

# Socio economic factors influencing the Quality of Life of Type 2 Diabetes Patients in North Kerala

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## Abstract

Type 2 diabetes is a chronic disease that affects a patient's quality of life. This cross-sectional study with 500 diabetics in North Kerala aimed to review the socio economic determinants affecting the quality of life of diabetics. For this a quality of life score was developed and accordingly the patients were divided into three groups as good, satisfactory and poor. Analysis of the data revealed that health status and dietary pattern of each patient had a positive association with quality of life score. In this context female patients (53.1%) were not up to the level of their male (29.9%) counter parts. Such patients were having uncontrolled HbA1c (44.2%), frequent occurrence of hypoglycaemia (46%), glycosuria (47.3%), and hospital admission (43.3%). The study concluded that socioeconomic factors had a positive influence on the quality of life of a diabetes patient. For better management of diabetes, socio economic backgrounds of the patient need to be studied and improved.

Key words: *HbA1c, Quality of life Score, hypoglycaemia, glycosuria.*

## 1. Introduction

Diabetes has become increasingly prevalent and demands better care and control. The quality of life (QoL) assessment is considered an important measure of outcome in long-term illness and management (Acharaya et al 2014).

According to Mustapha et al (2014) diabetes can affect the life of those who suffer from it in many ways emotionally, physically, financially and socially. Recent studies suggest that diabetes is often associated with socio economic status of the

family. Studies by Johari et al (2016) and Bannier et al (2015) described the influence of several factors that had an impact on the quality of life in cohorts of patients diagnosed with type 2 diabetes mellitus. However, significant differences were observed regarding the importance and impact on QoL in different sectors, mainly by regional, geographical, and cultural differences between the studied cohorts Romulus (2016). Considering this fact the objectives of the studies were executed

- To assess the socio economic determinants affecting the QoL among the patients with diabetes and develop a Quality of Life Score (QoLS)
- To interpret the association of health status and dietary pattern against the quality of life of diabetics.

## 2. Review of Literature

The quality of life is very important because it is a powerful tool to predict an individual's capacity to manage the disease and maintain long-term health and well-being (Rubin et al 2000). Routine assessment of quality of life as a part of clinical practice has the potential to improve communication between the patient and the health care provider, identify and assess the frequently overlooked problems and evaluate the effect of therapeutic efforts at the individual patient's level (Acharya et al 2014).

A study by Chia et al (2007) indicated that the QoL of patients with diabetes is lower than those without the disease, and the aspects involved in this relation are not yet totally known. It is not worthy that some variables such as type of diabetes, use of insulin, age, complications, social level, psychological factors, ethnicities, education,

knowledge on the disease and type of assistance among others, may interfere with the quality of life of these patients

### 3. Materials and Methods

The study was conducted as a cross sectional survey in five districts of North Kerala including Kasargod, Calicut, Malappuram, Wayanad, and Palakkad districts. 500 respondents participated in the survey which include 100 samples from each district. A pre structured questionnaire was used to elicit information regarding the demographic socio economic, health and dietary details of the selected diabetics. QoLS was developed from selected variables such as location, education, composition of the family, occupation, number of wage earners, per capita income and media exposure of the diabetics surveyed.

Patients who lived in urban area with all medical facility, high educational status, occupation, family with maximum wage earners with high income generators and above all utilising different media for updating their health related information regarding their disease conditions was considered as person with highest QoLS. Based on this score the diabetes patients were classified into three categories as good (>13score), satisfactory (13-16score) and poor (>16 score). Association of various factors effecting the health and dietary pattern of the diabetics were statistically tested using SPSS (Statistical Package for Social Sciences) version 21.0.

### 4. Results and Discussions

Among the 500 patients surveyed 61 percent were males and 39 percent were females. The average age of the study population was  $61.34 \pm 12.04$  years. The surveyed diabetics were found to be the residents of three different areas namely urban (6.4%), suburban (50.6%) and rural (43.6%).

Urbanisation is found to influence lifestyle and socio economic position of the people and can be considered as one of the drivers of a country's health transition, including better access to healthcare services, education and social services (Goryakin et al, 2017 and Allender et al, 2010). It was also noted that those who living in rural area (42.7%) had eight times increased tendency to have diabetes than urban area (5.6%). This may be due to the reason that poor awareness and hospital facility in the rural area compared to the urban area.

Regarding the composition of the family most of the families (43.7%) was comparatively larger with

5-7 members. One third (32.5%) of the patients were having families with 2-4 members and one fourth of the patients (23.8%) with 8 members respectively.

Most of the patients had school level education (78.2%) followed by college level education (12.8%) professional degree (5.8%) and illiterate (3.2%) respectively. Majority of the male patients were working in private sector (34.9%), followed by business (32.2%), farmers (7.2%) and retired persons with pension (18.1%) respectively. Among females majority of the diabetics were house wives (78.1%). However remaining few were working in private institutions (7.1%), Government (3.6%), business (1%) and pensioners (7.7%).

One third of the families had single wage earners (33%), however nearly half of the families (46%) had two wage earners. Remaining families (21%) had more than two wage earners. Many families (46%) were with a monthly per capita income of 5001 to 10000 rupees. Around one third of the patients (31%) and one fourth of the patients (27.4%) were with a per capita income of less than 5000 rupees and more than 10000 rupees respectively.

Leisure time utilized by each diabetes patient before different media revealed that Television (TV) was in good acceptance among these patients (84%). Usage of radio (42%) and internet (22%) were comparatively less. In print media exposure to newspaper was high (76%). However only 30 percent of the patients were using different medias for updating their health related knowledge.

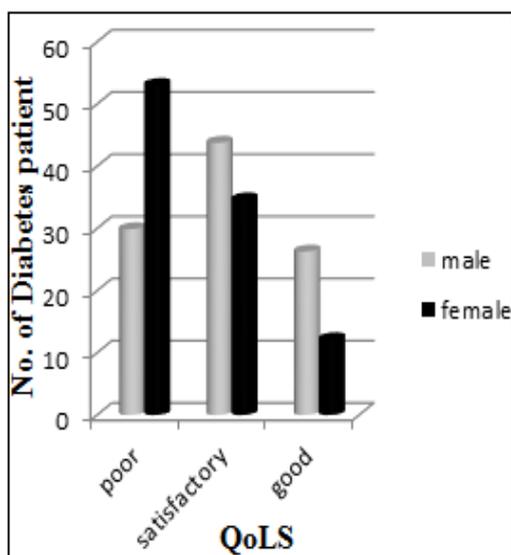
Gender based differentiation demonstrate that though male had greater exposure to different media, they were least concerned about the health related programmes (22%) broadcasted by different media whereas the awareness was high among female (41.8%) counterparts. The various socio economic variables gender wise association with type 2 diabetes mellitus was statistically tested the details are presented in Table 1

Data derived from the Table 1 revealed that distribution of type 2 diabetes patients based on education, occupation, composition and number of wage earners had a positive significance. Analysis of the data revealed that there are few variables influencing the quality of life of diabetes patients viz the location where they stay, their educational occupational and economic particulars. North Kerala is completely different in their food habits, socio economic, cultural and demographic status.

**Table1. Socioeconomic determinants affecting the Quality of Life of diabetes patients**

Socio Economic factors	d f	chi square	P value
Location	2	0.876	0.645
Education	3	19.657	0
Composition of the family	3	15.564	0.001
Occupation	6	338.551	0
No of wage earners	3	13.247	0.004
Per capita income	2	0.469	0.791
Media Exposure			
News paper	1	29.739	0
Magazine	1	2.637	0.508
Television	1	6.212	0.045
Radio	1	26.658	0
Internet	1	37.029	0
Listening to Health programmes	1	22.326	0

These variables may definitely influence the health status of diabetics also. The details of QoL was described in figure (1).



**Figure 1 Distribution of diabetics based on Quality of Life Score (QoLS)**

Scores assigned for each parameter for a diabetes patient were summed up to give the total score. Maximum score that can be obtained by this calculation was 23. Based on the QoLS the diabetes patients were classified into three categories such

as good (>13score), satisfactory (13-16score) and poor (>16 score).

The present study had brought out the truth that more than half of the female patients (53.1%) had poor QoLS when compared to their male (29.9%) counter parts. It was also observed that nearly one tenth of the females (12.2%) had good QoLS while in the male patient it was noted as more than one fourth (26.3%). More than one third of the female (34.7%) and the male (43.8%) patients were in a satisfactory grade. When statistically tested these observations were highly significant.

A study conducted by Prajapati et al (2018) on quality of life of a diabetic patients in a tertiary care hospital reported that the patients with diabetes had generally a negative impact on the quality of life (65.47±15.07). This finding is supported by the studies done by Gautam et al (2009) and Anumol et al (2014) were both the investigators concluded that diabetes had an adverse effect on the of quality of life of the patient. In the present study various factors associated with QoL of diabetics were assessed in detail.

**Table 2 Health Status of the diabetes patients based on QoLS**

Variables	Quality of Life Score						P value
	Low		Satisfactory		Good		
	No	%	No	%	No	%	
Regular Doctor visit	82	42.1	80	39.8	64	61.5	0.000
Occasional visit	110	56.4	114	56.7	37	35.6	
Never	3	1.5	7	3.5	3	2.9	
Regular blood sugar testing	101	51.8	114	38.5	81	27.5	0.000
Occasional sugar testing	94	46.1	87	42.6	23	11.3	
HbA1c good (<7%)	19	29.2	22	33.8	24	36.9	
Moderate (7-8%)	42	31.8	57	41.2	33	25	0.001
Poor (>8%)	134	44.2	122	40.1	47	15.5	
Hypoglycemia present	110	46	83	34.7	46	19.2	
Hypoglycemia absent	85	32.6	118	45.2	58	22.2	
Glycosurea present	95	47.3	74	36.8	32	15.9	0.001
Glycosurea absent	83	30.9	117	43.5	69	25.7	
Hospital admission	97	43.3	94	42	33	14.7	
No hospital admission	98	35.5	107	38.8	71	25.7	
Doing Exercise	20	18.2	41	37.3	49	44.5	0.000
Not doing Exercise	175	44.9	160	41	55	14.1	

As indicated in the Table 2 majority of the patients with good QoLS had good health practices like regular doctor visit (61.5%), controlled HbA1c (36.9%) good exercise pattern (44.5%) absence of glycosuria (15.9%) and hypoglycaemia (19.2%). No hospital admission was reported among one fourth of the patients (25.7%). However more than half of the patients (56.4%) with poor QoLS had uncontrolled glycosylated hemoglobin HbA1c (44.2%), presence of hypoglycaemia (46%) and glycosuria (47.3%), lack of exercise (35.5%) occasional doctor check up, and hospital admission (43.3%). 56.7 percent of the diabetics with satisfactory QoLS had occasional doctor visit followed by irregular blood testing (42.6%), lack of exercise (41%) moderate HbA1c (41.2%), hospital admission (42%). Around one third of the patients had glycosuria (36.8%) and hypoglycaemia (36.7%) problem.

**Table 3 Dietary factors influencing QoLS of diabetes patients**

Dietary Habits	QoLS Mean	%	t	p value
Regular meal timings	268	53.6	2.247	0.025
following 6 meal pattern	256	51.2	-2.86	0.775
In between food while travelling	100	20	2.722	0.007
Breakfast without side dish	67	13.4	-2.598	0.01
Skipping meals	69	13.8	-2.854	0.004
Habit of using skimmed milk	135	27	2.751	0.006
Religious fasting	181	36.2	-3.896	0.000
Instant foods	304	60.8	3.741	0.000
Soft drink	82	16.4	1.919	0.056
Habit of reading food label of nutrients	55	11	6.743	0.000

Table 3 described that more than half of the diabetics (53.6%) had regular meal timings followed by habit of skipping meals (13.8%), religious fasting (36.6%) and habit of eating breakfast without side dishes (13.4%). One fifth (20%) had in between food while travelling.

Usage of instant food was high among surveyed patients (60.8%). 27 percent of the diabetics had habit of removing cream before drinking milk. Similarly few patients (11%) had the habit of reading food label before purchasing a new

product. Independent sample *t test* indicated that above mentioned observations had positive significance with QoLS, whereas usage of soft drink consumption (16.4%) and habit of following 6 meal patterns (51.2%) had a negative significance.

**5. Conclusion**

From the study it was clear that socioeconomic factors associated with diabetes had a positive influence on the quality of life of each person. Diabetics with good socio economic background can manage their disease better way. This may be the reason for increased growth and incidence of diabetes among poor socio economic population. So far better management of diabetes, socio economic background of the patients should be improved. Initiatives from the part of Government are necessary for improving socio economic status of the population and thereby controlling the escalating growth of diabetes.

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