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Demographic factors associated with quality of life in Iraqis people with diabetic foot ulcers

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***Abstract*---**Background: DFU is a chronic complex wound that has a chief influence on mortality, morbidity, and personal satisfaction for patients. It affects the life of a person with diabetes by up to 25 percent, and thus affects the quality of life of the patient. Objectives: The purpose of this study was to determine Demographic factors associated with QOL in patients with DFU. Patients and Methods: This cross-sectional study was performed on 150 patients (90 males and 60 females) hospitalized for DFU, carried out using a convenience sampling, Demographic data and quality of life questionnaire for patients with DFU were a brief, this questionnaire has 29 questions in six domains, of Leisure, physical health, daily activities dependence, negative emotions, Worried about ulcers, and wound caring, which assess the quality of life in DFU patients. The scoring method for this tool is five optional Likert. The data were analysed using descriptive and analytical statistical approaches. Results: Of the 150 patients with DFU, 60% were male and 40% female with the majority was participants 51-58 years (25.3%) and average QOL of 58.41± 17.09. Statistical analysis showed that age ($P < 0.0001$), Gender ($P = 0.01$), Diabetes duration ($P=0.003$), Type of treatment ($P < 0.001$), location of foot ulcer ($P < 0.001$), and the number of foot ulcer ($P < 0.001$) had a statistically significant relationship with. Other variables did not have a significant relationship with QOL. Conclusions: participants

presented domains of quality of life that tend to middle health status to enhance patient care practises, effectively manage foot ulcers, and enhance patients' quality of life, taking into account factors such as Female gender, age above 50 years, diabetes duration, location of foot ulcer and number of wounds were the most important factors associated with quality of life in patients with diabetic foot ulcer.

***Keywords*---**Diabetic Foot, Ulcers, Quality of Life.

Introduction

Diabetes mellitus is a chronic metabolic disease marked by high blood glucose (also known as blood sugar), which over time can seriously harm the heart, blood vessels, eyes, kidneys, and nerves. About 422 million people worldwide, mostly in low- and middle-income nations, have diabetes, the most prevalent form of which is type 2 diabetes, which mostly affects adults. Each year, diabetes directly causes 1.5 million fatalities globally (WHO, 2022). Patients with uncontrolled diabetes mellitus may develop diabetic foot ulcers as one of their most common side effects. It is usually the result of poor glycaemic control, underlying neuropathy, peripheral vascular disease, or poor foot care. It is also one of the frequent causes of foot osteomyelitis and lower extremity amputation. These ulcers typically develop when the foot experiences pressure and repeated damage (Agarwal, 2018). DFU is a chronic complex wound that has a chief influence on mortality, morbidity, and personal satisfaction (Marzoq et al., 2019). After the skin layer is damaged, a dynamic bacterium that spreads swiftly is exposed to deep tissue. Patients with DFU frequently require lower-limb amputations, and infection is typically the most unpredictable variable. It has been estimated that roughly 25% of people with diabetes will develop DFUs during their lives. Additionally, it is determined that diabetic problems lead to the lower leg being amputated primarily frequently(Onofriescu et al., 2019). The mean amount of glycosylated haemoglobin over time reflects the correlation between chronic hyperglycaemia and loss of nerve function. The fundamental mechanism for nerve degeneration is thought to be metabolic anomalies from persistent hyperglycaemia, which cause ischemia of the endoneuria microvascular circulation. Ischemia: About 15-20% of foot ulcers are primarily caused by ischemic ulcers without significant comorbid neuropathy, while another 15-20% are caused by a combination of neuropathic and vascular factors (Mousa et al., 2020). These diabetic foot lesions have a substantial negative impact on the patient's health and socioeconomic situation, negatively affecting their quality of life (QOL), and placing a huge financial burden on their families (Al-Busaidi et al., 2018, Mariam et al., 2017). The concept of "related quality of life" (QOL) refers to a patient's physical, psychological, and social well-being, all of which are influenced by their experiences, convictions, expectations, and perceptions. Every healthcare professional must be aware of the effects that chronic illnesses like diabetes mellitus have on the patient's physical, emotional, and social lives. Lower QOL ratings are caused by multiple factors, notably in diabetic individuals (Al Ayed et al., 2020). Patients with DFUs reported poorer QOL than other patients with diabetes (Fejfarová et al., 2014). According to a recent meta-analysis of 12 research, individuals with DFUs showed subpar QOL in areas including physical

functioning, role physical, overall health, and vitality (Khunkaew et al., 2019). For example, physical domains include activities such as mobility, self-care, and usual activities (Siersma et al., 2014). Due to ulceration's restriction of physical activity, social isolation may have an impact on QOL (Macioch et al., 2015, Nemcová et al., 2017). Additionally, depression was discovered to be a psychological indicator of worse QOL in DFU patients (Alosaimi et al., 2019, Pedras et al., 2018). Other elements including advanced age, female gender, obesity, having PAD, having pain, having a higher Wagner scale grade, and having longer ulceration were significant predictors of poorer QL (Khunkaew et al., 2019, Nemcová et al., 2017).

Aim

The purpose of this study was to determine Demographic factors associated with QOL in patients with DFU.

Method

This was a descriptive study performed on 150 hospitalized patients with DFU with the available sampling method. Two questionnaires were used to gather the data; the first asked about the demographics of the samples and the variables influencing their disease, and the second asked about the QOL with short form diabetic foot ulcer scale (DSF-SF). This questionnaire was created by Johanson in England, and its reliability and validity have been examined in a number of nations. This tool's reliability was assessed using Cronbach's alpha coefficient, and it was found to be reliable with a score of 0.7. This 29-question survey measures patients with DFU's quality of life in six different categories, including enjoyment of life, physical health, dependency on daily activities, negative emotions, concern about wounds, and wound care. This tool uses a five-optional Likert scale to determine scores. The unique rating scale of this questionnaire (the greatest score = 100 and the poorest score = 0) was utilised to extract the findings once the data had been collected. Content validity method was used for determination of validity in this research. Translated and the questionnaire from English to Arabic by developed by a local academic team with Mapi’s permission. The Cronbach’s alpha method was used for determination of reliability and score of 9 % was obtained. Inferential descriptive statistical methods were used for data analysis. After investigation of data normality, independent t-test and nonparametric tests such as Tukey test.

Results

One hundred and fifty patients with DFU participated in this study as samples. Table 1 shows the distribution of samples according to their age, gender, Educational level, Marital Status, occupational status, Place of Residence, Income status, Diabetes duration, Type of treatment, and History of foot ulcers. The obtained mean and standard deviation of the total QOL of patients was 58.41± 17.09. Table 2 indicates the mean and standard deviation of the QOL in many dimensions. Generally, six of the total 12 variables had significant statistical relationships with the QOL. Table 3 shows the Statistical Relationship between the Overall QOL of patients and their socio demographical Characteristics, age and gender variables had a statistically significant relationship with quality of life,

the results of the Tukey test showed that the quality of life in patients under 35 years of age was significantly higher than that of patients in the age group of 51-58 years. And showed that the average quality of life score was higher in women than in men. And the results of the Tukey test showed that the quality of life in patients under 35 years of age was significantly higher than that of patients in the age group of 51-58 years. And show that the variables of employment status, marital status, place of residence and income had no statistically significant relationship with the quality of life of the patients. Table 4 shows the Statistical Relationship between the Overall QOL of patients and which factors of clinical data, the results show that, except for the wound history, other clinical variables showed a statistically significant relationship with the patient's quality of life.

Table (1): Socio-demographical Characteristics of the study Participants

Items	Categories	Frequency	Percent
Age / Years	18-26	24	16.0
	27-34	18	12.0
	35-42	17	11.3
	43-50	11	7.3
	51-58	42	28.0
	59-65	38	25.3
Total		150	100.0
Gender	Male	90	60.0
	Female	60	40.0
Total		150	100.0
Educational level	Not read and write	48	32.0
	primary	62	41.3
	Secondary	14	9.3
	Diploma	8	5.3
	Bachelor	14	9.3
	Postgraduate	4	2.7
Total		150	100.0
Marital Status	Single	4	2.7
	Married	118	78.7
	Divorced	2	1.3
	Widowed	26	17.3
Total		150	100.0
Occupation	Employee (government / private sector	42	28.0
	Retired	32	21.3
	Special job	4	2.7
	House wife	46	30.7
	Other	26	17.3
Total		150	100.0
Place of Residence	Urban	110	73.3
	Rural	40	26.7
Total		150	100.0

Income status (Monthly income)	Less than 400,000 dinars	32	21.3
	400,000-1,000,000 dinars	110	73.3
	more than 1,000,000 dinars	8	5.3
Total		150	100.0
How many year patients has diabetes	1-5	16	10.7
	6-10	42	28.0
	11-15	42	28.0
	16-20	34	22.7
	21-25	8	5.3
	26-30	8	5.3
Total		150	100.0
Type of treatment	Oral treatment	98	65.3
	Insulin and oral treatment	52	34.7
Total		150	100.0
History of foot ulcer	Yes	84	56.0
	No	66	44.0
Total		150	100.0
location of foot ulcer	Plant of foot	66	44.0
	Below big toe	48	32.0
	Both of them	16	10.7
	Other	20	13.3
Total		150	100.0
Number of foot ulcers	1	126	84.0
	2	20	13.3
	3	4	2.7
Total		150	100.0

Table (2): Overall distribution of study sample related to QOL

Dimensions	mean	S.d.
Leisure	58.46	25.34
Physical health	51.86	22.05
Dependence/daily life	56.86	24.98
Negative emotions	59.55	20.50
Worried about ulcers/feet	69.91	21.35
Bothered by ulcer care	53.83	23.72
QOL	58.41	17.09

Table (3): Statistical Relationship between the Overall QOL of patients and their socio demographical Characteristics

Demographical data	Rating	QOL		Test results
		mean	S.D	
Age	18-26	68.02	12.48	F=7.267 P_value<0.0001
	27-34	64.62	12.22	
	35-42	59.61	14.27	
	43-50	56.04	17.37	
	51-58	47.19	18.43	
	59-65	61.96	15.07	
Gender	Male	55.5	18.38	t=2.607 df=148 P=0.01
	Female	62.78	13.97	
Educational level	Not read and write	59.77	15.81	F=1.467 P=0.226
	primary	60.17	17.81	
	Secondary	50.76	21.43	
	Diploma &more	55.83	14.29	
Occupation	Employee	55.26	17.47	F=1.380 P_value=0.251
	Retired	56.61	16.76	
	house wife	62.24	14.33	
	other	58.87	20.21	
marital	married	57.02	18.45	T=1.928 df=148 P=0.056
	other	63.53	9.21	
Residence	Urbane	59.89	15.81	t=1.762 df=148 P=0.080
	Rural	54.38	17.81	
Income	<40000dina	63.52	14.30	F=1.467 P=0.226
	>=40000	57.03	17.56	

Table (4): Statistical Relationship between the Overall QOL of patients and which factors of clinical data

Clinical data	Rating	QOL		Test results
		mean	S.D	
Diabetes-year	1-10	52.55	16.71	F=5.937 P=0.003
	10-20	62.11	16.58	
	20-30	62.15	15.78	
Type of treatment	Oral	53.13	16.56	t=5.726 df=148 P,0.001
	Insulin &oral	68.37	13.28	
History food_ ulcer	yes	60.43	18.54	t=1.641 df=148 p=0.103
	no	55.84	14.78	
location of foot ulcer	Plant of foot	62.66	15.19	F=8.881 P<0.001
	Below big toe	49.83	16.34	
	Both of them	69.31	8.9	
	Other	56.27	20.56	
Number of foot ulcers	1	55.61	16.72	t=4.689 df=144 p<0.001
	2	73.59	9.16	

Discussion

The results of this study revealed that QOL and its dimensions in patients with DFU are middle range. The majority of research have shown that DFUs have an impact on patients' everyday activities, leisure time, and social and familial lives (Nasiriziba et al., 2015). Lower mobility has a significant detrimental effect on the quality of life caused by diabetic ulcers. Loss of mobility affects a person's capacity to engage in daily tasks and other leisure pursuits (Zeleníková et al., 2014). The findings indicated that the patients' free time was moderately constrained both qualitatively and quantitatively. Participants in a research claimed not to feel alone but that their home life was constrained and socially isolating. Additionally, anger and anxiety are caused by mental issues that restrict their social and recreational activities, which is consistent with other research (Stasini, 2020). Age is one of the most significant elements impacting the quality of life (QOL), which includes aspects like enjoying life, physical health, negative emotions, and wound care challenges, This study showed that the quality of life in patients under 35 years of age was significantly higher than that of patients in the age group of 51-58 years, Studies showed that these effects increase with age (Nasiriziba et al., 2015). our study showed that the average quality of life score was higher in women than in men in comparison with another study conducted in Jordan, it differed as it showed the opposite of what our study

produced that females had significantly lower health-related quality of life than males (Alrub et al., 2019). Our study showed that the wound's grade and the Diabetic duration are statistically significant and have a relationship related to the quality of life, it was similar to a study conducted in Indonesian (Sari et al., 2018). This study showed that the history of diabetic foot ulcers has no Significant with quality of life Contrary to what was reported in Another study also showed that Patients with a longer history of ulceration had a lower quality of life (Vyměta lová and Zeleníková, 2019).

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