

Assesment of Health Related Quality Of Life in Type 2 Diabetes Mellitus Patients: A Community Based Cross Sectional Study

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ABSTRACT

AIM AND OBJECTIVES:

To study the Socio-demographic profile and assess the quality of life in type 2 diabetes patients, and to evaluate the physiological and health perception, social role functioning and affect of age, co-morbid conditions, drugs used in treatment on the quality of life(QOL) of type 2 diabetes mellitus patients.

METHODOLOGY:

A community based observational cross sectional study was carried out by collecting patients socio-demographic details and perception about the QOL by using RAND SF 36 questionnaire in 193 patients from January 2021-june 2021 including patients of all ages and both gender, who were diagnosed with type 2 diabetes mellitus but the gestational diabetes cases were excluded. Data was expressed as mean \pm SD

RESULTS:

Of 193 patients with diabetes involved in this study, the demographic characteristics reveals that the prevalence is more in male (60.62%) than in females (39.37%), the patients of age between 31-40 (39.37%) were more who was diagnosed with diabetes. Data describes that the habit of smoking and alcohol is not a major risk factor for diabetes as there is a very less number of subjects have a habit of smoking, educational status also doesn't have any specific impact on the patient QOL. Most of the patients got diagnosed with diabetes at the age of 31-40(43.5%). Comparatively better QOL is seen in patients with no co-morbidities (52.8 \pm 10.11) and in patients who are on insulin treatment (68.54 \pm 4.5) compared to those of treatment with oral glyceamic agents (49.3 \pm 9.01).

CONCLUSION:

Diabetes is more prevalent at 31-40 years followed by 41-50. QOL gets decreased with age. Smoking and alcohol consumption doesn't affect QOL markedly in diabetic patients. Diabetes is also diagnosed in some patients at younger age before marriage and they also have QOL similar to those

of married patients. Educational status, occupation of patients doesn't show discrimination on QOL in an orderly manner. Patients diagnosed with diabetes have low physical and mental component score, and the quality of life was decreased upon aging and on increasing the number of co-morbid conditions. There is a markable increase in QOL in patients using insulin compared to oral hypoglycemic agents.

I. INTRODUCTION

Quality of life is an important aspect in diabetes because poor quality of life leads to diminished self-care, which in turn leads to worsened glyceamic control, increased risks for complications and exacerbation of diabetes overwhelming in both the short run and the long run⁽¹⁾. The quality of life assessment is considered as an important measure of outcome in long-term illness and management⁽²⁾.

General quality of life assessment tools used for diseases are Short Form 36 (SF-36 Health Survey), a Rand-36 measure of health-related quality of life, and The Euro QoL (EQ)⁽³⁾.

The World Health Organization (WHO) has established two main objectives in caring for diabetic patients: first, maintain the health and quality of life of individuals with diabetes through effective patient care and education and second, treat and prevent complications of the disease which should decrease morbidity and mortality as well as reduce treatment cost⁽⁴⁾.

There are a number of studies showing that QoL is reduced in T2D patients compared to the general population⁽⁵⁾. Diabetic and chronic renal failure patients had significantly lower scores on physical and mental health (SF-36 Health Survey), which means that they self-reported with a significant limitation of domestic, professional and social activities⁽⁶⁾. QoL potentially operates as a unifying concept that comprises many domains

such as general, physical, and psychological health, positive social relationships, environmental mastery, purpose in life, self-acceptance, autonomy, and personal growth factors⁽⁷⁾.

India is titled as the diabetes capital of the world, with an estimate of about 72.94 million diabetic patients in 2017. Every 5th diabetic in the world is an Indian. The term “diabetes” or “to pass through” was first used in 250 BC by the Greek Apollonius of Memphis.

Diabetes type 1 and 2 were recognized for the first time as separate conditions by the Indian physicians Sushruta and Charaka in 400-500 BC, linking type 1 diabetes with youth and type 2 with obesity⁽⁸⁾. The term “mellitus” or “from honey” was added by Thomas Willis in the late 1600s because of the sweet taste that urines from diabetic patients had⁽⁹⁾. The first complete clinical description of diabetes was given by the Ancient Greek physician Aretaeus of Cappadocia (1st century AC), who also noted the excessive amount of urine a typical sign of diabetes (10). It is found in medieval Persia in Avicenna’s The Canon of Medicine, in the Roman Empire with Galen describing two cases of diabetic patients during his career⁽¹¹⁾. While insulin was discovered by Canadians Frederick Banting and Charles Best in 1921 and was first used in 1922 (12). Diabetes was also introduced into Korean and Japanese medicine under the Chinese name táng niào bìng, meaning “sugar urine disease”⁽¹³⁾. Although diabetes has been recognized since antiquity, pathogenesis of the disease was understood about 1900⁽¹⁴⁾. According to International Diabetes Federation, nowadays, one every 11 adults has diabetes (415 million worldwide)⁽¹⁵⁾. By 2040, one adult in 10 (642 million worldwide) will suffer from diabetes⁽¹⁶⁾. One in 7 births is affected from gestational diabetes and 542000 children worldwide have type 1 diabetes.⁽¹⁷⁾

Diabetes is one of the most important chronic diseases in population that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces⁽¹⁸⁾. Type 1 diabetes known as insulin-dependent, juvenile or childhood-onset and Type 2 diabetes known as non-insulin-dependent or adult-onset. Type 2 diabetes comprises 90% of people with diabetes around the world, and is largely the result of excess body weight and physical inactivity⁽¹⁹⁾. Type 2 diabetes is a metabolic

disorder that causes your blood sugar levels to increase. The severity of diabetes can vary quite a bit: Some people get the disease well under control, and in others it leads to other health problems over time⁽²⁰⁾.

There are two main types of diabetes: Type 1 diabetes usually develops in childhood or the teenage years. This disease is a result of damage to the pancreas that leaves it producing either very little insulin or none at all⁽²¹⁾. Things are different in type 2 diabetes, where insulin is made by the pancreas but the body’s cells gradually lose the ability to absorb and use the insulin⁽²²⁾. In the past, type 2 diabetes was often referred to as “adult-onset” diabetes because it is commonly diagnosed later in life⁽²³⁾. Type 2 diabetes is much more common than type 1 diabetes. About 90% of people who have diabetes have type 2 diabetes⁽²⁴⁾. A big difference between the two is that type 1 isn’t affected by lifestyle or weight. That means patient can’t affect risk of developing type 1 by lifestyle changes. People up to the age of 40 are more likely to be diagnosed with it, especially children. In fact, most children with diabetes have type 1. But, although it’s less common, people over 40 can also be diagnosed with it.

It’s different for type 2 diabetes, some things put a person at more risk including, family history, ethnic background, age, overweight or obese. There are things that reduce risk of developing type 2 diabetes. Things like eating healthily, being active and maintaining a healthy weight can help to prevent type 2. It is more likely to get type 2 if person has age over 40 and a South Asian. But type 2 is also becoming more common in younger people. More and more children and young people get diagnosed with type 2 in the UK each year.⁽²⁵⁾

II. AIM AND OBJECTIVE

AIM: To study the Socio-demographic profile and assess the quality of life in type 2 diabetes patients
OBJECTIVES:

- To assess the physiological and health perception in patients with diabetes.
- To assess the social role functioning in diabetes patients.
- To evaluate the affect of age and co-morbid conditions on QOL in diabetic patients.
- To assess the affect of drugs used in treatment on quality of life.

III. METHODOLOGY

STUDY SITE: A community based survey

STUDY DESIGN: A community based, observational, cross sectional study conducted on patients diagnosed with diabetes.

STUDY PERIOD: January 2021-june 2021

INCLUSION CRITERIA:

- Patients diagnosed with type 2 diabetes mellitus and completed the survey
- Both males and females
- Patients with other co-morbidities
- Patients treating with either oral hypoglycemic agents or insulin administration

EXCLUSION CRITERIA:

- Patients who did not completed the survey
- Pediatric patients
- Patients diagnosed as geatational diabetes

STUDY PROCEDURE:

- This is a community based observational, cross sectional study carried out by collecting patients sociodemographic details and perception about the QOL using RAND SF 36 questionnaire

- RAND SF 36 questionnaire has 8 domains

1. Physical functioning
2. Role limitations due to physical health
3. Role limitations due to emotional problems
4. Energy/fatigue
5. Emotional well being
6. Social functioning
7. Pain
8. General health

1. Sample size of present study is 193
2. Study period was from january 2021 to june 2021
3. The patients who completed the survey was included in to the study
4. Patients of all ages and both gender, who were diagnosed with type 2 diabetes mellitus were considered into study and gestational diabetes cases were excluded
5. Complete data available was entered in excel sheet.
6. Data is expressed as mean+/SD

IV. RESULTS AND DISCUSSION

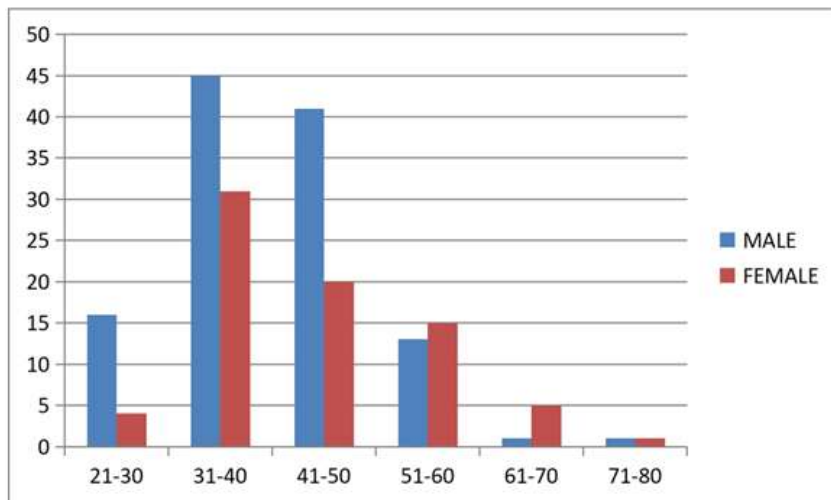
Table: 1 SOCIO-DEMOGRAPHIC PROFILE

AGE	FREQUENCY	PERCENTAGE
21-30	20	10.36
31-40	76	39.37
41-50	61	31.60
51-60	28	14.50
61-70	6	3.10
71-80	2	1.03
GENDER	FREQUENCY	PERCENTAGE
MALE	117	60.62
FEMALE	76	39.37
MARITAL STATUS	FREQUENCY	PERCENTAGE
SINGLE	2	1.03
MARRIED	191	98.96
SMOKING	FREQUENCY	PERCENTAGE
YES	34	17.61
NO	159	82.38
ALOCHOL	FREQUENCY	PERCENTAGE
YES	17	8.80

NO	176	91.19
EDUCATION	FREQUENCY	PERCENTAGE
NO-EDUCATION	15	7.77
PRIMARY	24	12.43
SECONDRY	73	37.82
DEGREE	69	35.75
PG	12	6.21
OCCUPATION	FREQUENCY	PERCENTAGE
NON-WORKING	56	29.01
SELF EMPLOYMENT	40	20.72
JOB HOLDER	67	34.71
BUSSINESS	30	15.54
NUMBER OF CO MORBIDITIES	FREQUENCY	PERCENTAGE
0	163	84.45
1	26	13.47
2	4	2.07

TRATMENT	FREQUENCY	PERCENTAGE
ORAL GLYCEMIS	171	88.60
INSULIN	22	11.39

FIGURE: 1 AGE GROUPED BY GENDER



FIGUER:2 MARITAL STATUS

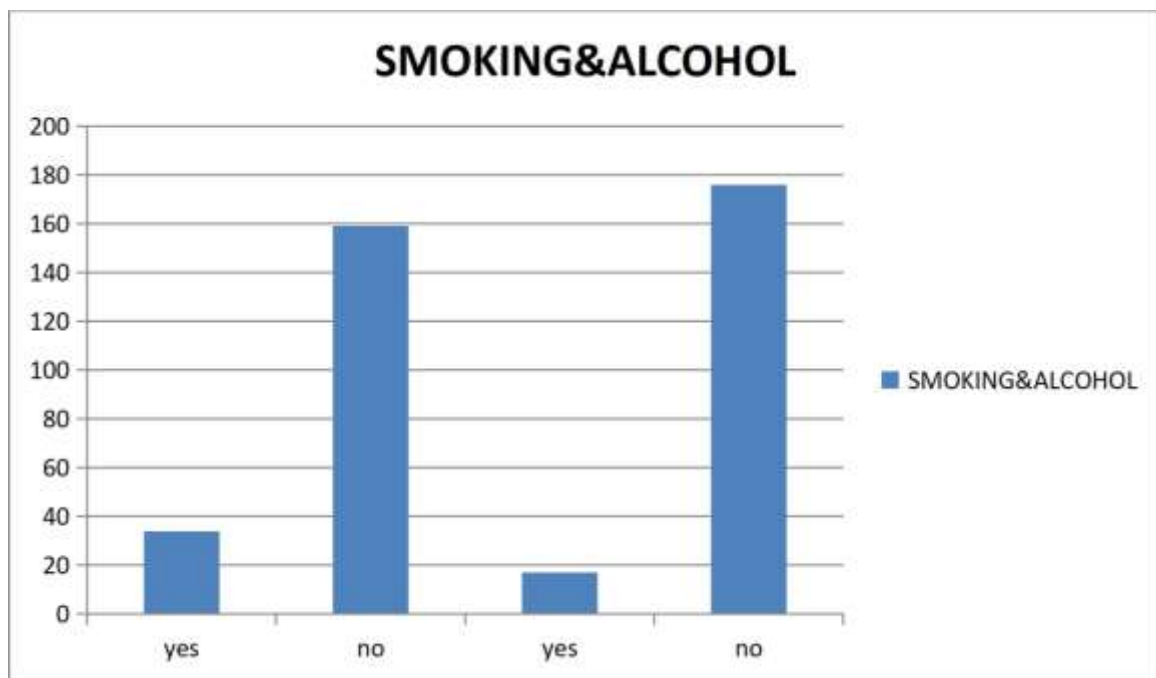


FIGURE:4 EDUCATION

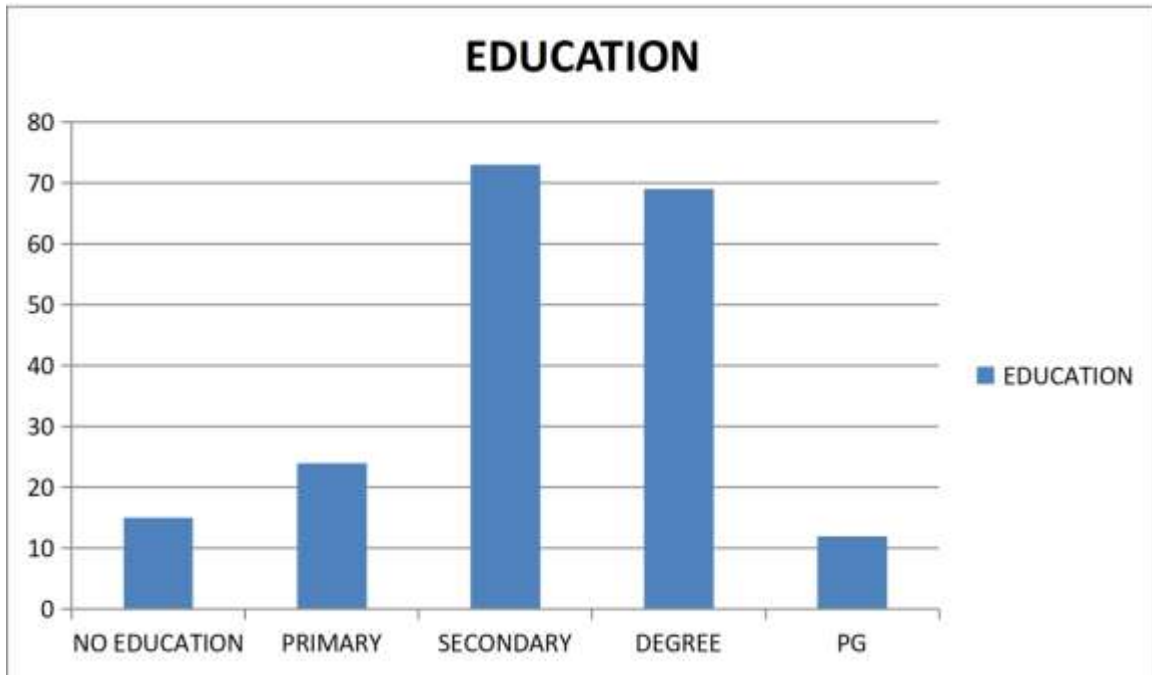
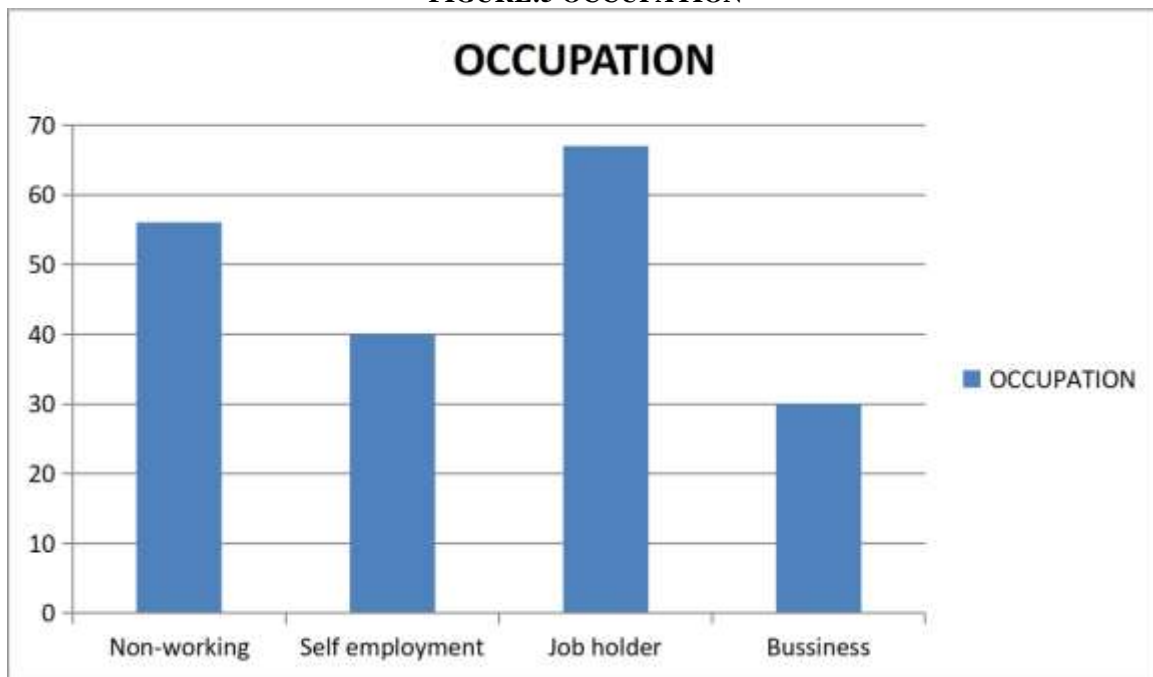


FIGURE:5 OCCUPATION



Of 193 patients with diabetes involved in this study, the demographic characteristics reveals that the prevalence is more in male (60.62%) then females (39.37%); the patients of age between 31-40 (39.37%) followed by 41-50 (31.6%) then 51-60 (14.5%) are more compared to 21-30 (10.36%),

61-70 (3%) and 71-80 (1%); this describes the effect of age on disease distribution most of the patients were married (99%) at the time of study; and according to social history, it was found that 17.6% of patients were smokers and 82.4 were non smokers and 8.8% were alcoholic and 91.2% were

non alcoholics, this data describes that the habit of smoking and alcohol is not a major risk factor for diabetes.

Of the patients includes in the study majority of the people are with secondary education status (37.8%), followed by degree completion (35.8%) and then primary education (12.43%), no education (7.8%) and post graduated (6.3%), this

data describes that effect of education status on diabetes diagnosis .

Disease distribution on occupation basis is described as job holders are more effected comparatively (34.7%), followed by nonworking (29%), self employment (20.7%) and then business (15.6%).

TABLE:2 AGE AT DISEASE ONSET

AGE AT DISEASE ONSET	FREQUENCY	PERCENTAGE
21-30	31	16.06
31-40	84	43.52
41-50	58	30.05
51-60	19	9.84
61-70	1	0.51

Most of the patients got diagnosed with diabetes at the age of 31-40(43.5%), followed by 41-50(30%), 21-30(16%), 51-60(9.9%)and 61-70(0.5%).

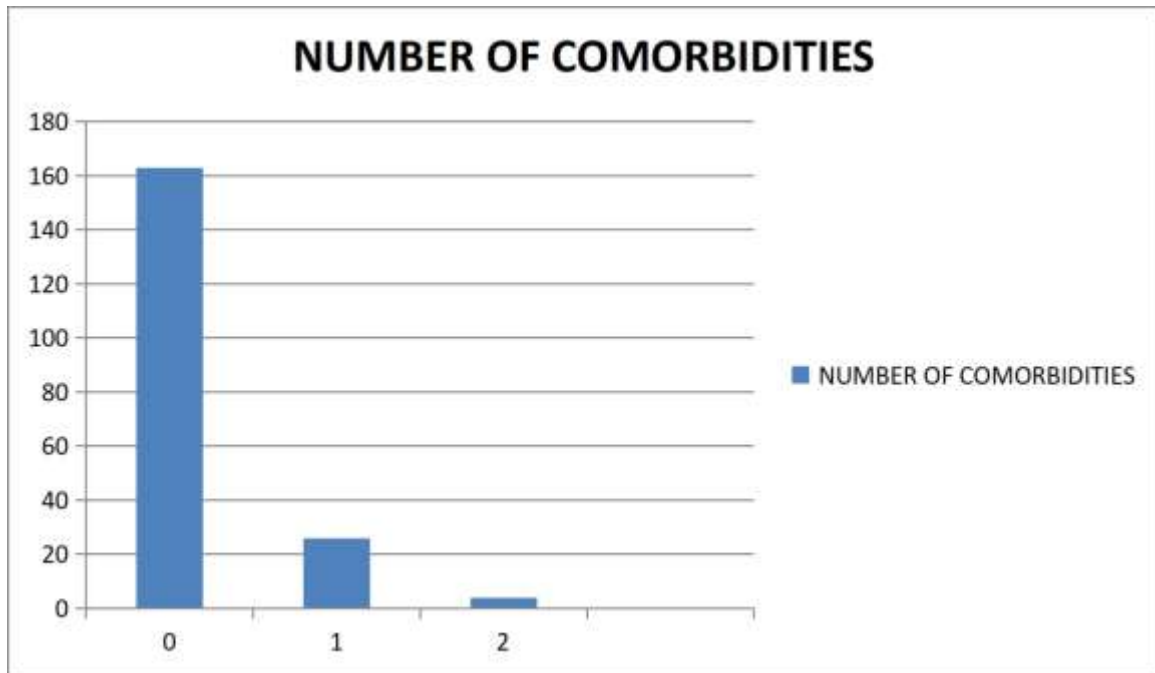
TABLE :3 CO-MORBIDITY

Co -morbidity	frequency	Percentage
Htn	17	8.80
Thyroid	3	1.55
Cardiac problems	3	1.55
Epilepsy	1	0.51
Arthritis	1	0.51
Hepatic diseases	2	1.03
RTI	1	0.51

Of 193 patients include in the study 163 patients have no other diseases (isnocomorbidities) and 8.8% have HTN, 1.5% havethyroid, 1.5% have cardiac problems, 1.1% have hepatic disease , &

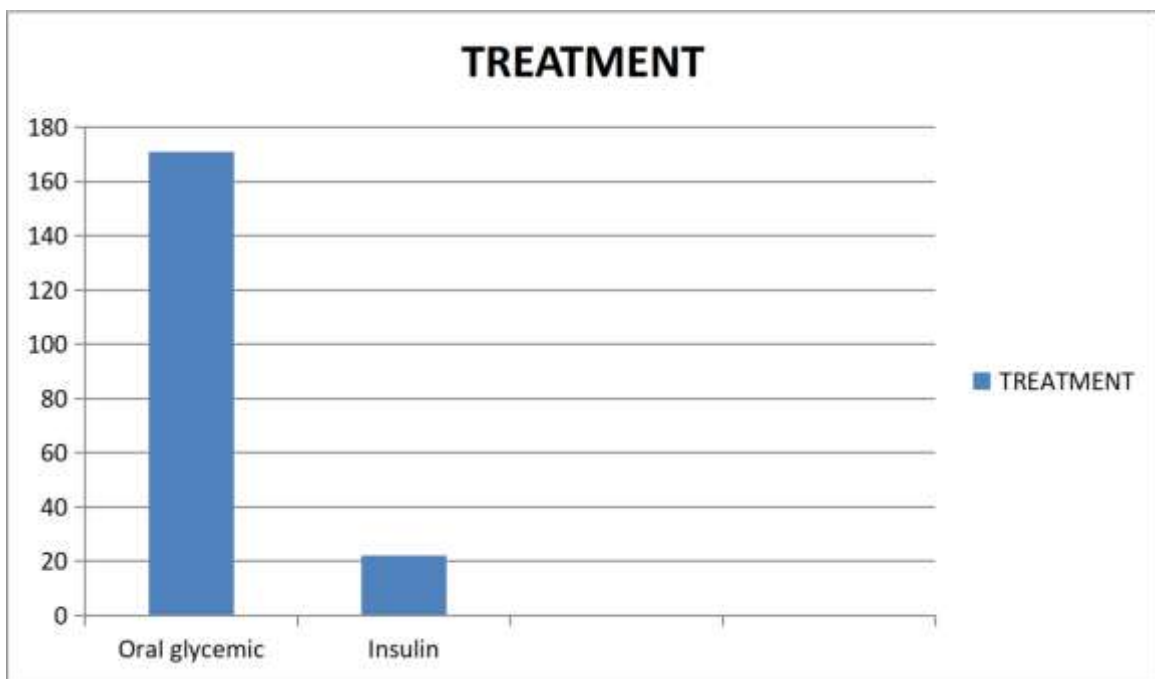
one patient have epilepsy , one have arthritis and one have RTI.

FIGUER:6 NUMBER OF COMORBIDITIES



Most of the patients included in the study have no co-morbidities (84.45%) and 13.47% have one co-morbidities & 2.07% have 2 co-morbidities.

FIGURE:7 TREATMENT



Majority of patients (88.60%) are using oral hypoglycemics to control diabetes & only few patients (11.39%) are taking insulin. Patients who are using any class of hypoglycemic agents orally are included in oral hypoglycaemic treatment group and patients are using insulin regardless the type of insulin (fast acting, intermediate acting or long acting) and the number of units administered daily, are included in insulin treatment group.

TABLE :4 Comparison of quality of life in diabetic patient

	PF	RPH	PAIN	GH	PCS	RE.H	E/F	E.WB	S.FN	ECS	Mean score of all domains
Mean score	40.63	44.8	57.08	55.85	49.24	48.03	53.46	60.95	53.49	53.73	51.49
Std	17.45	23.28	22.68	17.99	11.47	59.49	12.83	13.39	17.26	12.25	10.57

In all 193 patients with diabetes the score of all domains of QOL questionnaires is 51.49±10.57. This shows that Diabetes effects the patients QOL to a moderate manner.

TABLE :5 Comparison of quality of life in diabetic patient on age basis:

	PF	RPH	PAIN	GH	PCS	RE.H	E/F	E.WB	S.FN	ECS	Mean score of all domains
21-30 (mean)	34.25	45.75	72.12	61.99	52.55	49.79	56.5	66.6	58.92	57.57	55.07
Std	22.43	28.43	18.53	51.61	11.77	23.07	13.96	20.07	15.33	11.32	10.31
31-40 (mean)	40.50	44.79	57.02	55.77	41.17	47.75	53.45	60.93	53.45	53.64	51.41

std	17.41	23.34	22.72	18.00	11.16	25.28	12.86	13.42	17.29	12.22	10.54
41-50 (mean)	44.18	44.26	54.45	55.24	49.26	45.86	51.73	60.65	53.54	59.98	51.12
std	40.06	22.07	20.38	16.33	11.10	26.64	12.03	13.03	17.37	11.43	9.66

51-60 (mean)	45.71	40.44	48.54	47.40	44.95	47.59	50.71	59.39	47.85	49.83	47.39
std	15.96	25.27	25.40	19.41	12.54	26.34	11.84	10.17	18.48	13.87	11.99
61-70 (mean)	55.83	41.66	33.75	44.17	43.88	44.42	47.5	54.67	43.75	47.58	45.7
std	15.62	20.41	17.44	21.31	12.31	27.23	18.21	5.47	15.31	10.22	10.63
71-80 (mean)	37.5	75	52.5	60	56.24	66.6	57.5	598	75	64.27	60.26
Std	17.68	0	7.08	35.35	15.03	0	3.53	2.83	17.68	4.24	5.39

When QOL is compared on age bases , those patients with diabetes between 21-30 years have comparatively better QOL(55.07±10.31), followed by 31-40 years (51.41±10.54), 41-50 (51.12±9.66), 51-60 (47.39±11.99), 61-70 (45.7±10.63). But irrespective of age 2 patients of age 71-80 show more QOL than 21-30 years (is 60.26±5.39) with comparatively high mental component score (MCS)is 64.3±4.24.

TABLE:6 Comparison of quality of life in diabetic patients on gender basis

	PF	RPH	PAIN	GH	PCS	RE.H	E/F	E.W B	S.FN	ECS	Mean score of all domains
Female(mean)	39.63	43.87	56.38	55.43	48.46	46.08	52.89	60.60	52.93	52.85	50.66

Std	17.27	23.29	22.91	18.28	11.15	24.15	12.79	13.56	17.35	11.84	10.11
Male(mean)	40.21	48.82	62.21	56.53	51.36	48.21	55.48	61.02	55.17	54.92	58.15
Std	18.32	23.89	21.23	17.08	11.30	24.66	13.10	13.72	17.43	12.42	10.58

QOL when compared between male & female, male patients show slight better QOL (58.15±10.58) than females (50.66±10.11) in both physical component & mental components of QOL.

TABLE:7 Comparison of quality of life in diabetic patient based on marital status:

	PF	RPH	PAI N	GH	PCS	RE.H	E/F	E.W	S.FN	ECS	Mean score of all domains
Married(mean)	40.5	48.15	60.91	56.68	51.22	48.18	55.53	61.04	55.15	54.93	53.08
Std	18.38	23.48	21.28	17.19	11.34	24.78	13.17	13.80	17.56	12.46	10.5
Single(mean)	52.5	87.5	78.75	47.91	59.53	49.95	52.5	60	56.25	54.68	57.11
Std	10.61	17.68	1.77	2.95	4.20	23.55	10.61	11.31	8.84	13.55	4.68

When QOL is compared based on marital status. Single patients show slight improved QOL (57.11±4.68) compared to married patients (53.08±10.5) this is because as the single status patients are of less age & their physical component QOL is much better comparatively.

TABLE:8 Comparison of quality of life in diabetic patients based on tobacco and alcohol consumption

	PF	RPH	PAI N	GH	PCS	RE.H	E/F	E.W	S.FN	ECS	Mean score of all domains
Smoker(mean)	43.67	51.10	54.98	49.52	48.59	46.98	55	62.11	54.11	54.54	51.57
Std	18.27	30.52	22.37	16.58	13.03	23.38	12.67	11.41	19.72	13.59	12.14
Non-smoker(mean)	39.98	43.45	57.52	57.21	49.38	48.25	53.13	60.69	53.36	53.55	51.47
Std	17.26	21.30	22.78	18.04	11.15	25.98	12.88	13.79	16.76	11.98	10.25

Alcohol(mean)	45.88	55.15	67.48	53.81	53.81	48.97	58.82	60.47	56.62	56.19	55.0
Std	19.06	30.95	20.28	16.37	12.65	23.90	11.53	12.24	14.05	12.08	11.31
Non-alcoholic(mean)	40.13	43.80	56.07	56.05	48.80	47.93	52.94	60.99	53.19	53.49	51.15
Std	17.26	22.26	22.69	18.17	11.29	25.70	12.86	13.53	17.55	12.27	10.47

As the prevalence of diabetes is not more in smokers & alcoholics in this study, their QOL is compared to non-smokers & the non-alcoholics respectively. In QOL also, there is no much change in smokers vs non-smokers & alcoholics vs non-alcoholics.

TABLE:9 Comparison of quality of life in diabetic patients on education basis

	PF	RPH	PAIN	GH	PCS	RE.H	E/F	E.W B	S.FN	ECS	Mean score of all domains
No education(mean)	39.33	51.66	66.33	57.32	53.98	51.07	53.33	58.93	61	56.08	55.04
Std	14.25	19.97	15.38	17.19	11.24	21.31	17.69	13.15	17.10	13.64	9.50
Primary(mean)	37.92	45.83	47.70	53.71	46.29	45.79	51.66	61.33	50.41	52.31	49.30
Std	15.45	22.92	21.35	19.03	10.98	25.65	8.80	9.41	15.59	10.02	8.97
Secondary(mean)	41.54	41.13	52.38	54.56	46.72	44.85	53.03	62.85	53.35	52.93	49.83
Std	19.53	23.05	23.03	19.02	11.10	23.30	12.87	11.69	18.35	11.84	10.28
Degree(mean)	42.97	45.94	63.90	56.94	52.10	50.67	54.16	58.32	52.06	53.83	52.99
Std	16.23	24.55	21.39	16.72	11.65	27.78	12.97	16.22	15.33	12.92	11.29

Pg(mean)	28.75	50	53.54	59.88	48.04	52.74	55.72	66.16	59.37	57.86	52.95
Std	14.79	21.32	25.70	19.21	9.61	30.00	13.03	9.92	22.69	13.68	11.12

Education status may effect the QOL in diabetic patients, as this may show some difference in the thinking towards disease (diabetes). In this study, comparatively more QOL is seen in patients with medication (55±9.5), followed by post graduated patients (52.95±11.1), degree completed patients (52.95±11.2), secondary educational status (49.8±10.3) & primary educational status (49.3±8.97).

TABLE:10 Comparison of quality of life in diabetic patients on occupation basis:

	PF	RPH	PAI N	GH	PCS	RE. H	E/F	E.W	S.FN	ECS	Mean score of all domains
Non-working(mean)	42.27	36.42	50.43	53.82	45.22	45.74	49.55	61.44	49.91	50.88	48.05
Std	17.42	22.27	24.69	19.16	11.93	25.10	11.91	12.19	17.33	12.08	10.48
Self employment(mean)	39.12	52.81	62.81	56.59	52.19	46.62	57.31	62.21	59.21	56.31	54.26
Std	17.50	22.54	16.85	16.38	10.41	21.06	12.18	11.58	16.23	10.96	9.38
Job holder(mean)	41.26	47.68	58.35	57.83	5105	55.87	55.22	62.04	52.05	56.19	53.63
Std	18.40	21.73	23.60	19.95	11.22	28.79	12.72	15.14	17.98	13.56	11.62
Business(mean)	38.16	43.33	58.97	55.33	48.78	36.63	51.66	56	55.8	50.08	49.43
Std	15.56	25.37	21.46	12.87	10.85	18.24	13.85	13.85	15.26	9.12	7.57

When QOL is compared on occupational basis, the patients with self employment (that includes mechanics, daily workers, plumbers, carpenters etc) show better QOL (54.26±9.38), followed by job holders I.e, patients with income on monthly basis (53.63±11.62), business I.e, patients with income a yearly basis (49.43±7.57) & then non-working I.e patients of elderly age who are not doing any physical work for income (48±10.48).

TABLE:11 Comparison of quality of life in diabetic patients based on the age at disease onset

	PF	RPH	PAIN	GH	PCS	RE.H	E/F	E.W B	S.FN	ECS	Mean score of all domains
21-30(mean)	32.41	43.22	70.83	63.68	51.72	50.39	56.45	64.25	56.95	56.77	54.25
Std	20.11	24.95	18.22	18.15	10.53	22.64	13.91	19.15	14.09	10.82	9.61
31-40(mean)	39.49	46.13	58.50	56.97	50.02	48.92	54.84	61.27	54.70	54.93	52.49
Std	17.54	22.79	22.09	16.81	11.60	25.74	13.23	12.78	17.26	12.34	10.71
41-50(mean)	43.10	42.37	52.29	52.28	47.41	45.36	50.70	58.96	51.70	50.97	49.19
Std	13.69	23.24	21.73	17.32	11.13	24.74	12.40	11.91	17.87	12.27	9.952
51-60(mean)	49.47	47.36	44.07	49.29	46.72	45.58	50.78	60.21	48.15	51.18	48.95
Std	15.80	23.41	23.89	21.18	12.96	29.83	9.01	8.05	19.85	12.77	12.09
61-70(mean)	80	75	35	50	60	100	55	60	50	66.25	63.13
Std	80	75	35	50	60	100	55	60	50	66.25	63.13

Based on the age at the diabetes onset, the QOL of patients is compared and it shows for patients with diabetes onset at 61-70 years have better QOL(63.13), followed by diabetes onset at 21-30 years(54.25±9.61), 31-40 years (52.49±10.71), 41-50 years(49.19±9.9) & then 51-60 years (48.95± 12.09).

TABLE:12 Comparison of quality of life in diabetic patients based on their comorbidity

	PF	RPH	PAI N	GH	PCS	RE.H	E/F	E.W B	S.FN	ECS	Mean score of all domains
Htn(mean)	44.70	41.17	38.08	46.90	42.71	41.14	47.64	63.05	50	48.85	45.78
Std	16.72	26.42	22.73	18.59	11.27	25.07	7.72	9.74	19.76	11.67	9.82
Thyroid(mean)	35	33.33	35.83	59.72	40.97	44.4	59.58	62.66	52.5	54.76	47.87
Std	0	14.43	5.77	0.48	4.64	19.22	4.38	6.11	9.01	9.08	6.29
Cardiac problems(mean)	41.66	33.33	33.33	51.94	39.82	44.4	51.66	70.66	50	54.17	47
Std	11.54	38.18	11.27	7.28	7.30	19.22	2.88	12.22	12.5	10.04	7.25
Epilepsy(mean)	55	50	22.5	15	35.63	33.3	40	56	25	38.57	37.1
std	55	50	22.5	15	35.63	33.3	40	56	25	38.57	37.1
Arthritis(mean)	25	25	30	37.5	29.4	66.6	45	48	37.5	49.3	39.35
Std	25	25	30	37.5	29.4	66.6	45	48	37.5	49.3	39.35
Hepatic diseases(mean)	50	37.5	50	37.5	43.75	33.3	52.5	58	50	48.5	46.10
Std	49.49	53.03	38.89	17.67	15.02	47.09	17.67	14.14	35.35	28.56	21.80
RTI(mean)	85	25	0	20	32.5	33.3	25	56	12.5	15.85	24.18
Std	85	25	0	20	32.5	33.3	25	56	12.5	15.85	24.18

When QOL is compared based on the co-morbidities they have, it shows that patients with HTN have QOL score of 45.78 ± 9.82 ; patients with thyroid have 47.87 ± 6.29 QOL score; patients with cardiac problems have 47 ± 7.25 QOL score; patient with epilepsy have 37.1 QOL score; patients with arthritis have 39.35 QOL score; patients with hepatic disease as 46.1 ± 21.8 QOL score & patients with RTI have 24.18 QOL score.

TABLE:13 Comparison of quality of life in diabetic patients based on the number of co-morbidities

	PF	RPH	PAIN	GH	PCS	RE.H	E/F	E.WB	S.FN	ECS	Mean score of all domains
0(mean)	39.95	46.15	60.98	57.69	50.78	49.51	54.31	60.75	54.69	54.78	52.79
Std	17.14	22.56	20.83	17.48	11.07	28.58	13.16	13.97	16.56	11.75	10.11
1(mean)	46.15	34.61	33.75	45.18	39.90	39.70	48.79	60.92	45.09	48.01	43.96
Std	19.66	23.53	19.35	18.87	9.39	21.10	10.24	9.81	20.46	13.30	10.01
2(mean)	32.5	56.25	49.37	49.99	47.02	41.65	48.75	69	59.37	47.89	47.45
Std	5	37.5	26.79	3.40	12.98	41.94	6.29	6	6.25	16.66	13.56

QOL when compare to patients with number of co-morbidities it shows better QOL is seen in patients with no co-morbidities (52.8 ± 10.11), followed by patients with 2 co-morbidities (47.45 ± 13.56) & then in patients with one co-morbidity (43.96 ± 10).

TABLE:14 Comparison of quality of life in diabetic patients on treatment basis:

	PF	RPH	PAIN	GH	PCS	RE.H	E/F	E.WB	S.FN	ECS	Mean score of all domains
Oral hypoglycemics	38.43	41.94	54.84	54.51	47.13	44.07	51.44	59.69	51.73	51.45	49.30
std	16.94	22.53	22.89	18.54	10.29	23.71	11.95	13.55	17.01	10.95	9.01

insulin	57.7 2	67.0 4	74.4 3	66.2 5	65.6 5	78.7 4	69.0 9	70.6 8	67.2 0	71.4 2	68.54
std	10.7 7	16.1 5	10.0 8	6.91	5.14	16.4 4	7.65	6.30	12.6 4	5.50	4.50

QOL when compared to diabetic patients on treatment basis, the patients who are on insulin treatment shows better QOL (68.54 ± 4.5) compared to those of treatment with oral glycemc agents (49.3 ± 9.01).

V. CONCLUSION

Diabetes is more prevalent at 31-40 years followed by 41-50. QOL gets decreased with age . Smoking and alcohol consumption doesn't affect QOL markedly in diabetic patients . Diabetes is also diagnosed in some patients at younger age before marriage and they also have QOL similar to those of married patients. Educational status, occupation of patients doesn't show discrimination on QOL in an orderly manner. Patients diagnosed with diabetes have low physical and mental component score, and the quality of life was decreased upon aging and on increasing the number of co-morbid conditions. There is a markable increase in QOL in patients using insulin compared to oral hypoglycemic agents.

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Patient name: Age:

Gender: Education: Occupation: Marital status:

ANNEXURE PROFORMA

Social history: smoking/alcohol consumption Commodities:

Age at the onset of diabetes: Treatment: oral hypoglycemics/insulin

RAND 36 ITEM HEALTH SURVEY

1.0

Patient Name: ____

1. In general, would you say your health is: Excellent 1

(Circle One Number) Very Good 2

Good 3

Fair 4

Poor 5

2. Compared to one year ago, how would you rate your: general health right now ?

(Circle One Number)

Much better than one year ago 1



Somewhat better than one year ago 2

About the same 3

Somewhat worse now than one year ago 4 Much worse now than one year ago 5



The following items are about activities you might do during a typical day: Does your health now limit you in these activities? If so, how much? (Circle One Number on Each Line)	Yes, Limited A Lot	Yes, Limited A Little	No, Not Limited at All
3. Vigorous activities , such as running, lifting heavy objects, participating in strenuous sports	2		3
4. Moderate activities , such as moving a table pushing a vacuum cleaner, bowling or playing golf	2		3
5. Lifting or carrying groceries	2		3
6. Climbing several flights of stairs	2		3
7. Climbing one flight of stairs	2		3
8. Bending, kneeling or stooping	2		3
9. Walking more than a mile	2		3
10. Walking several blocks	2		3
11. Walking one block	2		3
12. Bathing or dressing yourself	2		3

During the **past 4 weeks**, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?: (Circle One Number on Each Line)

Yes No

13. Cut down the amount of time you spend on work or other activities	1	2
14. Accomplish less than you would like	1	2
15. Were limited in the kind of work or other activities	1	2
16. Had difficulty performing the work or other activities (for example, took extra effort)	1	2

During the **past 4 weeks**, have you had any of the following problems with your work or other regular daily activities as a result of your emotional health

17. Cut down the amount of time you spend on work or other activities	2
18. Accomplish less than you would like	2
19. Didn't do work or other activities as carefully as usual	2

20. During the **past 4 weeks**, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors or groups?
(Circle One Number)

Not at all 1
 Slightly 2



Moderate 3
 Quite a bit 4

21. How much **bodily** pain have you had during the **past 4 weeks**:

(Circle One Number)

22. During the **past 4 weeks**, how much did pain interfere with your normal work (including both work outside the home and housework ?

(Circle One Number)

- None 1
- Very Mild 2
- Mild 3
- Moderate 4
- Severe 5
- Very Severe 6
- Not at all 1
- Slightly 2
- Moderately 3
- Quite a bit 4
- Extremely 5

These questions are about how you feel and how things have been with you **during the past 4 weeks**. For each question, please give the one answer that is closest to the way you have been feeling.

C o m m e n t	All of the Time	Most of the Time	A Good Bit of the Time	Some of the Time	A Little of the Time	None of the Time
How much of the time during the past 4 weeks . . . (Circle One Number on Each Line)						
23. Did you feel full of pep?	1	2	3	4	5	6
24. Have you been a very nervous person?.....	1	2	3	4	5	6
25. Have you felt so down in the dumps that nothing could cheer you up?	1	2	3	4	5	6
26. Have you felt calm and peaceful?	1	2	3	4	5	6
27. Do you have a lot of energy?	1	2	3	4	5	6
28. Have you felt downhearted and blue?.....	1	2	3	4	5	6
29. Did you feel worn out?	1	2	3	4	5	6
30. Have you been a happy person?.....	1	2	3	4	5	6
31. Did you feel tired?	1	2	3	4	5	6



32. During the **past 4 weeks**, to what extent has your **physical health or emotional problems** interfered with your normal social activities like visiting with family, friends, relatives, etc.?
(Circle One Number)

- All of the time 1
- Most of the time 2
- Some of the time 3
- A little of the time 4
- None of the time 5

How TRUE or FALSE is each of the following statements for you?	Definitely True	Mostly True	Don't Know	Mostly False	Definitely False
33. I seem to get sick a little easier than other people	1	2	3	4	5
34. I am as healthy as anybody I know	1	2	3	4	5
35. I expect my health to get worse	1	2	3	4	5
36. My health is excellent	1	2	3	4	5

Comments: _____

Patient Signature: _____ Date _____