QUALITY OF LIFE AMONG TYPE TWO DIABETES MELLITUS CLIENTS IN AN URBAN AREA OF TIRUPATI

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ABSTRACT

Introduction: Quality of Life (QoL) is defined as "the state of being alive as a result of the interaction between fac- tors that influence health, happiness (including physical comfort and a rewarding occupation), education, social and intellectual attainments, freedom of action, justice, and expression. Methods: The study was conducted in Sri Padmavathi Medical College for Women, Tirupati, Chittoor District, Andhra Pradesh, India, A community-based cross-sectional study was done. The WHO-QoL BREF questionnaire was used to measure the quality of life of 120 Type 2 diabetes mellitus (T2DM) patients. Results: Of the 120 T2DM patients, the demography revealed that age group was within 60-69 years (65.8%) of the clients included in this study, males (51.7%), nuclear families (78.3%), Hindus (67.5%), and literates (78.3%). Majority of families belonged to upper lower socio-economic group (45%). Most of them were backward classes (30%). The mean total transformed QoL score was high among >80 years, males, illiterates and upper class. All these differences were statistically non-significant. However, the mean total transformed QoL score showed significant relation with socio-economic class. Conclusion: Most of the study pop- ulation were leading moderate quality of life followed by good quality of life. Based on total domain QoL scores, it was concluded from this study that overall QoL was good among T2DM clients were >80 years, males, illiterates and the population in upper socioeconomic class. The mean total transformed QoL score showed significant relation with socio-economic class.

Keywords   : Quality of life, Socio-demographic factors, Type2 Diabetes Mellitus Clients, WHO QoL BREF

INTRODUCTION

Diabetes is a constant medical issue that influences transformation of food within the body to release energy, then the body either doesn't make sufficient insulin or is unable to utilize the insulin optimally: when there isn't sufficient insulin, an excessive amount of glucose remain in the circulatory system (1). The number of people with diabetes is increasing due to population growth, aging, urbanization, and increasing prevalence of obesity and physical inactivity. Measuring the prevalence of diabetes and the number of people affected by diabetes, now and in the forthcoming period, is vital for rational planning and allocation of resources (2).

Diabetes mellitus impacts 387 million people worldwide, with the number predicted to rise by 205 million by 2035, with around 75 million diabetics living in the Southeast Asian area (3). The condition of life resulting from the collective effects of variety of factors such as those determining health, happiness (including comfort in the physical environment and a satisfying occupation), education, social and intellectual attainments, freedom of action, justice, and freedom of expression(4).

Since 1995, the WHO-QoL Group has established a comprehensive set of more than 100 indicators known as the WHO-QoL (World Health Organization–Quality of Life). Quality of life is

described by the World Health Organization as an individual's appraisal of their place in life in relation to goals, expectations, norms, and concerns in the context of the culture and value systems in which they live (5).

In diabetes, quality of life is essential because low quality of life leads to decreased self-care, which refers to poorer glycaemic control, higher risk of complications, and aggravation of diabetes, which may be stressful in both the short and long term. As a result, it is clear that quality of life concerns is critical in predicting the efficiency of a person to be able to manage his condition and preserve his long-term health and well-being. It is also crucial for determining a patient's perceived burden of his chronic disease, observing health trends over time, and measuring the efficacy of treatment (6,7).

Patients with diabetes are likely to develop sightlessness, advance renal disease, lower-limb amputations, and death due to heart artery disease, cerebro-vascular illness, or peripheral vascular disease. Acute and chronic micro and macrovascular disorders that can arise in Individual with type 2 diabetes mellitus include retinopathy, nephropathy, neuropathy, peripheral vascular disease, coronary heart disease, and stroke. According to the CURES (Chennai Urban Rural Epidemical Study), 17.6% of patients had diabetic retinopathy, 26.9% had microalbuminuria, and 26.1% had peripheral neuropathy (8-10) According to the Chennai Urban Population Study (CUPS), 21.4% of diabetic patients had coronary artery disease and 6.35 had peripheral vascular disease (11,12). The United Kingdom Prospective Diabetes Study (UKPDS) has shown that good quality glycemic control can minimise diabetes difficulties considerably, paving the way for early analysis and treatment (13).

The study's goals are to establish the relationship between socio-demographic characteristics and QoL in Type 2 DM patients and to assess their quality of life.

METHODS

A cross-sectional study was organised among Type2 DM Clients belong to different socio-economic and varying demographic groups of urban field custom area of Sri Padmavathi medicinal College for Women (SVIMS) which comes under Urban Health Training Centre, Gandhi Road, Tirupati, Chittoor District, Andhra Pradesh, India.

Study setting:

Urban field practice area of SVIMS, Sri Padmavathi Medicinal College for Women came under Urban Health Training Centre, Gandhi Road, Tirupati, Chittoor District, Andhra Pradesh, India. It includes 5 wards covering population of 42,438 (10,425 families) out of which Type2 Diabetic Mellitus Clients constitute 3,603 (1,843 males and 1,760 females).

Sampling:

Sample size calculation:

Assuming the prevalence of morbidity among Type2 Diabetic Mellitus Clients to be 50%, we calculated the sample size for our study using the formula

N =Z2pq/L2:

p= 50

q= 50 (100-p)

L=10% of p

i.e.,

3.84x50x50/10x10 = 96

Based on the above, mock-up size was determined to be 96, considering a non-response rate of 20%, the total sample size was found to be116, round off to 120.

Inclusion criteria: All Type2 Diabetic Mellitus Clients aged 60 years and above, healthy and willing to participate in the study were selected.

Exclusion criteria: Those who were bedridden and under treatment for chronic diseases and have known terminal or mental illness. Those who were not willing to participate in the study were excluded.

The sample of the study subjects to be drawn from each ward in urban field practice area has been calculated by the method of probability proportional to population size. The proportional sample for individual wards in urban area was obtained by multiplying this fraction to the Type 2 Diabetic Mellitus Clients of the selected wards. In the final stage, Type2 Diabetic Mellitus Clients aged 60 years and above in the selected households were included in the study.

All the households in urban field practice area, in each ward were selected by systematic random sampling method. Sampling started from 1st right side house in a selected street. After that every 30th house was selected. If the members of the household were not eligible for the study, then the immediate next house was visited till the sample size was achieved. Thus, the final sample of 120 study subjects included in the study were collected from the 5 wards in urban field practice area by using Stratified random sampling method with proportional allocation.

Data collection

The study tool consisted of two parts –

1. Socio-demographic details. In this the socio-economic status of the families were classified based on modified Kuppuswamy scale (14) and

2. WHO-QOL BREF (15) instrument questionnaire. After obtaining informed consent from the study subjects, they were interviewed and the data was collected on socio-demographic factors that include age, sex, type of family, religion, caste, education and socio-economic status using a structured questionnaire along with application of the instrument WHO-QoL scale.

WHO Quality of Life-BREF Scale: The WHO quality of life BREF field version is a 26-item self-administered questionnaire that focuses on Type 2 Diabetes Mellitus patients. Data regarding subjective reactions rather than objective life conditions were collected, with assessments performed over the previous two weeks. Physical health, psychological well-being, social relationships, and the environment are all factors on this scale. Except for 3,4, and 26, which were assessed in reverse order, each item is rated from 1 to 5. According to WHO recommendations, 25 raw scores for each domain were obtained by aggregating the values of single items and then translated into a score ranging from 0 to 100, with 100 being the highest value and 0 representing the lowest. Each domain's mean score, total score, and average score were determined. The major goal is to determine an individual's overall opinion of health and quality of life. The higher the score, the better life quality.

The level of quality-of-life scores were categorized into 5 grades. Scoring 0-26 is considered as very poor, 27- 52 is considered as poor, 53-78 as moderate, 79-104 as good and 105-130 rated as very good level of quality of life.

Data Analysis:

The Statistical Package for Social Sciences (SPSS) 26 version software was used for data entry and analysis. Descriptive statistics were calculated for background variables including socio-demographic characteristics. The findings for each domain was expressed in terms of mean and SD. The significant difference between two mean scores was tested by independent sample t-test and significant difference between more than 2 means were tested by One ANOVA test. The P value less than 0.05 was considered as significant.

Ethical Clearance:

The study protocol was approved by the Institutional Ethical committee, in Human subjects, Narayana College of Nursing, Nellore, India vide File.No:02/ PhD(N)/LU/2018 dated 6th June 2018.

RESEARCH RESULTS

From the present study it was evident that most of the study population were in the age group of 60-69 years(65.8%) followed by 70-79 years (25.8%) and 80 years (8.3%). Most of them were males (51.7%). Most of thestudy population belong to nuclear families (78.3%) followed by joint families (25%) and extended families (0.8%) respectively. About 67.5% of the families belong to Hindu religion followed by Muslims (22.5%) and Christians (10%) respectively. About 30% of the families belong to backward caste followed by schedule caste (25%), others (24%) and schedule tribe (20.8%) respectively. Most of them were literates (78.3%). Majority of families (45%) belongs to upper lower-classgroup followed by lower middle class (39.2%), upper middle class (12.5%), lower class (2.5%) and upper class (0.8%) respectively.

Most of the study population (60%) were leading moderate quality of life followed by good quality of life and only 0.8% of study population were leading poor quality of life given in.

Table I: Distribution of study Type2 Diabetic Mellitus Clientsaccording to Quality of life (n=120).

Quality of Life	Number	Percent
Very Poor	0	0
Poor	1	0.8
Moderate	72	60
Good	47	39.2
Very Good	0	0
Total	**120**	**100**

Table II shows mean of total transformed scores (QoL). Mean total transformed score was high among 80 yearsfollowed by 60-69 years and 70-79 years respectively,Males were showing high mean total transformed score compared to females, illiterates, showing high mean total transformed scores compared to literates. All these differences were statistically non-significant. Upper socioeconomic

class were showing high score followedby lower, upper middle, lower middle and upper lower classes respectively and it was statistically significant.

The mean physical domain transformed QoL score was high among 70-79 years, female population, literates and lower socioeconomic class. All these differences were statistically non-significant.

The mean psychological domain transformed QoL score was high among 80 years, male population, literates and upper class. All these differences were statistically non-significant as shown in Table II.

The mean social relationship transformed QoL score domain was high among 60-69 years, male population and illiterates. These differences were statistically non- significant. Mean social relationship transformed QoL score was high among upper class. This difference was statistically significant as given in Table II. However it was higher (2.9%) in studies done by Raghavendra et al., (2017) (17) and 28% as shown by Alshayban (2020) (19).

The mean physical domain score was higher in female population, while in the studies conducted by Raghavendra et al., (2017) (17) and Jain et al., (2014) (20) male population had higher mean physical domain.

Table II: Distribution according to Total Transformed Scores, physical, psychological, social and environmental domains:

Variable	Mean ± SD (total transformed score)	Mean ± SD (physical domain transformed score)	Mean ± SD (psychological domain transformed score)	Mean ± SD (social domain transformed score)	Mean ± SD (environmental domain transformed score)
Age (in years)					
60-69	186.75± 39.51	45.78±16.69	45.70 ± 12.51	47.92 ±14.90	47.34 ± 9.31
70-79	185.50± 41.05	46.67± 15.58	45.83 ± 12.43	45.38 ±13.50	47.90 ± 9.78
≥80	191.60± 30.66	45.90± 15.68	49.90 ± 8.25	44.30 ±14.15	51.50 ± 8.35
P value	0.920	0.967	0.589	0.593	0.419
Sex					
Male	187.64 ± 41.93	45.62 ±15.84	46.58 ± 12.41	48.32 ±15.57	47.11 ± 9.63
Female	186.13 ± 35.96	46.44 ±16.72	45.56 ± 11.98	45.51 ±13.10	48.60 ± 9.07
P value	0.834	0.783	0.651	0.290	0.386
Education					
Illiterates	187.34 ± 38.82	45.80 ± 19.93	43.76 ± 11.33	49.07 ±12.95	48.69 ± 9.31
Literates	186.79 ± 39.26	46.08 ± 15.14	46.73 ± 12.37	46.38 ±14.84	47.59 ± 9.40
P value	0.950	0.939	0.273	0.402	0.599
Socioeconomic Class					
Upper	225	56	56	69	44
Upper Middle	208.33 ± 50.10	47.66 ± 19.79	51.73 ± 16.52	58.33 ±12.51	50.60 ± 9.96
Lower Middle	184.12 ± 29.99	46.29 ± 15.01	44.95 ± 10.92	45.27 ±12.74	47.59 ± 8.12
Upper Lower	180.66 ± 41.10	44.22 ± 16.22	44.87 ± 11.66	44.24 ±14.80	47.33 ± 10.48
Lower	223.33 ± 9.29	62.66 ± 12.50	54.33 ± 9.60	58.33 ± 9.71	48 ± 3.46
P value	0.043	0.361	0.183	0.002	0.803

The mean environmental domain transformed QoL score was high among 80 years, female population, illiterates and upper middle class. All these differenceswere statistically non-significant shown in Table II.

DISCUSSION

In this study most of the study population were in the age group of 60-69 years (65%). Similar distribution was observed by Kavi et al., (2016) (16). While in other study conducted by Raghavendra et al., (2017) (17) showed only 20.5% of study population were in the age group of 61-70years and Zare et al., (2020) (18) 33.89 % of study population were in the age group of >60Years.

In this Study 39.2% of Type2 DM clients had good QoL,however which was higher (55%) in another findings reported by Raghavendra et al., (2017) (17) and lower(21%) as reported in the study done by Dhfer Alshayban (2020) (19).

In this current study 60% of Type2 DM clients had moderate QoL, however which was lower findings observed in these studies done by (28.6%) Raghavendra N et.al (2017) (17) and (51%) Alshayban (2020) (19).

In this study 0.8 of Type 2 DM clients had poor QoL, scores. The mean psychological and social relationship domainsscore was higher in male population, similar findings was observed in the studies done by Raghavendra et al.,(2017) (17) and Jain et al., (2014) (20).

The mean Environmental domain score was higher in female population, while Raghavendra et al., (2017) (17) study male population had higher mean and Jain et al., (2014) (20) female population had higher mean physical domain scores.

Males were showed high mean Total Transformer scores compared to females, were as it was opposite in the study done by Raghavendra et al., (2017) (17).

About 60% of the study population were leading Moderate Quality of Life, 39.2% were in Good Quality of life and only 0.8% of study population were leading Poor Quality of Life. In another study by Aschalew et al., (2020) (21), Neutral Quality of life is 33.58%, Poor Quality of life is 21.81% and Good Quality of life is 41.91%. The good quality of life is similar in both the studies, but poor quality of life is less in present study.

The main purpose and significance of the study wasto assess the quality of life in Type 2 diabetes mellituspatient. It was found that most of the study population were leading moderate quality of life followed by goodquality of life. From the present study it was evident thattotal domain QoL scores, overall QoL was good among T2DM clients were > 80 years, males, illiterates and the population in upper socioeconomic class. The mean total transformed QoL score showed significant relation with socio-economic class among upper middle-class population. The study shows that significant mean difference in between socio-economic status of total transformed mean scores, social domain transformed scores. The study will help in guiding the developmentof effective intervention programs to improve T2DM related QoL. More such programs must be developed to target especially to female gender, older age, from low socio-economic status with multiple complicationsrelated to diabetes.

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