

Mostafai Bijani<sup>1</sup>, Aboubakr Jafarnezhad<sup>2</sup>, Mohammad Rafi Bazrafshan<sup>3</sup>, Sanaz Atef<sup>1</sup>, Parisa Sabet Sarvestani<sup>1, 3</sup>, Azizallah Dehghan<sup>1</sup>

<sup>1</sup>Noncommunicable Diseases Research Centre, Fasa University of Medical Sciences, Fasa, Iran

<sup>2</sup>Hormozgan University of Medical Sciences, Bandar Abbas, Iran

<sup>3</sup>School of Nursing, Larestan University of Medical Sciences, Larestan, Iran

# Comparison the health-related quality of life in type 2 diabetic patients and healthy people: a cross-sectional study in Iran

## ABSTRACT

**Background.** Diabetes is a chronic and widespread disease that is said to double by 2030. Diabetes can affect the quality of life of patients. The aim of this study was the health-related quality of life in type 2 diabetic patients and healthy people.

**Methods.** This analytical cross-sectional study was conducted on 200 diabetic patients and 200 healthy people in Fasa (Fars Province, Iran). The WHOQOL-BREF was used to collect data. Data were analysed using independent t-tests, Spearman correlation coefficient, one-way analysis of variance and linear regression in SPSS 16 software.

**Results.** The results of the study showed that the quality of life of diabetic patients in all dimensions except the social dimension was significantly lower than healthy individuals ( $P < 0.001$ ).

**Conclusion.** The findings of this study suggest that diabetes can reduce the quality of life of diabetics. And it is necessary to design interventions to increase the quality of life of diabetic patients. (Clin Diabetol 2021; 10; 4: 370–374)

**Key words:** diabetes type 2, quality of life, WHOQOL-BREF

## Introduction

Increasing the prevalence of diabetes complications and their incidence has made it one of the most important concerns and challenges of the health system in most societies. The disease has become so prevalent in the world that 171 million people worldwide have the disease, and it is estimated that by 2030 this number will reach 366 million [1, 2]. People with diabetes in Iran make up 2–3% of the total population, and it is estimated that the cost of treating the disease will increase to \$ 200 billion by 2030 [3]. The World Health Organization (WHO) has identified a high prevalence of diabetes as an important health problem that, in addition to economic damage, can reduce the satisfaction and quality of life of patients and their families [4]. The World Health Organization defines the quality of life as people's understanding of their position in life in terms of the culture and value system in which they live, their goals, expectations, standards, and priorities [5, 6]. The quality of life is the difference between people's expectations and the level of reality, and the lower the difference make the quality of life better. The quality of life is a concept that includes several dimensions such as physical health, mental health, social relations and interaction with the environment, which is influenced by the cultural context, economic and social conditions [7, 8]. Currently, quality of life is one of the major concerns of health professionals and is considered as an indicator for measuring health status in health research [9]. Due to the high prevalence of diabetes in Iran and the impact of this disease on the quality of life of patients, the research team conducts a study entitled comparison the health-related quality of life in diabetic patients and healthy people in one of the southern cities of Fars province.

Address for correspondence:

Azizallah Dehghan, PhD in Epidemiology  
Noncommunicable Diseases Research Centre  
Fasa University of Medical Sciences,  
Fasa, Iran 74616-86688

e-mail: dehghan.aziz@yahoo.com

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## Methods

The present study was a cross-sectional and descriptive-analytical study that was conducted in 2019 in Fasa city. In this study, type 2 diabetic patients were selected by sampling method from a diabetes clinic, and healthy people were selected from patients' neighbours. The WHOQOL quality of life questionnaire was completed for them after filling informed consent. Brief-WHOQOL Quality of Life Questionnaire is a general quality of life assessment questionnaire that can be used by all population groups. This questionnaire consists of 26 questions. 4 dimensions of physical health (7 questions), mental health (6 questions), social relationships (3 questions) and environmental health (8 questions) are the areas of this questionnaire [5]. The first two questions are not related to any of the dimensions and only assess the overall health and quality of life. The rating score for the Likert scale is 1–5. In total, each dimension has a score of 4–20. A score of 4 indicates the worst quality of life and a score of 20 indicate the best quality of life. These scores can also be converted to a score of 0–100 [6]. In this study, the Persian version of the questionnaire was used. The validity and reliability of this questionnaire have been confirmed in previous research [6]. Data were analysed using independent t-tests, Spearman correlation coefficient, one-way analysis of variance and linear regression in SPSS 16 software.

## Ethical considerations

All participants gave written informed consent to participate in the study. The present study was conducted by the principles of the revised Declaration of Helsinki, a statement of ethical principles which directs physicians and other participants in medical research involving human subjects. The participants were assured of the anonymity and confidentiality of their information. Moreover, the study was approved by the local Ethics Committee of Fasa University of Medical Sciences, Fasa, Iran.

## Results

The mean age in the diabetic and non-diabetic groups was  $54.86 \pm 9.05$  and  $54.13 \pm 9.90$ , respectively. Also, the average number of family members in the diabetic group was  $4.27 \pm 1.75$  and in the non-diabetic group was  $3.87 \pm 1.29$ . The results of the study showed that in both groups, more women than men participated in the study (77% diabetic and 63% non-diabetic). In the diabetic group, most individuals had high school education (33.5%) and in the non-diabetic group, most individuals had a university education (59.5%). Most of the participants in the study were also

married (Table 1). The results of the study showed that the quality of life of diabetic patients in all dimensions except the social dimension was significantly lower than healthy individuals ( $P < 0.001$ ). But in the social dimension, there was no significant difference in the quality-of-life score between people with diabetes and healthy people (Table 2). Among the indicators of quality of life, physical, psychological and social indicators had a statistically significant relationship with age, so that with one year of age increase, patients' quality of life in physical, mental and social dimensions increased by 0.239, 0.133 and 0.206, respectively ( $P < 0.05$ ). However, the variables of the number of complications, the duration of the disease, as well as the family dimension did not show a significant relationship with the dimensions of quality-of-life scores (Table 3). Table 4 shows that the variables of education level and marital status of patients have no significant relationship with the dimensions of quality of life. However, the quality-of-life score is significantly higher in men than women ( $P = 0.003$ ). Table 5 shows the results of linear regression analysis. In addition to diabetes, age variables, gender, and level of education affect the physical dimension, the number of family members affects the psychological dimension, age affects the social dimension, and age and gender affect the environmental dimension. Thus, the quality of life of men in physical and environmental dimensions has been better than for women. Also, age is inversely related to physical, social and psychological dimensions. With increasing household size, the psychological dimension score has shown a significant decrease and the level of education has a positive relationship with the quality-of-life score in the physical dimension. As the level of education increases, the quality of life has increased.

## Discussion

Today, in medical care, the control of chronic diseases such as diabetes is very important. Improvement in chronic diseases is impossible, so the goals of health care are to improve the quality of life of patients. To achieve this, it is necessary to pay attention to the factors affecting the quality of life of the disease [10, 11]. This study aimed to compare the quality of life of diabetics and non-diabetics. According to the results of this study, diabetics experienced lower quality of life than non-diabetics, which is consistent with the results of previous studies [12–14]. In explaining this finding, it can be acknowledged that diabetes, like any other chronic disease, in addition to high mortality, causes many individual, family, social and financial problems. Due to the involvement of most organs in the body, this disease will have significant negative ef-

**Table 1. Characteristics of participants in the study of quality-of-life comparison between diabetic patients and healthy individuals in Fasa — Iran 2019**

	Type 2 diabetic patients	Healthy people	P-value
Gender			
Male	47 (23)	74 (37)	0.002
Female	157 (77)	126 (63)	
Total	204 (100)	200 (100)	
Education			
Unlettered	17 (8.4)	0 (0)	< 0.001
Elementary	28 (13.8)	3 (1.5)	
Junior high school	37 (18.2)	12 (5.9)	
High school	68 (33.5)	68 (33.2)	
University	53 (26.1)	122 (59.5)	
Total	203 (100)	408 (100)	
Marital status			
Single	26 (12.9)	33 (16.1)	0.366
Married	175 (78.1)	172 (83.9)	
Total	201 (100)	205 (100)	
Number of complications			
0	96 (46.8)		
1	67 (32.7)		
2	32 (15.6)		
3	7 (3.4)		
4	3 (1.5)		

**Table 2. Comparison of the score of all aspects of quality of life between patients with type 2 diabetes and healthy people in Fasa —Iran 2019**

Dimensions	Diabetic	Healthy people	P-value
Physical	54.75 ± 11.96	63.27 ± 16.46	< 0.001
Psychological	53.83 ± 12.71	59.42 ± 16.02	< 0.001
Social	54.25 ± 18.72	60.69 ± 17.12	0.783
Environment	56.50 ± 11.07	60.19 ± 16.57	< 0.001

fects on all aspects of patients' quality of life [15, 16]. The constant conflict and imitations of diabetes cause negative feelings and life dissatisfaction, decreasing the patients' quality of life. Continuous adherence to diet

and medication also creates a feeling of inadequacy and dependence in patients, which leads to exacerbation of negative effects and reduction of patients' quality of life [17, 18]. In the present study, the average score of quality of life in men was higher than women, which is consistent with the study of Abedini et al. [19], Daneshvar et al. [20] and Spasic et al. [21]. In a study by Al Hayek et al. [22], the average score of quality of life in women was higher than men, which is not consistent with the present study. It seems that in this study, women's lifestyle, their attention to maintaining health and the ability to manage life as well as their greater efforts in self-care has led to a better quality of life in them. In the present study with increasing age and level of education in the physical dimension,

**Table 3. Relationship between age, family size, duration of diabetes and the number of complications of quality of life in the diabetic group in Fasa — Iran 2019**

	Age		Household size		Number of complications		Duration of diabetes	
	R	P-value	R	P-value	R	P-value	R	P-value
Physical	0.239	< 0.001	0.011	0.826	0.104	0.139	0.005	0.946
Psychological	0.133	0.007	0.076	0.125	0.052	0.455	0.102	0.147
Social	0.206	< 0.001	0.007	0.885	0.050	0.479	< 0.001	0.999
Environment	0.072	0.147	0.015	0.766	0.033	0.637	0.042	0.555

**Table 4. Comparison of quality-of-life score based on age, sex, education level and marital status in diabetic patients in Fasa — Iran 2019**

	Physical		Psychological		Social		Environment	
	Mean $\pm$ SD	P-value	Mean $\pm$ SD	P-value	Mean $\pm$ SD	P-value	Mean $\pm$ SD	P-value
Gender								
Male	62.32 $\pm$ 16.95	0.003	58.61 $\pm$ 16.53	0.146	59.05 $\pm$ 17.84	0.283	58.20 $\pm$ 15.91	0.828
Female	57.53 $\pm$ 13.87		55.98 $\pm$ 13.94		56.92 $\pm$ 18.41		58.53 $\pm$ 13.43	
Education								
Unlettered	55.59 $\pm$ 7.30	0.292	56.06 $\pm$ 10.52	0.314	60.29 $\pm$ 18.59	0.269	58.24 $\pm$ 13.43	0.382
Elementary	55.71 $\pm$ 12.84		54.03 $\pm$ 16.13		52.48 $\pm$ 18.97		55.45 $\pm$ 10.83	
Junior high school	52.04 $\pm$ 13.04		50.10 $\pm$ 11.96		54.35 $\pm$ 18.62		55.20 $\pm$ 11.67	
High school	59.00 $\pm$ 14.64		55.84 $\pm$ 13.98		58.90 $\pm$ 16.54		57.92 $\pm$ 14.27	
University	62.05 $\pm$ 15.98		59.93 $\pm$ 15.44		58.20 $\pm$ 19.04		60.49 $\pm$ 14.96	
Marital status								
Single	58.15 $\pm$ 16.46	0.622	54.53 $\pm$ 15.49	0.236	54.75 $\pm$ 16.92	0.261	58.75 $\pm$ 14.88	0.378
Married	59.20 $\pm$ 14.83		57.01 $\pm$ 14.73		57.92 $\pm$ 18.52		58.37 $\pm$ 14.05	

**Table 5. Factors affecting the four dimensions of quality of life by linear regression in Fasa — Iran 2019**

Variable	Physical			Psychological			Social			Environment		
	$\beta$	se $\beta$	P-value	$\beta$	Se $\beta$	P-value	$\beta$	Se $\beta$	P-value	$\beta$	Se $\beta$	P-value
Group	.009	.280	.000	.001	.021	.770	.002	.066	.272	.003	-.075	.252
Age	-.184	-.254	.000	.027	.037	.605	-.104	-.174	.004	-.107	.139	.036
Gender reference male	-.006	-.204	.002	-.001	-.029	.694	.000	-.017	.788	-.005	.152	.025
Household number	.009	.088	.197	-.017	-.165	.027	.002	.026	.681	.003	.028	.688
Educational level	.012	.159	.017	.008	.104	.156	-.005	-.082	.183	-6.39	.005	.990
Reference = under diploma												
Marital status	.000	-.013	.849	.002	.095	.206	.001	.068	.280	-.003	-.001	.151
reference = single												

male patients had a better quality of life than women. This finding is consistent with the results of a study by Borzou et al. [23], and EydiBaygi et al. [24].

In the present study, no significant relationship was observed between marital status and quality of life, while in the study of Saadatjoo et al. [25] single patients had a better quality of life than married patients. This finding could be due to the less busyness and responsibility of single people and therefore more time for their attention and follow-up in self-care. In the present study, no significant statistical relationship was observed between the variables of the number of complications, the duration of the disease and the family dimension with the quality of life of patients. However, in Bradley's [26] study, a significant relationship was observed between the mentioned variables with the mean score of quality of life, which can be influenced by cultural context, lifestyle and other socio-economic factors.

This study had a limitation. Because the convenience sampling method was used for subject selection, patients were selected from the Fasa Diabetes Clinic and healthy people were selected from patients' neighbours. And for that reason, the results cannot be generalized to all patients with diabetes.

## Conclusion

The results of this study showed that the quality of life of diabetic patients was lower than that of non-diabetics. Therefore, the policymakers of the health care system must identify the factors affecting the quality of life of diabetic patients and effective and continuous interventions to improve patients' quality of life. Also, considering the quality of life is a multidimensional concept, influenced by cultural, economic and social factors; therefore it is recommended to conduct these studies in other regions of Iran and other countries.

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## Conflict of interest

The authors declared no conflict of interest.

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