

Quality of Life in Diabetes Mellitus

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Abstract: Introduction: The need of adhering to treatment and restrictions on food choices adversely affect the satisfaction and happiness a diabetic can gain out of everyday life. Quality of life is an important component of diabetes management. Methodology: In this cross-sectional study, 200 patients of type 2 diabetes admitted in a tertiary care hospital were interviewed to assess their quality of life with the Quality of Life Instrument for Indian Diabetes Patients questionnaire. Selected socio-demographic variables were also checked for correlation with quality of life. Results: The quality of life score was found to be 107. The mean likert scores were 3.29 for role limitation due to physical health, 3.32 for physical endurance, 2.35 for general health, 3.25 for treatment satisfaction, 2.92 for symptom botherness, 3.27 for financial worries, 3.30 for emotional / mental health and 2.95 for diet satisfaction. Quality of life was found to depreciate with increasing age, years lived with diabetes and lower income class. Conclusion: Quality of life assessment and improvement is essential for appropriate diabetes management.

Keywords: Diabetes, Indian Diabetics, Quality Of Life, Treatment Compliance

1. Introduction

Diabetes mellitus, a chronic non-communicable disease carries with it long term complications and significantly impacts upon the quality of life of the affected patients. Diabetic patients have to take hypoglycaemic medications for prolonged periods and also exert strict dietary norms to maintain healthy blood sugar levels. They have to adhere to the advice on physical exercise and lose excessive weight in order to keep blood sugar levels under control and thereby, avert potential complications. The physical distress resulting from frequent episodes of hypoglycaemia or hyperglycemia superimposed on the economic and social burden of the disease can be overwhelming to people to such high degrees that an entity called '*diabetes overwhelmus*' has been described in literature.^[1] Quality of life is a very important factor that is positively related to treatment adherence and a good quality of life motivates the patient to manage his disease and achieve health and happiness in the long-term.^[2] Measurement of quality of life is a part of the monitoring procedure in the clinical field of management of diabetes, and as a part of clinical research to improve the treatment outcomes.^{[2],[3]}

The International Diabetes Foundation has estimated that India has the largest proportion of diabetic population in the world.^[4] With advances in health care technology, we have

been successful in prolonging the lives of people living with chronic non-communicable diseases. However, considering the debilitating complications, nothing much is being done to improve the quality of the prolonged life. We undertook this study in a district of South India among patients of type 2 diabetes mellitus with the objective of assessing their quality of life.

2. Methodology

The study was carried out with the objective of assessing the quality of life of patients living with type 2 diabetes mellitus admitted in a tertiary care hospital. We enrolled 200 in-patients in the District McGann Teaching Hospital in Shivamogga district of Karnataka, a tertiary care hospital, catering to a population of over 3.2 lakhs.

In the absence of reliable estimates on prevalence of diabetes and lack of comprehensive data on diabetes epidemiology in Karnataka, we took into consideration the data from the ICMR-INDIAB study that 62.4 million people in India are diabetics.^{[5][6]} Being a hospital-based study, we included all diabetic patients admitted into the medical, surgical, orthopaedic and gynaecological wards, during the time period of one month, from 1st December 2014 to 31st January 2014. Study participants were patients above the age of 30 years, who gave verbal history of having diagnosed

with diabetes mellitus and also having confirmed the same from blood sugar level information in the case sheet. Informed consent was sought from the patients by explaining how their enrolment would help in assessing the impact diabetes laid upon their lives and how the same would help in improving their current treatment and the outcome. Patients who expressed dissent and those in altered mental state were excluded from participation.

Patients were interviewed with a pre-tested semi-structured questionnaire to collect information regarding social and demographic parameters. Subjects were probed for certain diabetes-specific information such as the time since diagnosis, physical activity, smoking, alcoholism, family history and preferences of alternative medications. The quality of life assessment was done using the Quality of Life Instrument for Indian Diabetes Patients (QOLID), a reliable and valid questionnaire for Indian patients with diabetes.^[7] The QOLID has a total of 34 questions categorized under the domains of 'role limitation due to physical health', 'physical endurance', 'general health', 'treatment satisfaction', 'symptom botherness', 'financial worries', 'emotional/mental health' and 'diet satisfaction'. Questions under each of these domains have a 5-point Likert scale to be answered in.

Data was entered into the EpiInfo software. The responses were quantified as frequencies and percentages and presented as mean \pm standard deviation. Tests of significance were applied wherever relevant to look for any statistically significant differences between groups defined by age, sex, hypertensives and other variables.

3. Results

Of the 200 patients of type 2 diabetes mellitus interviewed, 105 were males and 95 were females. Majority of the patients were in the age-group of 51-60 years. Almost 80% of them were Hindus and 20% were Muslims. 73% were diagnosed with diabetes and on treatment since more than a year. Family history of diabetes was present in 56%, i.e. 36 of the 64 patients who could recollect the information, while 58% of the participants were not aware of diabetes in their parents. 65% of the male diabetics were smokers and 52% consumed alcohol regularly. 76% of the male patients and 27% of the female patients admitted to have followed the treating physician's advice on regular physical exercise. Only eight patients said they were on concomitant alternative therapies for control of diabetes, predominantly Ayurvedic system of medicine.

3.1. Domains in Quality of Life Assessment

3.1.1. Role Limitation Due to Physical Health

41% of the study subjects said that they never missed work due to their diabetes. 19% said diabetes prevented them from attending to their work and that they missed work always. 29% missed frequently, 9% missed often and 23% missed their work sometimes due to diabetes. Almost 48% of the patients said the dietary regulation and medication for diabetes never affected their work. 66% of the patients collectively said that

diabetes affected their efficiency at work always or more frequently. Diabetes has never caused limitation of social activity in 60% of the patients studied. 40% of the patients avoided travelling on business tours, holidays and general outings to a great extent due to diabetes. More than 50% of the patients said diabetes limited their social activities such as visiting a friend or partying either always or frequently, compared to others of their age.

3.1.2. Physical Endurance

As many as 38% of the patients said vigorous activities such as lifting heavy bags, running, etc. were always limited by diabetes. Almost 50% of the patients said diabetes never limited them from doing moderate activities like moving a table or carrying groceries, utensils, etc. However, with regards to limitation of walking uphill or climbing 1-2 stairs resulting from overall health problems, almost 42% of the patients were equivocal, with one group saying that the limitation was more frequent and an equally strong group saying it was less frequent. More than 50% of the patients said that their overall health problem has, very frequently, limited them from walking 1-2km at a stretch. Diabetes limited activities such as bending, squatting or turning in only 30% of the patients, and other activities such as eating, dressing, bathing or using the toilet in only 12% of the patients.

3.1.3. General Health

Almost 36% of the patients stated that, in their opinion, their health is fair, and 28% opined that they are in poor health. Only 31% stated that their health is good. 36% of the patients said that their ability to concentrate in regular activities like driving, working, reading, etc. was "a little". Almost 47% of the patients stated having experienced fatigue frequently, and 20% always.

3.1.4. Treatment Satisfaction

61% of the patients said they were "moderately satisfied" with, both, the current treatment for diabetes, as well as the time it takes for management of their diabetes and for regular check-ups. However, about 47% of the patients said they were "very dissatisfied" with the time spent in exercises.

3.1.5. Symptom Botherness

Almost 32% of the patients said to have experienced thirst or dry mouth very frequently during the past three months. 46% of the patients said they had felt excessive hunger "sometimes" or less frequently, and nearly 60% of the patients said to have experienced frequent urination very frequently during the past three months.

3.1.6. Financial Worries

Almost 32% of the patients perceive the cost involved in management of their diabetes to be "not at all expensive", while 20% said it was "very expensive". 36% of the patients said they never prioritized their expenditure towards management of diabetes, and 38% of the patients said that their family budget was not at all affected by their diabetes. Almost 40% of the patients said that the cost of diabetes

management did not limit their expenditure on other aspects of life such as movies, outing, parties, etc.

3.1.7. Emotional / Mental Health

Almost 50% of the patients said they were “moderately satisfied” with themselves and personal relationships. 43% patients said that they were “very satisfied” and 45% said that they were “moderately satisfied” with the emotional support that they get from their friends and family. Discouragement due to their health problems was frequent among 36% of the patients studied. 30% of the patients said they were not at all able to fulfil their roles in life.

3.1.8. Diet Satisfaction

Almost 29% of the patients said they always felt a restriction in choosing the foods while they were eating outdoors. As much as 52% of the patients said they have no choice at all while eating meals or snacks away from home. Almost 40% of the patients said that they have never eaten those foods which they are supposed to eat in order to hide the fact that they are suffering from diabetes.

3.2. Mean Likert Scale Scores on Eight Domains of Quality of Life of the Diabetic Patients

The mean likert score on each of the eight quality-of-life domains for 200 patients included in the study were 3.29 for role limitation due to physical health, 3.32 for physical endurance, 2.35 for general health, 3.25 for treatment satisfaction, 2.92 for symptom botherness, 3.27 for financial worries, 3.30 for emotional / mental health and 2.95 for diet satisfaction.

Allowing a maximum possible score of 170 for quality of life assessment, the mean score of the 200 patients included in the study was estimated to be 107 and the median, i.e., maximum respondents gained a quality of life score of 118. Mean score of the male diabetics was 108 and that of the females was 105. However, this difference was not statistically significant. Faint negative correlation was observed between age of the patient and quality of life score ($r = -0.077$). Negative correlation was also observed between quality of life score and years since the first diagnosis of diabetes. ($r = -0.10$). Patients with older dates of diagnosis of diabetes had lower quality of life scores compared to those with a recent diagnosis. Patients from lower socio-economic families had a higher quality of life score than those hailing from a higher socio-economic status.

4. Discussion

The aspect of quality of life of persons living with diabetes is an essential component to assess, both for the patient as well as the healthcare providers. Patients in this study were from a tertiary care hospital, most of whom had already developed complications of diabetes *per se*. It is a well-accepted fact that complications further worsen the quality of life. However, a score of 107 can be

regarded as indicating a moderate quality of life, with no differences among the male and female diabetics. The scores on the likert scales for each were also above the average for each of the domains probed. Once there is initiation of deterioration in quality of life, unless and until appropriate measures are taken, it tends to worsen further. Patients begin to give in to the pressure of controlled diet and medications and depression slowly sets in. The present study has evidence on how quality of life of a patient with diabetes worsens over time. The findings in this study are comparable to the findings from a study by Somappa *et al* in the Kolar district of Karnataka, as well as another study by Matthew *et al* from Mangalore, Karnataka, where patients were found to have a moderate score on the quality of life.^{[8],[9]} It is important for both the treating physician as well as the patient to undertake efforts at improving the quality of life during the period of treatment because that will ensure better treatment compliance. Few subjects in our study were seeking ayurvedic and homeopathic remedies for management of hypertension. In a study from West Bengal by Debnath *et al*, an integrated approach combining allopathic and alternative therapies for diabetes foot ulcer management would have a favorable impact on patient-perceived quality of life.^[10] Patients in this study may not be representative of the large population of diabetics in our country, however, it throws light on certain determinants that can have a bearing on the quality of life. It can be concluded that a better quality of life would also mean improved confidence and a positive outlook, both of which will go a long way in the management of diabetes.

Table 1. Age and sex distribution of study subjects.

	Sex	
	Male	Female
Age (years)	30-40	6
	41-50	14
	51-60	34
	61-70	31
	>70	20
Total	105 (53%)	47%

Table 2. Religion and residence of male and female patients.

Socio-demographic variables	Frequency (n = 200)	
	Males (n ₁ =105)	Females (n ₂ =95)
Religion		
Hindu	88	72
Muslim	17	22
Residence		
Urban	30	26
Rural	35	20
Semi-urban	35	36
Slum	05	12

Table 3. Distribution of variables on diabetes and its risk factors among male and female patients.

Health-related variables	Frequency (n=200)	
	Males (n ₁ =105)	Females (n ₂ =95)
Time since treatment initiation		
Within 1 year	24	31
1 – 5 years	49	32
Since more than 5 years	32	32
Family history		
Father	05	08
Mother	09	10
Both parents	00	01
None	60	56
Don't know	31	20
Diet		
Vegetarian	10	17
Mixed	95	78
History of tobacco-smoking		
Yes	68	00
No	37	95
History of alcoholism		
Yes	57	03
No	48	92
Dietary modification		
Yes	80	64
No	25	31
Regular physical exercise		
Yes	22	26
No	83	69
Taking alternative remedies for diabetes		
Ayurvedic	02	03
Homeopathic	02	00
Native	00	01
None	101	91

Table 4. Mean likert scores of eight domains in quality of life of type 2 diabetes mellitus subjects, stratified by sex.

Domain	Males	Females
Role limitation due to physical health	3.34 ± 1.34	3.23 ± 1.40
Physical endurance	3.36 ± 1.38	3.28 ± 1.44
General health	2.37 ± 1.02	2.33 ± 1.34
Treatment satisfaction	3.17 ± 1.23	3.32 ± 1.26
Symptom botherness	2.86 ± 1.13	2.98 ± 1.22
Financial worries	3.43 ± 1.29	3.11 ± 1.42
Emotional / mental health	3.45 ± 1.10	3.14 ± 1.15
Diet satisfaction	2.91 ± 1.23	2.98 ± 1.35

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References

- [1] Rubin RR. Diabetes and quality of life. *Diabetes Spectrum*. 2000;13:P21
- [2] Nunes MI. The relationship between quality of life and adherence to treatment. *CurrHypertens Rep*. 2001.3(6):462-5
- [3] Pietrzykowska E1, Zozulińska D, Wierusz- Wysocka B. [Quality of life of patients with diabetes]. [Article in Polish]. *Pol MerkurLekarski*. 2007 Oct.23(136):311-4
- [4] International Diabetes Federation. Latest diabetes figures paint grim global picture. [internet]. 2009 Oct 18. [cited 2015 Jan 19]. Accessed from: <http://www.idf.org/latest-diabetes-figures-paint-grim-global-picture>
- [5] Bhattacharya S. No comprehensive data on diabetes in Karnataka. [internet]. 2012 Sep 18. [cited 2015 Jan 20]. Accessed from: http://www.thesoftcopy.in/archive/softcopy_2012_13/18_09_12_sudatta_diabetes.html
- [6] Anjana RM, Pradeepa R, Deepa M, Datta M, Sudha V, Unnikrishnan R, *et al*. *Diabetologia*. 2011 Dec; 54(12):3022-7. Epub 2011 Sep 30.
- [7] Nagpal J, Kumar A, Kakar S, Bhartia A. The development of 'Quality of Life Instrument for Indian Diabetes Patients (QOLID): a validation and reliability study in middle and higher income groups. *J Assoc Physicians India*. 2010 May;58:295-304
- [8] Mathew A, Anusree, Mathew AA, Archana, Athira, Sachina *et al*. *American International Journal of Research in Humanities, Arts and Social Sciences*. 2014; 7(2):197-200.
- [9] Somappa HK, Venkatesha M, Prasad R. Quality of life assessment among type 2 diabetic patients in rural tertiary centre. *Int J Med Sci Public Health* 2014; 3:415-417.
- [10] Debnath P, Prakash A, Banerjee S, Rao PN, Tripathy TB, Adhikari A *et al*. Quality of life and treatment satisfaction observed among Indians with diabetes foot ulcers undergoing ayurvedic adjunct therapy. *J Evid Based Complementary Altern Med*. 2015 Jan;20(1):13-9