

Quality of Life and Psychiatric Morbidity in Patients with Diabetes Mellitus

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ABSTRACT

Background and Aim: Diabetes Mellitus is a complex medical condition with a chronic course. The number of people with Diabetes is increasing with time. Psychiatric co-morbidity is very high in Diabetes. The study aim was to assess the psychiatric co-morbidity and Quality of Life of patients with Diabetes Mellitus.

Materials and Methods: A Cross-sectional study with a random sample (n=50) Diabetes Mellitus patients at Mamatha medical college, Khammam was performed. WHOQOL-BREF[®] was used to measure quality of life and its association with sociodemographic factors. General health questionnaire (GHQ-12) was used for screening subjects for psychiatric co morbidity and thereby obtained a uniform sample. Modified kuppuswamy scale was used to measure socioeconomic status.

Results: Quality of life scores are better for 20-30 years age group in physical (mean=52.38), psychological (mean=51.38) and environmental (mean=61.45) domains than other age groups. Psychiatric symptoms, either depression or anxiety were present in most of the patients. Majority of patients had some impairment in all domains of quality of life.

Conclusion: Diabetes mellitus patients are having better Quality of life scores in 20-30yrs age group in physical, psychological and environmental domains than other age groups. Males have a better quality of life in physical, psychological and environmental domains than females. Middle socioeconomic class have better quality of life in all the domains.

Keywords: Diabetes mellitus, psychiatric co-morbidity, quality of life, depression, anxiety

INTRODUCTION

Diabetes mellitus is actually a group of metabolic disorders characterized by hyper glycemia which can result from defects in insulin secretion, insulin action, or both. Chronic hyper glycemia is associated with the development of damage to various organs in the body- the eyes, kidneys, nervous system, and cardiovascular system.^[1]

Psychiatric co morbidity in diabetes mellitus is very high.. The number of people with diabetes mellitus in India is increasing across geographic and ethnic boundaries.^[2] These are many western studies suggesting presence of

psychiatry co-morbidity in diabetes patients. In India researches in this aspect of diabetes are very few.

Diabetes is one of the most complex chronic medical conditions, where high degree of patient self management with in a supportive social network is required to ensure optimal outcomes.^[3]

Psychiatric illness can adversely affect patients self care behaviours and patients abilities to interact with others. Psychiatric illnesses, such as depression, may also lead to neurohormonal change such as changes in the hypothalamic- pituitary axis, which may adversely affect diabetes control.^[4]

The relationship between diabetes mellitus and mental illness appears to be multi-factorial and includes unhealthy lifestyles and biologic factors, besides 2nd generation antipsychotic medication. Cohen et al^[5] in a study that involved 200 Dutch patients showed that the prevalence of diabetes was 14.5% among those with severe mental illness compared with 1.5 % in general population.^[6]

Conditions associated with reduced functioning especially psychological, cognitive functioning, may particularly complicate diabetes treatment and worsen health and other outcomes.^[7]

Depression is associated with poor adherence to dietary and self management recommendations, (Ciechanowski et al 2003)^[8] Poor glycemic control, (Lustman et al, 2000)^[9] social and vocational impairment, (Wells KB et al.)^[10] and increased health care cost and utilization of services. A studies stratifying patients with diabetes by depression scores (Zhang et al, 2005)^[11] showed a 54% increase in mortality among the severely depressed, but even subclinical depression was associated with risk.

Other studies also have also found mortality risk to be greatly increased in patients with depression and diabetes. Among patients with diabetes those who are depressed have poor glycemic control, a higher risk of co morbidities and mortality, increased functional impairment, poor adherence to diet, exercise and self management strategies in comparison to those who are not depressed. (Egede et al, 2005).^[12]

Depression also appears to increase the risk of developing diabetes. In the prospective Stockholm diabetes prevention program of 5500 patients men (not women) with the highest level of depressive symptoms have nearly 4 fold increased risk for type 2 diabetes, and a nearly 2 fold greater risk for pre diabetes state when compared with least depressed.

The recent world health survey (Moussavi et al, 2007).^[13] showed that the combination of diabetes and depression has the most negative impact on health among dozen or serious medical conditions. Despite the seriousness depression remains undetected and untreated in 50 – 75% of patients with diabetes.

Serious mental illness may cause additional difficulties in diabetes mellitus management and make positive outcomes harder to achieve. However, to recent studies found little evidence of poor quality of diabetes care for patients with a co occurring serious mental illness. These studies focused only on the receipt of recommended care process, such as having a foot sensory exam, or on a single intermediate outcome (A1c).

In addition they did not explore mechanisms that might account for or promote good quality care for these patients. In general, patients with multiple chronic conditions especially diabetes and co morbid serious mental illness, have challenging health care needs and subsequently may be more likely to receive poor quality diabetes care and poor outcomes.

Depression in patients with diabetes is associated with increased mortality rate, poor glycemic control, increased diabetes complications, increased functional disability, poor compliance with treatment recommendations and higher medical costs.^[14]

A modest association of baseline depressive symptoms with incident type 2 diabetes existed that can be partially explained by life style factors. Impaired fasting glucose and untreated type 2 diabetes are universal related with incidence depressive symptoms, where as treated type 2 diabetes showed a positive association with depressive symptoms. These associations were not substantively affected by adjustment for potential confounding or medical factors.

The earliest reference to association of depression with diabetes was made by wills, three centuries ago that diabetes was the results of sadness or prolonged sorrow. Since then, co morbidity in patients with either diabetes or depression as the primary disorder has been the subject of investigation. There has been a focus on the prevalence of depression in patients with either type of diabetes, the relationship of depression with measure of diabetes severity (insulin resistance (IR), hyperglycemia and complications), the risk of developing type 2 diabetes in depressed patients, and the effect of depression on diabetes related mortality.

Some of the conclusions drawn from studies pursuing the twin lines of investigations are that the prevalence of depression is increased significantly in persons with diabetes (type 1 or Type 2) compared with those without diabetes.^[15] Further depression appears to increase significantly the likelihood of developing type diabetes.^[16] The increased incidence of diabetes in depressive population is independent of other conventional risk measures.

It might result from direct effects of depression on glucose deregulation preceding the ultimate diagnosis of diabetes.^[17] This bidirectional association is supported by meta-analysis, of an aggregate of data from nine longitudinal studies having follow-up periods of 3 to 16years, which concluded that depressed adults have a 37% increased risk of developing type 2 diabetes. Depression therefore, may well be a potentially modifiable factor influencing the onset and course of diabetes. Adequate treatment of depression improves

diabetic outcomes.

It is thus important to understand the relationship between co-occurring mental and physical disorders because of their potential for modifying patient outcomes. One of the current priority research area of the national institute of mental health is to decrease the impact of depression on co-occurring illness, specifically diabetes and cardiovascular disease.^[18]

Persons with diabetes are twice as likely to have depression as non diabetic persons. A review of 20 studies by Anderson et al. 2004^[19] on the co morbidity of depression and diabetes found that the average prevalence about 15%, and ranged from 8.5 to 40%, 3 times the rate of depressive disorders found in the general adult population of the USA.

Recent studies have indicated that persons with type 2 diabetes, accompanied by either major or minor depression have significantly higher mortality rates than non depressed persons with diabetes. Links have also been established between depression, diabetes, and an increased risk of cardiovascular and cerebrovascular complications.^[20]

Depressive are associated with bio chemical changes related to DM (i.e. hyperglycemia, inflammation, activation of the hypothalamic-pituitary –adrenal axis, stress) and may be important factors in disrupting overall metabolic control.^[21]

Two recent large primary care based randomized trials enrolled 418 patients with diabetes and depression age 60 and over (IMPACT trial- Improving Mood Promoting Access to Collaborative Treatment for Late Life depression studies) and 329 mixed age patients with diabetes and depression (mean age 59).

These trials tested a stepped – care nurse intervention for depression vs. usual primary care. Both trials showed marked intervention vs. usual care effects in quality of depression care and significant improvements in depression outcomes(effect sizes between 0.47 and 0.68),but no significant changes in self-care such as diet or checking blood glucose and no significant in HbA1c levels.

Aims and objectives

1. To assess psychiatric morbidity in patients with Diabetes Mellitus.
2. To assess health related quality of life in patients with Diabetes Mellitus.
3. To assess the relationship among socio demographic and health related quality of life in patients with Diabetes Mellitus

MATERIALS AND METHODS

Study Design : cross-sectional study.

Study centre: Mamatha Medical college, Khammam

Size of sample: 50 patients

Study Period: The study period was from April 2010 to April 2011.

Inclusion criteria

- 1) Male and female patients having Diabetes Mellitus
- 2) Patients who gave consent and cooperative
- 3) Age is between 15-60 Years

Exclusion criteria

1. Patients more than 60 years age were excluded to rule out the possibility of other organic involvement.
2. Patients having mental retardation, severe medical disorders and having delirium or amnesic syndrome

Diabetes mellitus patients were randomly selected, those who met inclusion criteria were explained about the study. Informed consent was obtained.

Institutional ethical committee was taken and study was conducted in Mamatha Medical college, which is attached to general hospital Khammam.

It is a tertiary care hospital. Intake proforma includes socio demographic details including age, sex, region, religion, marital status, type of family, education, duration of illness etc.,

Then clinical interview according to ICD 10 diagnosis, followed by world health organization-BREF quality of life scale. General health questionnaire (GHQ-12) was administered.

The following rating scales were applied

1. A face sheet consisting of socio-demographic details.
2. WHOQOL-BREF

WHOQOL-BREF was developed in 1998. It includes one question from each of the 24 facets relating to QOL, two items from the overall QOL and general health facets. It contains a total of 26 questions, produces scores for four domains 28 as in WHO QOL-100 assessment.

3. Global Health Questionnaire(GHQ-12) is a simple, brief scale. was used for screening subjects for psychiatric co morbidity and thereby obtained a uniform sample. To assess psychiatric morbidity and thereby obtained a uniform sample.

RESULTS

Table 1: Demographic details of the sample:

AGE	(in years)	NUMBER	PERCENT
Valid	20-30	3	6.0
	31-40	6	12.0
	41-50	12	24.0
	51-60	29	58.0
Sex :	FEMALE	20	40.0
	MALE	30	60.0
Marital status:	MARRIED	46	92.0
	DIVORCED	1	2.0
	WIDOW	3	6.0
Educational status:	LITERATE	23	46.0
	ILLITERATE	27	54.0

Table-1 Shows the socio-demographic description of the study sample (n=50) with mean age is = 46.24 with standard deviation of = 15.68.

There were 30 men and 20 women, our sample consisted of predominantly males (n=30, 60%) compared to females (n=20, 40%). In our sample majority of the patients were married 46(92%), 3(6%) patients lost their spouses and 1(2%) patient is a divorcee.

In the present study sample 27(54%) were illiterates and 23(46%) were literates. The total study sample 26(52%) were unemployed and 12 (24%) were employed.

Table 2: Duration of Diabetes studied in patients

Duration of Diabetes	Number of cases	Percent
1-5 yrs	33	66.0
6-10 yrs	13	26.0
11-15 yrs	2	4.0
16-20 yrs	1	2.0
21-25	1	2.0
Total	50	100.0

Table 2 shows that in our study sample majority of the patients 33(66%) have been diagnosed as having diabetes mellitus in last 1-5 years followed by 13(26%) in last 6-10 years 2(4%) in last 11-15 years, 1(2%) in last 16-20years and 1(2%) in last 21-25 years.

Table 3 : Association of age in years with Quality of Life score

QUALITY OF LIFE SCORE					
AGE (in years)	Physical		Psycho-logical	Social relation	Environ-mental
	MEAN	SD	MEAN SD	MEAN SD	MEAN SD
20-30YRS	52.38	8.24	51.38 9.62	36.11 20.97	61.45 09.02
31-40YRS	41.66	14.04	47.22 11.07	65.27 09.74	46.87 20.05
41-50 YRS	49.75	11.56	46.18 14.70	54.86 16.83	60.15 12.50
51-60 YRS	49.75	10.00	46.26 13.26	55.45 15.94	58.26 14.08
Total	50.33482	6.030277	28.18255 4.586043	52.73748 2.357784	52.43611 2.484011
P value	0.004		0.003	0.003	0.004

Table 3 Quality of life scores are better for 20-30 yrs age group in physical (mean=52.38) psychological (mean = 51.38) and environmental (mean 61.45) domains than other age groups.

31-40 years age group have high score (65.27) in the social relationship domain than other age groups (Table 3).

Table 4: Correlation of Quality of life with Duration of Diabetes

Quality of Life Mean +_ SD	1-5 years	6-10 years	P value
Physical	46.44661 ±11.20268	53.27381± 6.542698	0.001
Psychological	45.45455 ±13.11066	49.30556 ±12.54202	0.003
Social relationship	55.80808 ±15.68912	52.08333 ±17.45304	0.001
Environmental	55.20833 ±15.4568	60.41667 ±11.17504	0.005

Table 4 shows that patients diagnosed as diabetes mellitus from past 6-10 yrs have a better quality of life in physical, psychological and environmental domains than in patients diagnosed as diabetes mellitus from past 1-5yrs.

Scores in social relationship domain are almost equal in the both the groups.

Table 5 : Correlation of Quality of life with Gender

Quality of Life Mean +_ SD	Female	P value	Male	P value
Physical	45.71429 ±11.96351	0.001	51.09127 ±9.669053	0.002
Psychological	45.625 ±12.85853	0.003	47.36111 ±13.46751	0.001
Social relationship	61.25 ±12.76044	0.001	51.38889 ±17.65508	0.001
Environmental	56.09375 ±14.84829	0.001	58.5119 ±14.40354	0.005

Table 5 shows that males have better quality of life in physical, psychological and environmental domains than females, whereas females have better quality of life in social relationship domain than males.

Table 6 : Correlation of Quality of life with SES

Quality of Life Mean +_ SD	Lower	Middle	Upper	P value
Physical	45.06803 13.09678	51.95933 8.624889	50 5.050763	0.002
Psychological	44.44444 14.27248	49.13194 11.71955	39.58333 12.95469	0.006
Social relationship	51.5873 20.68599	59.375 9.92499	47.91667 21.9163	0.004
Environmental	51.6369 16.87555	62.59301 11.32219	54.6875 4.034358	0.001

Table 6 shows that majority of the patients 25(50%) were from middle socio economic class, 21(42%) were from lower socio economic class and only 4(8%) were from upper socio economic class.

Our study finds that patients belonging middle socioeconomic class have better quality of life in all the domains than patients of upper and lower socio economic classes (Table 6)

DISCUSSION

The aim of this study is to know the Quality of life of diabetes mellitus patients. With the advances in the treatment of chronic medical illnesses, the significance of quality of life has been gaining importance. Quality of life has been defined as the subjective satisfaction expressed or experienced by an individual in his physical, mental and social situations.

We divided psychiatric morbidity into four domains namely physical , psychological, social relationship and environmental. These studies have reported poor quality of life as age increases. Like the previous studies, we also

found that advanced age is a predictor of poor quality of life. Male patients were found better quality of life compared with female patients. People with nuclear family had good quality of life compared with patients with non-nuclear families.

Among psychiatric morbidity depression had the maximum significance with regards to poor quality of life compared to depression due to general medical condition or anxiety. Abnormal physical signs or other medical illnesses with an established role in the pathogenesis of psychiatric morbidity like diabetes were proved as significant with regard to quality of life (QOL) in this study.

These findings were preliminary and needs more studies before any definite conclusion can be drawn. Lack of comparable studies also makes these findings interesting and supports the case of further studies. We choose this area for our research because there is lack of sufficient studies in this area in our country. So we need more information in this area before any meaningful conclusion about the issues involved in it.

This was the starting point of our research. Instead of looking at either psychiatric morbidity or quality of life alone, we decided to assess both. We thought this is essential in view of the close link between these two factors. Standardized instruments with proven reliability and validity were used for assessments. To improve the quality of assessments, we took adequate precautions to avoid any possible interference due to delirium and other serious medical complications. All the variables on which data was collected were truly reflective of the problem and have got practical implications.

Demographic and clinical aspects

The age description of the study sample (n=50) with mean age of 46.24 and with standard deviation of 15.68. Age ranged from 25 to 60 years. There were 29 patients in 51-60 years age group, 12 patients in to 41-50 years age group, 6 patients in to 31-40 years age group, and 3 in 20-30 years age group. In our study more than half of the patients (58%) were in the age group of 50-60 years.

The sample consisted of predominantly males (n=30,60%) compared to females (n=20,40%). Males have a better quality of life in physical, psychological and environmental domains than females, whereas females have better quality of life in social relationship domain than males.

This finding of our study is consistent with the results of study conducted by Unden AL, et al 2008.^[24] We found that female sex of the patient and presence of diabetes mellitus was associated with psychiatric morbidity in a

significant manner. Diabetes is a known medical illness producing marked psychiatric morbidity especially affective disorders. So the finding was in accordance with current research evidence with regard to diabetes and psychiatric morbidity.

Majority of the patients were married 46 (92%), 3 (6%) patients lost their spouses And 1 (2%) patient is divorcee. In the present study sample 27 (54%) were illiterates and 23 (46%) were literates.

In the study sample, 42 (84%) were from nuclear families and 8 (16%) were from joint families. Majority of the patients, 25 (50%) were from middle socio economic class, 21 (42%) were from lower socio economic class and only 4 (8%) were from upper socio economic class.

Patients belonging to the middle socio economic class have better quality of life in all the domains than patients of upper and lower socio economic classes. Of the total study sample, 26(52%) were unemployed and 12(24%) were employed.

Quality of life scores are better for 20-30 years age group in physical (mean=52.38), psychological (mean=51.38) and environmental (mean=61.45) domains than other age groups. 31-40 years age group have a high score (mean=65.27) in the social relationship domain than other age groups.

Patients diagnosed as diabetes mellitus from past 6-10 years have a better quality of life in physical psychological environmental domains than in patients diagnosed as diabetes mellitus from past 1-5 years scores in social relationship domain are almost equal in the both the groups.

Psychiatric morbidity

Psychiatric morbidity was assessed using International Classification of Diseases (ICD) 10 criteria. Mild depressive episode without somatic syndrome was found in 6% (n=3) patients. Mild depressive episode with somatic syndrome in 14% (n=7) patients. Moderate depressive episode without somatic syndrome in 8% (n=4) patients.

Moderate depressive episode without psychotic symptoms in 18% (n=9) mixed anxiety and depressive disorder in 8% (n=4) generalized anxiety disorder in 10% (n=5) panic disorder in 2%(n=1) dysthymia in 4% (n=2) somatoform disorder in 8%(n=4) phobic anxiety disorders in 2% (n=1). But high proportion of patients who reported psychiatric symptoms in our study were either with depressive or anxiety.

Table 7 : Showing the psychiatric morbidity(ICD-10) in the sample

Psychiatric Morbidity	Frequency	%
Mild Depressive Episode	3	6
Mild Depressive Episode with Somatic symptoms	7	14
Moderate Depressive Episode	4	8
Moderate Depressive Episode with somatic symptoms	9	18
Severe Depressive Episode without Psychotic Symptoms	0	-
Severe Depressive Episode with Psychotic Symptoms	0	-
Generalized Anxiety Disorder	5	10
Panic Disorder	1	2
Mixed anxiety depressive disorder	4	8
Dysthymia	2	4
Phobic anxiety disorder	1	2
Somatoform disorder	4	8
Bipolar Affective Disorder	0	-
Schizophrenia	0	-

CONCLUSION

Most of the Diabetes mellitus patients having psychiatric symptoms, either depression or anxiety. Majority of patients had some impairment in all domains of quality of life.

Quality of life scores are better for 20-30 years age group in physical, psychological and environmental domains than other age groups. 31-40 years age group have a high score in the social relationship domain than other age groups.

Males have a better quality of life in physical, psychological and environmental domains than females have better quality of life in social relationship domain than males. Middle socioeconomic class have better quality of life in all the domains than patients of upper and lower socio economic classes.

Patients diagnosed as diabetes mellitus from past 6-10 years have a better quality of life in physical, psychological and environmental domains than in patients diagnosed as diabetes mellitus from past 1-5 years. Scores in social relationship domain are almost equal in the both groups.

Limitations of Our Study:

Size of sample is small, absence of longitudinal assessment & purposive sampling could yield Type II

errors. The results of this clinic based study cannot be generalized to community settings.

CONFLICT OF INTEREST :

The authors declared no conflict of interest

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