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Factors Affecting the Quality of Life of Patients with Diabetes Mellitus

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A R T I C L E I N F O

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Abstract

Background: First aid is crucial in providing immediate care to ill or injured individuals. Kindergarten teachers are often the first responders in schools and thus need adequate knowledge, attitude, and practice in first aid.

Objective: This study aimed to evaluate the effectiveness of a training program on the knowledge, attitude, and practice of kindergarten teachers regarding first aid in Sulaimani City, Iraq.

Methods: A quasi-experimental design with a pre-posttest approach was used. A sample of 102 kindergarten teachers from 51 kindergartens participated in the study. Data were collected using a self-administered questionnaire and an observational checklist.

Results: The training program has demonstrated a significant and positive impact on the teachers' knowledge and practice regarding first aid ($p < 0.001$), providing reassurance of its effectiveness.

Conclusion: The training program effectively enhanced the first aid capabilities of kindergarten teachers. However, ongoing training and refreshment courses are urgent and crucial to maintaining and further improving first aid skills among kindergarten teachers.

What is already known about the topic? Factors affecting the quality of life of diabetes patients include poor glycemic control, complications, mental health issues, lack of social support, lifestyle habits, financial strain, and limited education on disease management. These factors negatively impact both physical and emotional well-being.

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INTRODUCTION

Diabetes-related problems can be solved if they are diagnosed early and treated correctly. The main goal of diabetes management is to prevent the occurrence of macro- and micro-vascular complications by controlling blood glucose levels (Herath et al., 2017). Numerous studies show that people who are well-informed and careful about their diabetes self-care have better and more long-term control of their blood glucose levels (Powers et al.,2015).

In addition to the adverse health effects it causes, having type II can make it hard for a person to do the things they want to do and that are important to them. People with diabetes very much struggle in this area. (Marinho et al.,2016).

Moreover, such complications as blindness and neuropathy can negatively impact one's household tasks, as well as one's ability to drive and move around one's community. Type 2 diabetes can also make it more difficult for a person to do everyday things because they are preoccupied with checking their blood glucose levels, taking care of their feet, and managing medication (Estes, 2017).

Type 2 diabetes is a long-term condition. Patients with type 2 diabetes mellitus are responsible for their care. Healthcare institutions and preventative care practices intend people with type 2 diabetes to be able to manage their health better (American Diabetes Association (ADA), 2018).

Many factors are to blame for the poor quality of life (QoL (people with diabetes have. They are also more likely to be overweight, older, less active as well as have high blood pressure, heart disease, and high cholesterol (Myers et al., 2013).

Health-related quality of life (HRQL) is a concept or method that measures one's health and has become more important for healthy people, such as workers, in recent years. There is no single definition of HRQL since it has been used in many ways. HRQL stands for how health status affects the factors that improve people's lives (Silva et al., 2010).

It is typical for chronic diseases such as diabetes to recur, which can have a significant impact on the ability to work and live. It is important to find evidence indicating that treatment makes people feel better when there is no cure for a long-term disease. Thus, survival is no longer seen as the only goal. Instead, the goal is to enhance, restore, or maintain QoL. Persons suffering from long-term illnesses should be cared for to improve their ability to function, reduce their symptoms, control pain, reduce their disability, and live longer through secondary prevention (Porojan, 2016).

The goal of the Diabetes Control Program is to enhance the quality of life for people with diabetes. Likewise, the main goal of health promotion is to enhance the QoL. To do this, you can use health programs that significantly impact morbidity more than mortality (Megahed, 2018).

This study aims to show that diabetes is a complex, multisystem disease that must be managed through various approaches based on specific clinical guidelines. The advice of the World Health Organization, the International Diabetes Federation, and the American Diabetes Association regarding diabetes should be followed (ADA, 2015).

The related guidelines state that diabetes management should lower blood glucose levels, make lifestyle changes, and reduce the risk of diabetes complications (Dunning & Sinclair, 2014).

A good team should include at least a doctor, a teacher, a nutritionist, and a nurse. Special units should be established for people at risk of complications from diabetes. Also, the outpatient clinic should have sufficient patient space and time, a way to track diabetes consultations, and channels for patients to contact specialists (Elhendi, 2015).

Study Design

This study was based on a quantitative descriptive cross-sectional design conducted between January 1, 2022, and February 5, 2022. The objective was to assess the quality of life of diabetic patients in Sharqat City, Iraq.

Study Setting

The study was conducted in a hospital affiliated with the Salah Al-Din Health Directorate in the northern part of Al-Sharqat City. Established in 1971, this hospital provides healthcare services to patients in the governorate.

Study Population and Sampling

The sample consisted of 200 diabetic patients aged 18 years and above who fulfilled the inclusion criteria, including a confirmed diabetes diagnosis and no mental retardation. The participants were selected using purposive sampling.

Data Collection Tools

The tools used for data collection consisted of three parts:

Part I: Socio-demographic Data
This section collected data on age, gender, marital status, education level, occupation, financial status, place of residence, number of family members in the house, and number of children (Thunander et al., 2012; Kumait, 2014; Mohammed-Ali & Hamza, 2016; Hussain & Chowdhury, 2019; Hussein et al., 2011; Khayyat et al., 2019; Ohaeri & Awadalla, 2009).

Part II: Clinical Data
The clinical data section included information on the type of diabetes, duration of diagnosis, type of medication, presence of chronic diseases, family history of diabetes, smoking, alcohol consumption, possession of a blood glucose measuring device, frequency of blood sugar measurement, and body mass index (Thunander et al., 2012; Kumait, 2014; Mohammed-Ali & Hamza, 2016; Hussain & Chowdhury, 2019; Hussein et al., 2011; Khayyat et al., 2019; Ohaeri & Awadalla, 2009).

Part III: Quality of Life (QoL) Questionnaire
The WHOQOL-BREF, developed by the World Health Organization and validated for the Arabic context by Ohaeri and Awadalla (2009), was used to assess patients' quality of life. The 26-item questionnaire measured four domains: physical health (7 items), psychological health (6 items), social health (3 items), and environmental health (8 items). Responses were rated on a five-point ordinal scale, and the scores were transformed linearly to a 0-100 scale (Skevington & Tucker, 1999).

The internal consistency of the WHOQOL-BREF in this study showed a Cronbach's alpha of 0.82 for the overall scale.

Data Collection Procedure

Data collection occurred from January 1, 2022, to February 5, 2022. Each participant completed the interview in approximately 15-20 minutes.

Data Analysis

The data were analyzed using SPSS version 20. Descriptive statistics (number, percentage, arithmetic mean, and standard deviation) were used, as well as inferential statistics, including one-way ANOVA and t-tests, to assess the significance of the data. The level of significance was set at $P \leq 0.05$.

Ethical Considerations

Ethical approval was obtained from the Research Ethics Committee of the Scientific Research Committee in the Salah al-Din Health Department on November 1, 2021. Permission was also acquired from Ohaeri and Awadalla (2009) to use the WHOQOL-BREF questionnaire. Additionally, the Salah al-Din General Directorate of Health obtained official administrative approval to facilitate the data collection.

RESULTS

Socio-demographic and Clinical Characteristics

Table 1 presents the socio-demographic and clinical characteristics of the study participants. Regarding age, most participants were 57 years and older (40.5%). The prevalence of diabetes was higher among females (55%) than males (45%). The vast majority of participants were married (97.5%). Most participants had completed primary school (43.5%), and 44% of the sample were homemakers. In terms of income, over half of the participants (54%) reported their income as barely sufficient. The majority of participants (61%) lived in rural areas. The most significant proportion of families had 6 to 10 members (49%), and most participants had 1 to 2 children (46%).

Regarding the type of diabetes, 61% of participants had Type 2 diabetes, and 90% had been diagnosed with diabetes for over a year. Most participants (59.5%) were taking oral hypoglycemic drugs, while 29.5% were using insulin. More than half of the participants (55%) had comorbid conditions, mainly heart disease and hypertension. A significant portion (53%) had a family history of diabetes. The majority of participants were non-smokers (83.5%). Additionally, 40.5% of participants had a device for monitoring blood glucose, and 21.5% measured their blood glucose daily. Most participants had a body mass index (BMI) of 25–29.9 (50%).

Quality of Life Domains

Table 2 provides the distribution of quality of life (QoL) scores across the four domains. In the physical health domain, 79.5% of participants had moderate QoL scores (Mean ± SD = 54.95 ± 12.67). In the psychological domain, 64% had moderate scores (Mean ± SD = 57.53 ± 13.97). The highest QoL scores were observed in the social domain, where 83% of participants had good QoL (Mean ± SD = 72.86 ± 14.08). In the

environmental health domain, 73% of participants had moderate QoL scores (Mean ± SD = 57.65 ± 12.44). The overall QoL scores indicated that 69.5% of participants had moderate QoL (Mean ± SD = 60.72 ± 10.46).

Correlation Between Demographic and Clinical Data with QoL

Table 3 shows the correlation between socio-demographic characteristics and quality of life. Significant differences were found between QoL and gender, education level, occupation, monthly income, residence, and number of children (P = 0.003, 0.019, 0.009, <0.0001, <0.0001, and 0.031, respectively). Male participants had significantly higher QoL scores (61.73 ± 2.14) than females (60.14 ± 1.53). Participants with postgraduate education reported the highest QoL scores (63.78 ± 2.06), while those with lower education levels had varying QoL scores.

Participants with sufficient monthly income had significantly higher QoL scores (65.69 ± 1.93) compared to those with barely sufficient (60.25 ± 1.77) and insufficient income (56.70 ± 1.65). Urban residents had significantly higher QoL scores (64.86 ± 2.04) than rural residents (55.93 ± 1.66). There was no significant correlation between QoL and age, marital status, or number of family members (P = 0.969, 0.762, and 0.072, respectively).

Regarding clinical data, there were significant differences in QoL based on the type of drug used, the presence of chronic diseases, and the person responsible for measuring blood glucose (P = 0.012, 0.025, and 0.009, respectively). Participants who followed a diet regimen had higher QoL scores (64.35 ± 2.11) than those using oral hypoglycemic drugs (58.08 ± 1.62). Those with joint diseases reported significantly higher QoL scores (66.09 ± 1.83), while participants with kidney diseases had the lowest QoL scores (49.94 ± 2.58).

There was no significant correlation between QoL and type of diabetes, duration of diagnosis, family history of diabetes, smoking, or frequency of blood glucose measurement (P > 0.05).

Table 1: Statistical distribution of the participants according to their demographic and clinical data.

Demographic data		n	%
Age	18 – 25 years	5	2,50
	26 – 33 years	3	1,50
	34 – 40 years	6	3,00
	41 – 48 years	38	19,00
	49 – 56 years	67	33,50
	57 years and older	81	40,50
Gender	Male	90	45,00
	Female	110	55,00
Marital status	Single	5	2,50
	Married	195	97,50
Level of education	Illiterate	11	5,5%
	Literate	66	33,0%
	Primary school	87	43,5%
	Intermediate	14	7,0%
	Secondary school	2	1,0%
	Institute or college	19	9,5%
	Postgraduate	1	0,5%
Occupation	Employed	30	15,00
	Housewife	88	44,00
	Self-employed	16	8,00
	Unemployed	29	14,50
	Retired	37	18,50
Monthly income	Sufficient	30	15,00
	Barely Sufficient	108	54,00
	Insufficient	62	31,00
Residence place	Urban	78	39,00
	Rural	122	61,00
Number of family members in the house	1 – 5	30	15,00
	6 - 10	98	49,00
	11 and more	72	36,00
Number of children	None	19	9,50
	1 - 2	92	46,00
	3 - 4	63	31,50
	Five and more	26	13,00
Type of Diabetic	Type 1	78	39,00
	Type 2	122	61,00
Duration of the diabetes diagnosis	6-11 months	20	10,00
	One year and more	180	90,00
Type of drug	Diet Regimen	22	11,00
	Oral hypoglycemic drug	119	59,50
	Insulin	59	29,50
The presence of chronic diseases	Heart disease and Hypertension	110	55,00
	Joint disease	39	19,50
	Eyes disease	42	21,00
	Kidney diseases	4	2,00
	none	5	2,50
Family history of Diabetes	Yes	106	53,00
	No	94	47,00
Smoking	Yes	33	16,50
	No	167	83,50
Duration of smoking	One month to 11 months	2	1,00
	One year to 4 years	3	1,50

	Five and More	28	14,00
Having a self-monitoring device for blood sugar	Yes	81	40,50
	No	119	59,50
If yes, who?	I measure myself	30	15,00
	My spouse	15	7,50
	My relatives	36	18,00
	Others	0	,00
How often do you measure blood sugar?	Daily	43	21,50
	Weekly	85	42,50
	Monthly	72	36,00
Body Mass Index	< 18.5	1	,50
	18.5 - 24.9	50	25,00
	25 - 29.9	100	50,00
	30 - 34.9	38	19,00
	35-40	11	5,50
	> 40	0	,00
Total		200	100%

Table 2: Statistical distribution of Quality-of-Life Domains.

Quality of Life Domains		n	%	Mean ± SD
1- Physical health	Poor	11	5.5	54,95 ±12,67
	Moderate	159	79.5	
	Good	30	15.0	
2- Psychological	Poor	12	6.0	57,53 ±13,97
	Moderate	128	64.0	
	Good	60	30.0	
3- social	Poor	4	2.0	72,86 ± 14,08
	Moderate	30	15.0	
	Good	166	83.0	
4- Environmental	Poor	7	3.5	57,65 ± 12,44
	Moderate	146	73.0	
	Good	47	23.5	
Overall Quality of Life domains	Poor	5	2.5	60,72± 10,46
	Moderate	139	69.5	
	Good	56	28.0	
Total		200	100%	

Abbreviation: SD=Standard Deviation

Table 3: Correlation between clinical data and demographic data and quality of life scores according to clinical and demographic categories.

Clinical data and Demographic data		n	Mean ± SD	p
Age	18 – 25 years	5	60,11±3,46	0,969
	26 – 33 years	3	55,52±1,64	
	34 – 40 years	6	60,23±2,36	
	41 – 48 years	38	62,45±1,61	
	49 – 56 years	67	60,24±1,95	
	57 years and older	81	60,32±1,81	
Gender	Male	90	61,73±2,14	0,003
	Female	110	60,14±1,53	
Marital status	Single	5	60,15±2,87	0,762
	Married	195	61,25±3,34	
Level of educatıon	Illiterate	11	60,33±1,63[a]	0,019
	Literate	66	58,67±1,72[a]	
	Primary school	88	61,76±1,65[a]	
	Intermediate	14	59,55±2,84[ab]	
	Secondary school	2	60,32±1,78[a]	
	Institute or college graduate	19	63,78±2,06[c]	
	Postgraduate	1	60,44±0[abc]	
Occupation	Employed	30	63,18±2,21[a]	0,009
	Housewife	88	60,03±1,50[be]	
	Self-employed	16	63,02±1,83[ac]	
	Unemployed	29	54,83±1,87[bd]	
	Retired	37	60,27±2,12 [ade]	
Monthly income	Sufficient	30	65,69±1,93[a]	<0,0001
	Barely Sufficient	108	60,25±1,77[b]	
	Insufficient	62	56,70±1,65[bc]	
Residence place	Urban	78	64,86±2,04	<0,0001
	Rural	122	55,93±1,66	
Number of family members in the house	1 - 5	30	55,61±2,08	0,072
	6 - 10	98	60,33±1,84	
	11 and More	72	60,53±1,75	
Number of children	None	19	56,35±1,66[a]	0,031
	1 - 2	92	60,19±1,86[a]	
	3 - 4	63	60,48±1,92[a]	
	Five and More	26	64,93±1,65 [b]	
Type of Diabetes	Type 1	78	60,24±1,96	0,756
	Type 2	122	61,33±1,81	
Duration of the diabetes diagnosis	6-11 month	20	60,51±1,57	0,593
	One year and more	180	60,27±1,90	
Type of drug	Diet Regimen	22	64,35±2,11[a]	0,012
	Oral hypoglycemic drug	119	58,08±1,62[b]	
	Insulin	59	62,34±2,11[ab]	
Presence of chronic diseases	Heart disease and	110	60,12±1,64[a]	0,025
	Hypertension	39	66,09±1,83[b]	
	Joint disease	42	60,09±2,22[a]	
	Eyes disease	4	49,94±2,58[a]	
	Kidney diseases	5	60,84±1,62[a]	
	No disease			
Family history of Diabetes	Yes	106	60,25±1,97	0,708
	No	94	60,85±1,74	

Clinical data and Demographic data		n	Mean ± SD	p
Duration of smoking	One month to 11 months One year to 4 years Five and More	2 3 28	42,74±3,31 67,31±4,10 60,07±2,42	0,530
Do you have any device for measuring blood glucose?	Yes No	81 119	60,88±2,00 60,17±1,76	0,257
If yes, who?	I measure myself My spouse My relatives Others	30 15 36 0	64,31±1,93[a] 58,97±2,22[b] 59,89±1,91[b] 0	0,009
How often do you measure blood glucose?	Daily Weekly Monthly	43 85 72	60,43±1,86 60,38±1,82 60,11±1,93	0,581
Body Mass Index	< 18.5 18.5 - 24.9 25 - 29.9 30 - 34.9 35-40 > 40	1 50 100 38 11 0	9,93±0 58,73±1,84 60,53±1,94 62,65±1,52 58,77±1,68 0	0,081
Total		200		

Abbreviations: P =probability value was calculated by using a t-test in two groups and using One-way ANOVA in three or more groups; *= Significant if the p-value <=0,05, **= High Significant if the p-value <=0,01; abc= there was a significant difference, if the letters were different between groups, and there is no significant difference if the letters were the same.

DISCUSSION

For patients with type 2 diabetes mellitus, the main treatment goals are to enhance the quality of life and reduce the risk of long-term severe metabolic complications, thereby lowering the rates of premature illness and death (Mahmmoed et al.,2020)—the current study aimed to describe the picture of diabetic patients from several aspects. The study's findings showed that the participants were mainly from the age group of 57 years and older (40,5%), and this result may indicate that the incidence of diabetes increases with age. This study is compatible with the results of a previous study (Gholami et al., 2013).

The results of the study indicated that the majority of the participants were female (55%). These findings are compatible with other findings from several previous studies (Albikawi & Abuadas, 2015; Hailu et al., 2012; Hilawe et al., 2013; Shrivastava & Kumar, 2015). This could be because there were more women than men over 50, some of whom were widowed, overweight, or obese and had a low level of education.

The study results showed that most people with diabetes were married (97,5%). These results are like those of two other studies (Berhe et al., 2012; Shihabudheen et al., 2010). Marital status did not change as a result of diabetes. The patient and his wife's relationship was the same before and after they were diagnosed with diabetes; this occurred because the patient and his

wife's solid social relationship is one of the main features of Iraqi society, which helped the patient and his wife overcome the difficulties they faced in life together.

When examining the distribution of education level of the sample, it was determined that the majority of the sample were primary school graduates (43,5%). The current study showed that patients with higher education had better quality of life scores. This information is also consistent with other studies showing positive effects on improving QoL in patients with diabetes. This is because they have become more aware of the disease and are looking for other ways to control and treat it better (Quah et al., How, and Tay, 2013). People with a low education level had no sufficient knowledge about the illness and its effects on their health, so it did not significantly affect their QoL.

The results of this study showed that the number of people with T2DM considerably increased (61%) with advanced age, in contrast to T1DM. Adults are more likely to develop type 2. It is expected that patients with T2DM will be the majority in both this study and the Kumait (2014) study, which can be interpreted as a result.

Regarding the disease duration, the present study revealed that the highest rate (90%) belonged to those suffering from the disease for one year or more. The findings are compatible with the study by Rajasekharan et al., 2015 and Satyawali et al., 2016. The participants were diagnosed with the disease primarily for 1 to 10 years.

The results of this study showed that in terms of the method of treatment, the highest rate (59,5%) was detected in those who were taking oral drugs, and 29,5% of the participants were taking the drug by injection. Medicines or dosages are administered to the patient at the periods specified. The medicine can be administered gradually and consistently for numerous hours, days, or weeks. As a result, medication levels in the blood can remain relatively consistent. This finding is compatible with a previous study. (Mohammed-Ali and Hamza, 2016).

The physical domain of quality of life includes energy, fatigue, pain, insomnia, mobility, sleep or rest, and the ability of a person with diabetes to work. It was found that many diabetic patients had the lowest quality of life when it came to their bodies. In general, a person's physical condition changes depending on how sick they are and how many other things are happening. Being elderly and a female affects the physical domain. Most of the participants were over 45 years old. Then, they got older, and their bodily functions started decreasing. Age was associated with higher blood glucose levels and poor glucose use. It could significantly impact their daily lives, energy use, and mobility. Exercise is essential for people with diabetes (Sepúlveda et al., 2015).

As for the psychological domain of QoL, the present study revealed that most patients got a fair score, and this finding is compatible with a study conducted by Hussain, Khther, and Al-Hadithi (2011). The psychological domain is the state of an individual's feelings and spirit, including his feelings about himself, positive and negative feelings, spirituality, the ability to think, and the ability to focus. Mental health affects how well they live and how they react to

things. Previous studies and research have found that the correlation between QoL and DM is that the reasonable psychological adjustment of patients depends on the family members who support this. The family is a significant source of support. It best reflects the patient's psychological adjustment to the disease (Yousif-Almkhtar & Abdul-Aziz Mostafa, 2012).

In the domain of social relationships in this study, people with diabetes became delighted with the support they received from their family, friends, or relatives. This is compatible with previous studies (Islam et al., 2013). Having diabetes has made it so crucial for patients to get help from others or the environment. Improving people's morale and making them more determined to manage and treat their ailments would be good. Patients are more optimistic about life when their closest friends and family help them when they are having problems with their health. This study is consistent with a study conducted by Puspasari and Farera (2021).

The present study showed that most patients got a fair score regarding the environmental domain. However, this is compatible with a previous study conducted by Al-Tukmagi and Moussa (2014). The environmental domain is a way of looking at how people spend their time indoors and outdoors and in the physical world around them. Financial resources, freedom, security, and safety were important to them, and there was an urgent need for new information and transportation. The results revealed that an individual variable, the quality of life analysis, was based on the environment. It was observed that there was a significant correlation between the QoL domains of diabetic patients and their gender. When examining QoL scores based on gender, it was determined that scores of QoL domains were higher in male patients than female patients since they were more concerned with their health and QoL. This difference may be associated with females being fatter, exercising less, or consuming less healthy food, impairing their HRQoL. This present study is compatible with some previous studies (Alavi et al., 2007; Eljedi et al., 2006; Hussein et al., 2011), but it is not compatible with the study by Al-Rasheedi (2014).

The study revealed a significant correlation between the QoL domains of diabetic patients and their education levels. Their educational levels were associated with health status, indicating that education is important even if it does not directly relate to financial status. The correlation between education and HRQoL has been thought to be partly associated with the correlation between higher levels of education and healthy lifestyles, such as stopping smoking, doing more exercise, and having better access to healthy foods. Many think education could also affect how well people with diabetes communicate with their healthcare providers, follow complicated self-care regimens, and have a good quality of life (HRQoL) (Brown et al., 2004). According to Varghese, Salini, Abraham, Reeshma, and Vijayakumar (2007), education level is the only socio-demographic variable associated with five QoL domains. People with diabetes having a higher level of education may have a more robust social support, positive self-esteem, and a better understanding concerning their disease, its treatment, and its consequences, even though there are conflicting data about this correlation (Mohan et al., 2007). These traits may help patients develop a

good outlook and solid understanding regarding treatment adherence. It was observed that QoL domains had a statistically significant correlation with the variables of type of drugs used, the presence of chronic diseases, and the person measuring the blood glucose level (if yes) for patients with diabetes. Based on the results of the current study, it was found that most diabetic patients attended a cooking class for diabetes and were committed to managing their diabetes by following a healthy diet and committing to some daily physical activities. Patients need to maintain a healthy weight to become high QoL patients. Most of them monitor their blood glucose level and follow the doctor's instructions. However, they need to take medications, whether diet, oral, or injectable therapy, as instructed by their doctor. It was also observed that most of them avoided smoking, cared for their mouth, teeth, and feet, stayed away from harmful alcoholic beverages, and attached importance to controlling their blood pressure and cholesterol levels. The results of the studies demonstrate that these patients should move forward in life and achieve success as if it were occurring without any trouble. They should deal with diabetes and chronic diseases by coexisting with them and, through some chronic treatments, control their course correctly and act with these diseases based on their nature. They should handle their risks according to their self-care. (Al-Tukmagi, 2017; Arnold et al., 2004; Poss, Jezewski and Stuart, 2003)

CONCLUSION AND RECOMMENDATIONS:

This study concluded that Some patients had chronic diseases, and more than half of people with diabetes had genetic diseases. Regarding smoking, most of the participants were non-smokers. It was also observed that most patients with chronic diabetes receiving treatment enjoyed a high quality of life in the social sphere. The quality of life is strongly correlated with gender, education level, occupation, monthly income, residence place, number of children, type of medication, presence of chronic diseases, and the person measuring the blood glucose level (if yes) for patients undergoing diabetes treatment. It is proposed that the media and some health education programs related to diabetes and the quality of life be encouraged through the media in the community. The Iraqi Ministry of Health must emphasize the provision of necessary medicines and supplies, especially insulin of all kinds and chronic treatments, for all people with diabetes. Dietary and exercise treatment is suggested to motivate and encourage patients. People with diabetes must wear an identity card that shows information about their disease, especially during treatment and medication. The services of diabetes centers must extend to all people in or around the city of Shafqat. They must have specialists in this center, such as a neurologist, urologist, ophthalmologist, Diabetes consultant, and orthopedic surgeon.

DECLARATION SECTION

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Ethical Considerations

the Research Ethics Committee of the Scientific Research Committee in the Salah al-Din Health Department on 1/11/2021.

Conflict of interest

The authors declare that they have no competing interests.

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Data availability:

Data are available by contacting the corresponding author by email.

Authorship

All authors have read and approved the manuscript.

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