

Original Article

Quality of Life among Patients with Diabetic Foot Ulcer

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Abstract

Background: Quality of life associated with health includes general health, functional ability, physical symptoms and emotional, cognitive, social and sexual functions of an individual. Although the quality of life associated with health has been widely studied in patients and in the general population, there are a limited number of studies in relation to the quality of life of people with diabetic foot ulcers.

Aims: The aim was to investigate the health-related quality of life (HRQoL) of patients with diabetic foot ulcers.

Methodology: Patients (N=145) from the outpatient clinic of a tertiary Hospital completed a series of questionnaires related to the assessment of the quality of life with the interview method during their waiting for their appointment. Information on patient history and complete biochemical control was taken from the patient's dossier. The participants mean age was 59.7 years, most were married and were private employees.

Results: The quality of life among patients with diabetes mellitus seemed to be moderately affected using leisure time (47.6%), physical activity (52%) and satisfaction (40%), while in the other parameters has been affected to a lesser extent. linear regression, where the confounding effects were eliminated, the reduction in glycosylated hemoglobin was associated with an increase in scores at all the scales of the questionnaire.

Conclusions: In addition, at all the scales of the questionnaire, patients who were informed about the care of ulcers by a doctor had a higher score than nurses.

Keywords - Diabetes, Diabetic Foot, Health-related Quality of Life, Physical Adequacy, Greece.

Introduction

To maximize the quality of life for people with diabetes to achieve a balance between their needs and desires and the management of the disease some measures are required (Salman, Wadood and Abualkasem, 2017). The quality of life is associated with health and refers to a person's self-perceived function and prosperity. Therefore many measures are taken regarding the way in which chronic illnesses interfere with everyday life of the individual. It has been considered as "The ultimate goal of all health interventions" (El Din et. al , 2016). Measuring the quality of life related to health (HRQoL) in diabetes mellitus is

important as nutritional restrictions, medicines and the real symptoms of the illness as well as concomitant diseases, can lead to deterioration of HRQoL. In addition, the guidelines for treatment diabetes mellitus emphasizes that one of the primary objectives are to improve HRQoL (Kodela, Kumar and Vivek, 2016, Ahmed S.2018).

Background

Prior to joining diabetes centers specializing in diabetic ulcers, diabetic patients suffer, due to their health problems, at an individual, family, and social level. This determines their quality of

life, which is a key parameter of health affecting (Marino, 2013). The quality of life of these patients is described as poor because of their condition on: physical activities such as ability to work, psychological factors such as satisfaction, pleasure, well-being, self-esteem, anxiety and depression social adaptability, including rehabilitation at work, entertainment as well as social and family activities (Carracher, Marathe and Close, 2018). In addition, internal control focusing is not an important prognostic factor for depression in diabetic patients during their treatment. In other studies, personal control over the health problem is positively related to physical and social activity, body pain control as well as perception of the general health status of patients undergoing insulin therapy (Al-Ameri, 2017, The Diabetic Foot Assessment, 2018). Additionally, personal control is associated with lower emotional response and better understanding of the disease (Jaksa et al. 2015). Finally, internal perceptions of health result in a more positive assessment of the quality of life of patients with fewer symptoms and negative consequences. To address chronic diseases, health services today provide services on a stable basis to patients, the main feature of which is the growing therapeutic relationship between healthcare staff and patients (Al-Rubeaan et al., 2017, Hughes-Carter and Hoebeke, 2016). Many researches have shown that the intensity of treatment does not entail improving the quality of life. This stems in part from the fact that health-related quality of life is affected by multitude factors, such as the existence of other health problems, social relationships, marital status, patient knowledge, satisfaction with treatment and ability to control the management of his / her illness (Kisozi et al., 2017, Ricci et al., 2017).

Methodology

The survey was conducted at the outpatient clinics of a Diabetes Center of a tertiary hospital of Thessaloniki and during April-August 2016. A convenience sample of 145 patients with diabetic foot ulcers was selected. Inclusion criteria were: Age > 18 years old, excellent communication in the Greek language and accept participation in the study. Exclusion criteria were: age under 18 years old, diseases and medications that may affect the mental health.

Research instrument of data collection: The Diabetes Foot Scale (DFS) was used (Abetz et al., 2002) that consists of 58 questions and 11 dimensions (leisure, physical health, daily

activities, emotions, noncompliance, family, friends, positive attitude, treatment, satisfaction, and financial). Score range from 0-100 (Shokry Abd-Allah, 2016). Higher scores indicate better quality of life. A pilot study with (n=20) participants was conducted, where translation and cultural adaptation was carried out. Participants found the scale understandable. The reliability was tested on (n=145) patients and Demographic and clinical characteristic were recorded.

Ethics: The ethical principles followed in the course of the study. The data collection was made after written approval for the study by the Scientific Committee of the Hospital. The principles of anonymity, data confidentiality, and the voluntary participation of subjects in the study were respected throughout the study. The participants were informed for the purposes of the research, for the use of the results for scientific purposes, for the voluntary participation and for their right of withdrawal at any time without affecting their treatment and care in the hospital.

Data analysis: Categorical variables are presented as numbers and percentages, while continuous variables are presented as mean, standard deviation, minimum and maximum value. The Kolmogorov-Smirnov test indicating the normality of the distribution of the continuous variables and we used parametric methods for the analysis. Bivariate analysis between independent variables and scores on the 11 dimensions of the Diabetes Foot Scale included t-test, Pearson's and Spearman's correlation coefficient. Variables that were significant different ($p < 0.20$) in bivariate analysis, were entered into the backward stepwise multivariate linear regression analysis. We estimated adjusted coefficients beta with 95% confidence intervals and p-values. In our study, p-values of less than 0.05 were considered significant. Statistical analysis was performed with the Statistical Package for Social Sciences software (IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.).

Results

The study population included 145 patients with diabetes, of whom 51% were males. Table 1 presents the demographic characteristics of the participants. The average age of patients was 59.7 years. Most of patients with diabetic foot ulcers used insulin with intensified shape and had complications due to diabetes. They had diabetes mellitus on average 9.4 years. (Table 2).

Table 1. Demographic and clinical characteristics of patients (N=145)

Gender	N	%
Male	74	51.0
Female	71	49.0
Age	59.7 ^α	16.1 ^β
Marital status	N	%
Brides	22	15.2
Married	75	51.7
Divorced	24	16.6
Other	24	16.6
Educational level	N	%
Primary School	53	36.6
High School		32.4
Secondary School	36	24.8
University	8	5.5
Master degree	1	0.7
Profession	N	%
Public servants	23	15.9
Private employees	50	34.5
Retired people	15	10.3
Other	57	39.3

^α average value, ^β standard deviation Total Cronbach's alpha was found to be 0.97.

Table 2 Findings on some disease related characteristics of patients

Duration of diabetes	9.4 ^α	
Treatment	N	%
Antidiabetic tablets, diet and exercise	8	5.5
Insulin injections	33	22.8
Diet Only	3	2.1
Tablets and diet and exercise	32	22.1
Injections and diet and physical exercise	69	47.6
Shape insulin therapy	N	%
Conventional	8	5.5
Intensified	115	79.3
Insulin Pump	22	15.2
Type of diabetes	N	%
1	8	5.5
2	137	94.5
HbA1C	N	%
	5.8 ^α	0.9 ^β

Table 3. Health-related quality of life at patients with diabetic foot ulcers, mean scores

Physical health	N	%	N	%	N	%	N	%	N	%
2a) Fatigued or tired?	58	40.0	19	13.1	51	35.2	16	11.0	1	0.7
2b) Drained?	57	39.3	18	12.4	55	37.9	14	9.7	1	0.7
2c) That you had difficulty sleeping?	0	0	77	53.1	52	35.9	14	9.7	2	1.4
2d) Pain while walking or standing?	58	40.0	19	13.1	52	35.9	2	1.4	14	9.7
2e) Pain during the night?	58	40.0	2	1.4	69	47.6	14	9.7	2	1.4
Emotions	N	%	N	%	N	%	N	%	N	%
4a) Angry because you were not able to do what you wanted?	0	0	77	53.1	52	35.9	14	9.7	2	2.4
4b) Frustrated by others doing things for you when you would rather do them yourself?	57	39.3	20	13.8	51	35.2	3	2.1	14	9.7
4a) Frustrated because you were not able to do what you wanted?	74	51.0	3	2.1	51	35.2	15	10.3	2	1.4
Leisure	N	%	N	%	N	%	N	%	N	%
1a) Stopped you from doing hobbies and recreational activities that you enjoy?	57	39.3	20	13.8	53	36.6	15	10.3	0	0
1c) Stopped you from getting for a holiday or weekend break?	57	39.3	21	14.5	51	35.2	16	11.0	0	0
1d) Made you choose a different kind of holiday or short break than you would have preferred?	1	0.7	76	52.4	52	35.9	16	11.0	0	0
1e) Meant that you had to spend more time planning and organising for leisure activities?	1	0.7	76	52.4	64	44.1	3	2.1	1	0.7
Daily activities	N	%	N	%	N	%	N	%	N	%
Because of your foot problem how often have you:										
3a) Had to depend on other people to help you look after yourself?	0	0	78	53.8	51	35.2	14	9.7	2	1.4
3b) Had to depend on other people to do household chores such as cooking, cleaning, or laundry?	57	39.3	20	13.8	52	35.9	14	9.7	2	1.4
3c) Had to depend on other people to go out of the house?	57	39.3	20	13.8	52	35.9	2	1.4	14	9.7
3d) Had to spend more time planning or organising your life?	57	39.3	21	14.5	51	35.2	2	1.4	14	9.7
3e) Felt that doing anything took longer than you would have liked?	57	39.3	3	2.1	52	35.9	31	21.4	2	1.4
3f) Felt restricted in your activities of daily life?	57	39.3	20	13.8	52	35.9	14	9.7	2	1.4

Findings on some health-related quality of life characteristics: According to Table 6. 39.3% of people with diabetes responded that they did not change hobbies and leisure activities at all. and 36.6% changed hobbies and activities to a moderate extent due to the underlying ulcers their ends. Regarding the types of hobbies and their activities. 47.6% changed them modestly. while 39.3% did not. A 39.3% of people could not leave at all. 52.4% of patients chose a different type of vacation or short escape. Another 52.4% of people with diabetes had to spend a little more time planning and organizing recreational activities. and 44.1% said it had moderately increased the planning time of activities.

As far as the physical condition of people with diabetes is concerned: 40% said the problems caused by leg ulcers caused them to feel less tired. and 35.2% felt moderately tired. 37.9% felt modestly weak and 53.1% had few sleeping difficulties. 35.9% said they had moderate difficulty sleeping. A 40% say they do not feel pain when walking or standing up and 35% have moderate pain. 53.8% had little reliance on other people in day-to-day activities. and 35.2% needed moderate help for ulcer care; 39.3% did not need homework such as cooking. washing clothes and cleaning the house. A 39.3% of respondents said they did not need help getting out of the house. 39.3% of the patients were unaffected for their daily preparation and organization. while 35.2% were moderately affected. He did not feel that there was anything more that he wanted 39.3% of his life. while 35.9% felt moderate about it. 39.3% of respondents are not limited to everyday life. As far as the feelings of the patients are concerned. the 53.1% responded that they feel a bit they can do what they want to do. 39.3% of respondents said they were not disappointed by others who did things for them while they preferred to make it themselves. disappointed because they are unable to do what they would like to do. he replied that he was not a 51%. respectively 51% said he could cure his ulcer. A percentage of 43.4% responded that it is moderately worried that some mutilation may be needed. For injured legs as a result of the unregulated diabetes mellitus he responded 39.3% said he was not worried at all. He does not feel sad because he is not able to do what he wants to do 39.3%. while 39.3% are concerned about the possibility of other ulcers appearing in the future. 39.3% of the

respondents are not worried at all because it feels heavy for others. 39.3% of respondents with diabetes mellitus and leg ulcers reported no control in their life. 51% of respondents believe that this has not happened in their lives. Only 39.3% of patients with diabetes and ulcers in the lower limbs feel that 39.3% of the respondents are not feeling the difficulty of receiving treatment. fear for the future feels to a moderate degree in 46.9% of patients. 47.6% of respondents replied that they feel moderate for themselves because they can no longer work and be productive with optimism for the future. and 39.3% responded to hope.

Discussion

Although patients believe that their unregulated diabetes is responsible for the appearance of ulcers in their lower extremities. fewer than half reported that they were briefed by specialized nurses. and just below half said they had been informed by the nurses specialized doctors. Research confirms these results (Dumville et al, 2017). . The more patients suffer the more they worry about the existence of the ulcer. consequently they sleep less. so insomnia leads to exhaustion and anxiety (Engelhardt et al, 2017. Nemcová et al, 2017). To a moderate degree. the emotions and psychology of people with diabetes and ulcer in the lower limbs appeared to have been affected. Fejfarová et al. (2014) found that diabetic foot patients had good tolerance to stress and did not experience psychological problems such as severe forms of depression except for those who had suffered severe amputation. In contrast. Ahmed (2006) found that patients with diabetic foot experienced a variety of symptoms of sadness; the probability of negative psychological effects from the presence of diabetic ulcers other than those resulting from diabetes itself has been highlighted in several studies. Emotional problems that limit activity and social life and lead to anger and anxiety have been observed quite common in people with diabetic ulcers. In another study. participants with a history of diabetic ulcer reported significantly worse psychological status compared to patients without ulcer and with or without diabetes (Gök et al, 2016. Ibrahim. 2017). The participants in the research appeared to be compliant with the treatment and suggestions of the doctors. Surveys have highlighted that good nursing staff play a very

important role in patient compliance with their treatment. Regarding treatment, it was found that poor quality of life of patients with diabetic foot contributes to amputation and high quality of life does not contribute to healing the ulcer (Bloomgarden 2008). The family seemed to support patients with diabetic lower limb pain to a moderate extent. Contrary to several studies, the negative correlation of the patients' relatives was seen mainly due to pain where the patient avoids getting out and contacting his relatives quite often (Fletcher, 2006, Aumiller and Dollahite, 2015). It has been found that patients have restricted visits and meetings with friends because of the difficulties in moving from existing diabetic ulcers to the lower extremities. There are studies that confirm that all of the above limitations result in the social isolation of many people with diabetic ulcer because they prevent them from doing social encounters due to factors related to the ulcer (Holt, de Groot and Golden, 2014, Linselink, Holloway and Eefting, 2017). The analysis showed that the free time of the patients was limited both qualitatively and quantitatively to a moderate degree. In a study the participants refused to feel alone but described themselves as socially isolated and limited in the home. In addition, emotional problems that limit their activities and social life lead to anger and anxiety which is in agreement with several studies (He et al, 2017). People with diabetes responded that their daily routine in diabetic ulcers has been affected, which is also supported by a study by Dorresteijn et al, (2014), which suggests that patients with diabetes suffer a lot of constraints also in their day-to-day activity mainly with reduced performance in their work, which is significantly associated with increased levels of anxiety. The reduced ability to perform their duties, reduced performance in homework, and reduced engagement in their personal hygiene. To a moderate degree, the emotions and psychology of people with diabetes and ulcer in the lower limbs appeared to have been affected. A study by Fejfarová et al. (2014) found that diabetic foot patients had good tolerance to stress and did not experience psychological problems such as severe forms of depression except for those who had suffered severe amputation. In contrast, a study by Pranata, Nugroho and Sujianto (2016) found that patients with diabetic foot had a variety of symptoms of sadness, and the possibility of negative psychological effects from diabetic ulcers other than those resulting from diabetes

itself has been highlighted in several studies. Emotional problems that limit activity and social life and lead to anger and anxiety have been observed in a study by Edmonds (2009) that it was quite common in people with diabetic ulcers. In a study by participants with a history of diabetic ulcer reported significantly worse psychological status compared to patients without ulcer and with or without diabetes. The participants in the research appeared to be compliant with the treatment and suggestions of the doctors. According to a survey by Forbes and Cooper, (2013) has pointed out that good nursing staff plays a very important role in patient compliance with their treatment. Regarding treatment, it has been found that the low quality of life of diabetic foot patients contributes to amputation and high quality of life does not contribute to healing the ulcer. The family appeared to support patients with diabetic lower limb pain to a moderate degree in contrast to Edmonds et al. (2009) and Fujiwara et al, (2011) showed the negative correlation of the patients' relatives due mainly to pain where the patient he avoids getting out and encountering his relatives quite often. It was found that patients have restricted visits and meetings with friends because of the difficulties in moving from existing diabetic ulcers to the lower extremities. Gan et Albanese-O'Neill and Haller (2012) agree that all the above restrictions result in the social isolation of many people with diabetic ulcer because they prevent them from doing social encounters due to factors related to the ulcer. A positive correlation of the participants with their treatment, which is also supported by the patient's own history. Betts et al. (2018), confirm this positive correlation of the participants with their treatment. Research has shown that participants have a moderate positive attitude towards their ulcer progression as Forbes and Cooper (2013), confirm that psychotherapeutic intervention during hospitalization can help for a positive attitude in treating ulcers of diabetic patients with chronic ulcer.

Conclusion

In conclusion, the quality of life of diabetic foot patients is influenced by chronic diastolic aetiologies at their lower extremities, to a moderate degree in the availability of free time for patients, to a negative effect on physical condition with an impact on daily life difficulties patient's life, positive attitude and non-compliance with the application of the self-care

guidelines. Our data suggest that diabetes nurses and physicians play a key role in their care. in education. in the guidelines for diabetic foot care and diabetes mellitus and provide patient-centered care rather than available resources.

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