Quality of Life of Type 2 Diabetes Mellitus Patients Using Quality of Life Instrument for Indian Diabetes Patients

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ABSTRACT

Background: Diabetes Mellitus exerts a great negative impact on quality of life mainly due to the impairment, limitations in almost all domains of daily lives and due to long term treatment and complication. Aim: The purpose of this study was to describe the quality of life among type 2 diabetes mellitus patients. Methods: A descriptive study was conducted using the QOLID (Quality of life instrument for Indian Diabetes Patients) at KGM hospital, Coimbatore. A convenient sample of 30 patients participated. Subjects were asked to rate their level of satisfaction and the level of limitation of 34 aspects of life. Result: Out of 30 T2DM patients, majority was elderly males (70%), married (97%), unemployed (37%), and urban (57%), 80% of the samples had the onset of diabetes mellitus at the age of 18 to 34 years with 50% of the samples being on OHA and insulin treatment. Statistically significant (P<0.05) association was found with age, income, onset of diabetes and duration of diabetes. The domains like symptom botherless (1.89±0.78) and treatment satisfaction (1.99±0.87) were predominantly affected. Diabetes mellitus has good impact on financial worries (2.55±0.95). Diet satisfaction (2.30±0.79) and general health (2.24±0.79) were rated as the most satisfied items in the subscales. Conclusion: The subjects were satisfied with most areas of their lives. The reported quality of life was found to be satisfactory.

Keywords: quality of life, quality of life instrument for Indian diabetes patients, Type 2 diabetes mellitus

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INTRODUCTION

Diabetes is a chronic disease, and it could affect both health and quality of life (QoL). Diabetes is the increasingly growing metabolic threat of our contemporary era. Diabetes was first described in an Egyptian manuscript from 1500 BC, mentioning "too great emptying of the urine" [1]. T2DM is a metabolic disease that is characterized by impaired metabolism of glucose resulting in chronic hyperglycemia which is caused by a defect in insulin secretion or insulin action [2].

The total number of diabetes patients worldwide may rise to about 370 million in 2030 [3].

The quality of life derives from the individual and subjective evaluation of each person's life, taking into account the perception of their physical, emotional and social well-being [4]. The determinants of the quality of life of the individual with diabetes remain undefined, as they have a lower QoL level than individuals without diabetes. In this possible negative impact

of DM on QoL, the aspects involved are not yet clearly known and it is known, however, that many variables can influence QoL in individuals with diabetes, such as DM type, insulin use, age, complications, social level, psychological factors, ethnicity, schooling and knowledge of the disease [5], although the basis of care for DM is self-perception and self-care, that is, the patient himself should monitor glycemic levels, diet carefully recommended dietary intake, participate in physical activities and adhere to medication to avoid complications and preserve good quality of life [6]. The daily tasks of these self-care activities can be complex, confusing and often demanding.

Diabetes complications have serious health implications. People with T2DM are at risk of microvascular complications (i.e., nephropathy, neuropathy, and retinopathy) and macrovascular complications (i.e., cardiovascular disease and stoke) [6]. The concept of quality of life is now important aspect of health care with realization that being well is very important while patient is being treated.

METHODOLOGY
This descriptive study was conducted at KGM Hospital, Coimbatore after obtaining Ethical Committee approval from the Ethics committee. The study was done for a total duration of 2 weeks. During the study period, 30 patients by using convenience sampling technique were recruited with Type II diabetes based on the following inclusion and exclusion criteria. The inclusion criteria for this study were, DM patients who were aged above 18 years and either sex; on out-patient department; able to speak and read the Tamil and English and able to provide informed consent to participate in the study. Patients were excluded if they had malignancies, tumors or multiple organ system failure, or any major surgical

interventions in the previous 3 months. The instrument used for the study was the QOLID (Quality of Life Instrument for Indian Diabetes Patients) questionnaire. It describes the quality of life in eight subscales. Subjects were asked to rate their level of satisfaction of 34 aspects of life [7]. The demographic information was recorded in the data collection form after obtaining their consent.

Table 1 shows that 70% of the patients belonged to the age group of 51 to 65 years and 70% were males. In this study, 77% of the samples were Hindus and 50% of the samples had undergone higher secondary education. 37% of the samples were unemployed and 97% of the patients were married. 50% of the samples earned less than Rs. 5000/month and 67% of them belonged to nuclear family. 57% of the sample lived in urban area and 80% of the samples had the onset of diabetes mellitus at the age of 18 to 34 years with 50% of the samples being on OHA and insulin treatment.

Table 2 shows that the Type 2 DM patients had worst impact on Symptom bother (1.89±0.78) and had effect on treatment satisfaction (1.99±0.87). Diabetes mellitus has good impact on financial worries (2.55±0.95). Diet satisfaction (2.30±0.79) and general health (2.24±0.79) were rated as the most satisfied items in the subscales.

The most satisfied domains are whereas family budget is not affected by the expenses related to diabetes (3.03±0.80); cost involved in the treatment (2.76±1.01); choice you have in eating meals/snacks away from home (2.66±0.69); and In general the health is (2.43±0.66).

The least satisfied domains are: frequent urination (1.40±098) and limited from eating, dressing bathing or using toilet (1.70±0.78). Satisfaction with current

treatment (1.80±0.53) and avoiding eating out (1.86±0.83) are the most affected domains.

Table 1. *Frequency and percentage distribution of demographic variables (N=30).*

S.N.	Demographic Variables	Frequency N=30	Percentage (%)
1.	**Age**		
	a) 18–34 years	1	3%
	b) 35–50 years	2	7%
	c) 51–65 years	21	70%
	d) >66 years	6	20%
2.	**Gender**		
	a) Male	21	70%
	b) Female	9	30%
3.	**Religion**		
	a) Hindu	23	77%
	b) Christian	6	20%
	c) Muslim	1	3%
4.	**Education**		
	a) Primary school	11	37%
	b) Higher secondary	15	50%
	c) Baccalaureate	1	3%
	d) Post graduate	3	10%
5.	**Occupation**		
	a) Full time	9	30%
	b) Retired	3	10%
	c) Unemployed	11	37%
	d) Others	7	23%
6.	**Marital Status**		
	a) Married	29	97%
	b) Widow	1	3%
7.	**Income**		
	a) <Rs. 5000	15	50%
	b) Rs. 5001–15000	8	27%
	c) Rs. 15001–25000	5	17%
	d) >Rs. 25000	2	6%
8.	**Type of Family**		
	a) Nuclear family	20	67%
	b) Joint family	10	33%
9.	**Area of Living**		
	a) Rural	13	43%
	b) Urban	17	57%
10.	**Age of Onset of DM**		
	a) 18–34 years	24	80%
	b) 51–65 years	2	17%
	c) Above 65 years	1	3%
11.	**Duration of DM**		
	a) < 3 years	4	13%
	b) 4–6 years	12	40%
	c) 7–10 years	6	20%
	d) >10 years	8	27%
12.	**Mode of Treatment**		
	a) Oral Hypoglycemic Agent	2	7%
	b) Insulin	13	43%
	c) OHA and Insulin	15	50%

Table 2. *Mean and standard deviation of QOLID (N=30).*

S.N.	Domains	Mean	Std. Dev
I	**Role Limitation due to Physical Health**	**2.07**	**0.84**
1.	Miss the work	1.96	0.80
2.	Requirement of regular medication and meals affect your work	2.33	0.64
3.	Affect the efficiency of work	2.00	1.15
4.	Diabetes is limiting the social life	2.03	0.79
5.	Avoid travelling	2.23	1.01
6.	Limitations of social activities	1.90	0.70
II	**Physical Endurance**	**2.18**	**0.89**
7.	Limited vigorous activities	2.26	0.95
8.	Limited moderate activities	2.40	0.91
9.	Limited walking uphill-climbing 1–2 floors	2.36	0.93
10.	Limited walking 1–2 km	2.16	0.85
11.	Limited from bending, squatting or turning	2.23	0.98
12.	Limited from eating, dressing, bathing or using toilet	1.70	0.78
III	**General Health**	**2.24**	**0.79**
13.	In general, the health is	2.43	0.66
14.	Concentrate on everything like reading, working, driving	2.03	0.93
15.	Felt fatigue or tried	2.26	0.80
IV	**Treatment Satisfaction**	**1.99**	**0.87**
16.	Satisfaction with current treatment	1.80	0.53
17.	Satisfaction with amount of time to manage diabetes	1.93	0.50
18.	Satisfaction with amount of time spend for check ups	1.90	0.64
19.	Satisfaction with time spend for exercise	2.36	1.83
V	**Symptom Bother**	**1.89**	**0.78**
20.	Felt excessive thirst/dry mouth	2.06	0.76
21.	Felt excessive hunger	2.23	0.60
22.	Frequent urination	1.40	0.98
VI	**Financial Worries**	**2.55**	**0.95**
23.	Cost involved in the treatment	2.76	1.01
24.	Priority of expenditure shifted towards diabetes	2.16	1.17
25.	Family budget is affected by expenses related to diabetes	3.03	0.80
26.	Limited expenditure on other aspects of life	2.26	0.84
VII	**Emotional/Mental Health**	**2.06**	**0.62**
27.	Satisfaction with your self	2.00	0.67
28.	Satisfaction with personal relationship	2.10	0.59
29.	Satisfaction with the emotional support you get from friends and family	1.93	0.56
30.	Discouraged by your health problems	2.03	0.65
31.	Able to lead your life in a purposeful manner	2.26	0.67
VIII	**Diet Advise Tolerance**	**2.30**	**0.79**
32.	Feel restrictions in choosing food when eating out	2.40	0.87
33.	Choice you have in eating meals/snacks away from home	2.66	0.69
34.	Avoid eating out	1.86	0.83

Table 3. *Assessment of QOLID of diabetic patients (N=30).*

S.N.	QoL Score	No. of Patients	Percentage
1.	Less than 68 (Low QoL)	0	0
2.	69–102 (Moderate QoL)	21	70%
3.	103 to 136 (Good QoL)	9	30%

Table 3 shows that the (21)70% of the patients had moderate quality of life and (9)30% of the patients had good quality of life.

Table 4. *Chi-square distribution (N=30).*

S.N.	Demographic Variable	χ^2	Significance
1.	Age	4.6	S
2.	Sex	0.11	NS
3.	Religion	0.61	NS
4.	Education	1.10	NS
5.	Occupation	2.10	NS
6.	Marital status	0.32	NS
7.	Income	8.12	S
8.	Type of family	0.07	NS
9.	Area of living	0.13	NS
10.	Onset of DM	3.29	S
11.	Duration	4.79	S
12.	Mode of treatment	0.78	NS

Table 4 shows that the demographic variables significant at 0.05 level are age, income, onset of diabetes and duration of diabetes. The QoL in comparison to the demographic characteristics of the patient showed that there was no significant difference in the QoL scores between males and females.

DISCUSSION
In this descriptive study, the quality of life of 30 patients with Type 2 Diabetes Mellitus was assessed. The samples were from the KGM Hospital, Coimbatore. The results of this study showed that patients with T2DM had a relatively high perception of their quality of life (QoL).

The majority of the study subjects were males 21(70%) and this was similar to the observation from the study carried in which the majority of the patients were males [8]. Majority of the patients were in the age group between 51 and 65 years as

observed in a study of global prevalence in diabetes [3]. In this study, diabetes-associated complications played a significant role in health-related QoL by significant effect on symptom bother, which was similar to the studies conducted by Fatma Ibrahim *et al.* [9].

Regarding overall quality of life, less than half of the study group had their quality of life rated as good. In the previous studies the results were the same [10, 11]. In a study, majority of the samples showed negative impact on quality of life [12]. A study showed that the overall average score for assessing QoL was lower in the diabetic patients than that of the healthy population [13]. Researchers have found that type 2 diabetes mellitus patients were more likely to report worse scores for functioning and general health than the normal population [14].

In this study, income also played a significant role in QoL which was in accordance to cross-sectional study conducted by Saleh *et al.* [15]. The QoL decreased in the presence of comorbidity [16]. Despite the results of number of previous studies [17–19], no significant association between age, social habits, duration of diabetes, and complications with QoL was found; the reason to which is that diabetic patients get adapted to the fact of disease and its associated complication. The study findings that as the age increases there is a significant decrease in the QoL score (p=0.024), are similar to the study which made a similar observation, where an increase in age decreased the QoL in diabetes patients.

CONCLUSION
In conclusion, the study was carried out to evaluate the QoL in Type II diabetic patients. Among the 30 diabetic patients enrolled, the majority of them were males,

and majority had a history of diabetes for more than 4 years. Most of the patients had a moderate QoL score. There are various factors such as age of the patient, income, duration of history of diabetes, and onset of diabetes which reduce the QoL of diabetic patients (p<0.05). The presence of complication and comorbidity had an adverse effect on the QoL of diabetic patients; as the number of complications increased, the QoL decreased and hypertension was the predominant comorbid condition.

Overall, patients with Type II diabetes have a moderate impact on their quality of life. It also shows that diabetes affects various domains such as physical functioning, emotional well-being, social functioning, economical status, and general health in a patient's life, thereby affecting the QoL. Hence, it is recommended for patients to have an adequate and strict glycemic control enabling them to maintain their quality of life, preventing disease progression and diabetic complications.

The current study is one of the fewer studies in India assessing QoL of diabetics using an "Indian" instrument. We found following parameters to have statistical association with different QoL domains: family history of diabetes, presence of hypertension, BMI, educational status, marital status, income status, treatment type, and complications. We recommend assessment of QoL as a part of diabetes treatment modality. Although this study provides interesting results in Indian patients, further QoL studies are needed in the country to better explore the area and helping policy-makers.

ABBREVIATIONS
QOL: Quality of Life, T2DM: Type 2 Diabetes Mellitus, QOLID: Quality of Life Instrument for Indian Diabetes Patients

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