	12	4
	Employee	12	6.1
	Worker	2	1
	Free Business	16	8.1
	Householder	146	73.7
	Other	12	6.1
	Sum	198	100
Type of Insurance	Health care	74	37.3
	Social Security	76	38.3
	Other	48	22.2
	Sum	198	100
Type of Therapy	Insulin injection	30	15.2
	Oral	20	10.1
	Diets	143	73.7
	Sum	198	100
Chronic Complications of Diabetes	Yes	132	66.7
	No	66	33.3
	Sum	198	100
Body Mass Index	Normal	58	29.2
	Overweight	60	30.3
	Obese	50	25.4
	Very obese	30	15.1
	Sum	198	100

Figure 1: Mean and standard deviation scores of eight aspects of diabetic patient's quality of life



Eight Aspects		Physical Function	Role Function	Physical Pain	General Health	Vitality	Social functioning	Emotional Well-being	Mental Health
Demographic Characteristics									
Age	Under 39 years	74.6±20.2	25±38.5	68.8±24.6	49.6±27.4	61.9±31	67.7±24.7	25. ±40.5	55.3±25.2
	40-49	76.5±17.3	34.5±47.5	50.4±30.8	47±24.9	56.2±29	51.7±35.2	30.5±43.9	52.7±28.5
	50-59	72.5±19.6	18.9±39.7	43.5±31.7	51±21.7	54.6±32	56.4±31.8	27.9±42.7	49.7±28
	60 and above	61.8±20.7	12.5±29.4	38±31.5	53.9±22.8	51.2±24.4	58.6±26.1	12.8±26.8	58±19.5
Gender	Female	68.4±20.4	18.4±36.8	45.71±30.7	50.4±22.5	54.7±29.9	29.9±3.3	36.1±4	24.6±2.7
	Male	83.4±11.6	39.06±49.1	25.6±36.5	52.1±27.4	56.2±25.4	31.8±8	47.9±11.8	31.5±7.9
Job	Unemployed	76.2±6.3	6.2±12.5	22.5±25.9	47.5±27	38.7±9.5	37.5±30	41.6±50	29±26.2
	Employee	69.1±17.4	54.2±51	57.9±43.2	52.5±20.9	69.1±22.9	64.5±38.2	50±45.9	50.6±30.2
	Worker	80±23	5.37±7.51	53.1±34.8	1.51±9.22	50±30.7	5.37±1.21	8.45±50.2	50.5±35.1
	Free Business	68.4±20.4	14.8±8.33	44.3±29.7	56.4±25.4	54.1±30.7	58.6±30.7	17.8±34.7	54.3±25
	Householder	80±17.3	4.46±9.50	62.8±32	7.38±9.5	63.6±17.2	3.7±24.3	38±48.8	62.3±13.6
Insurance Status	Yes	72.3±19.1	26.07±42.5	47.2±32.23	50.9±23.8	58.1±28.2	55.8±30.7	24.1±38.4	53.1±27.5
	No	67.03±22.02	10.1±27.9	45.7±30.5	50±22.1	46.7±30.03	61.1±29.9	24.7±41.9	53.8±20.8
BMI	Normal	72.3±20.7	30.3±45.3	45.5±32.3	53.9±21.9	56.9±26.9	61.1±28.3	22.6±37.4	55.3±18.4
	Obese	69.7±19.7	19.1±37.4	47.3±31.9	49.2±24.2	54.4±30	55.3±31.3	25.9±40.6	55.3±18.4
Education	Illiterate	67.2±19.9	13.9±32.2	40.7±30.5	48.9±23.2	49.9±29.6	52.4±29.5	12.9±30.7	50.3±25.9
	Primary	75.3±20.9	36.6±48	61.3±30.1	64±21.9	69.6±27	68.3±31.6	42.2±46.2	63.5±24.4
	Guidance	77.1±18	35.7±45.3	56±36.3	42.8±24.1	55±18.2	58.9±32	76.2±37	55.4±24.1
	High school	86.6±12.5	20.8±40	56.7±34.7	45±21.9	65±27.5	64.5±32.9	33.3±42.1	49.3±37.3
	Collegiate	81.2±14.4	75±50	63.1±25.1	52.5±18.5	70±26	82.4±22	41.7±50	68±21.1

**DISCUSSION AND CONCLUSION**

Diabetes is an important and one of the most common metabolic disorders in the world. It is one of the major causes of death in most countries. In the present study, patients with Type II diabetes had a mean age of 50-59 years and also in Bagust, Senez and Timby studies age group of diabetic patients was 50-60 years [19-21]. All of these studies indicated that the age range of most diabetic patients is 55-65 years.

This made diabetes as a common metabolic disorder in adults [13]. Yang et al study (2006) showed that the quality of life of elderly patients compared to younger patients is low [16]. Results of this study showed that most patients are women which were consistent with Dehkordi, Nematolahei and Paiman studies [22-24]. In terms of education and job mostly were illiterate and householder that was consistent with Barguest's study.<sup>19</sup>

In terms of BMI, results showed that the majority of patients were overweight. Regarding body mass index Mohammadpour and Barguest concluded that, "approximately 90% of patients who are diagnosed with diabetes were overweight". There was a significant association between quality of life and BMI, and with increase in BMI, quality of life reduces. In Liyoyd's study there was correlation between body mass index and quality of life.<sup>29</sup> Timby concluded that less than 10% body weight loss can significantly improve levels of blood glucose.<sup>21</sup>

In relation to the total quality of life, results showed that the quality of life for the majority of the study subjects were in relatively desirable level. Studies conducted by Barguest [19], Liyoyd [26] and Testa [27] supported the results of the present study.

In relation to physical function, results showed that highest percentage were in desirable level. In Paiman<sup>24</sup> and Wendell's [18] study physical function was in relatively desirable level and in Barguest's study [19] it was undesirable. Researchers believe that this aspect of quality of life increased because of patient's regular attendance at Diabetes Center and following health related problems as well as giving self care education programs by staff of Diabetes Center.

In relation to public health and mental health the results showed that most of the subjects were in relatively desirable level which is in consistent with Barguest's study, [19] but in Senez [20] and Nematolahei's [23] study had an undesirable level.

In the present study in physical role, physical pain, vitality and emotional well-being the majority of patients were in undesirable levels, which is in consistent with the results of Liyoyd [26], Paimani [24] and Montazeri's [15] studies. While in other studies [29, 28, 24, 19] these aspects were at "relatively desirable" and "desirable" levels. Perhaps one of the reasons for disagreement between the outcomes of our study is due to illiteracy and low socio-economic status of the study samples.

Between age and physical function and physical pain, significant relationship was observed, which is consistent with previous studies [29,22, 28, 20, 19]. Thus the results of the present study were similar to other research results and showed that there was an inverse relationship between age and quality of life. Researchers believe that, because the majority of diabetic patients are elderly and in addition to problems related to aging they suffered from diabetic complications, their quality of life in physical function and physical pain is low. In all eight aspects, compared with men, women had achieved lower scores. Between gender and physical function and emotional well-being, there was a significant relationship, so that the physical function and emotional well-being for women was less than men. Probably differences were due to biological and psychological differences between two sexes bearing in mind that majority of the subjects in this study were women. In Liyoyd<sup>26</sup>and Paimani [24] Monjamed's [31] study compared to men, women had higher scores in quality of life that is in consistent with our findings.

There was a significant relationship between marital status and quality of life in physical function, which is consistent with Paiman [24] and Heydarzadeh's studies [28]. The majority of married patients had better quality of life compared to divorced patients or those with a died spouse.

There was a significant relationship between educational status and physical role and emotional well-being. In Paimani [24] Monjamed [31] and Darvishpor's [32] study there was a significant relationship between the two mentioned variables. It seems that with increasing the level of education, quality of life improved. The reason may be increasing awareness about the importance of proper diet and exercise, as well as metabolic control, proper use of drugs and controlling other risk factors that are responsible for development of diabetes complications.

The results showed that there was a significant relationship between the quality of life and chronic complications of diabetes meaning that complications were the quality of life were lower with higher blood sugar, which is consistent with Darvishpour's [32] study.

Evaluation of patients' quality of life is a new topic in Iran despite its 4 years history in the world and developed countries [17]. Only patients with type II diabetes were studied in this study and the results showed that compared to men, women had more problems and low quality of life. Therefore, it is recommended to investigate quality of life in type I and II diabetics patients as well as causes of low quality of life in women compared with men.

Based on the results of this study it was determined that personal factors and social background such as age, gender, occupation, body mass index, etc. can be related to quality of life of diabetic patients. Indeed, changes in quality of life could be affected by personal, social, and background factors. In conclusion,

measuring quality of life is helpful not only in improving patient's quality of life, but also in the care plan and modification of their quality of life.

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