Quality of Life in Diabetes Mallitus patients: A Descriptive Analysis

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Abstract—*Diabetes is a disease which is on continuous increase specially in country like India. It involve is a multisystem so intend to affect quality of life of patients. So this study was conducted on 250 Diabetes Mellitus patients to observe their quality of life on various domains viz Physical, Mental, Social and environmental through WHOQOL-Bref questionnaire. It was found that 54.4% were unable to level their quality of life, they say neither good nor bad. But 23.2% were feeling bad and 22.4 % were feeling good about their quality of life. Whereas regarding patient's satisfaction about their health 39.2% were unable to level their quality of life and 35.6% were dissatisfied and 25.2 % were satisfied with their health. Significantly more cases were unable to understand about their quality of life than their satisfaction to their health. It was also found that Physical quality of life was affected most followed by environmental, psychological and social dimension of quality of life.*

Keywords— Diabetes Mellitus, Quality of Life, WHOQOL-Bref.

I. INTRODUCTION

Diabetes is a progressive disease with a complex hormonal background and multiple potential outcomes and therapeutic options. Diabetes and its management are increasing health problems with major morbidity and mortality burdens, both nationally and globally and consequent implications for social welfare and healthcare delivery and cost. Diabetes can lead to complications, the consequences of which can include blindness, kidney damage, and foot ulcers that can result in amputation.

People with diabetes often feel challenged by their disease and its day-to-day management demands. And these demands are substantial. Patients must deal with their diabetes all day, every day, making countless decisions in an often futile effort to approximate the non-diabetic metabolic state

A survey on national diabetes programs, reported in National Diabetes Programs, found that psychological and behavioral issues received less attention than other aspects of diabetes care. This section summarizes a review of studies of diabetes and depression, and shows the significance of depression in affecting both the quality of life of people with diabetes and how well diabetes is controlled.[1]

According to IDF more than 80% of expenditures for medical care for diabetes are made in the world's economically richest countries, not in the low and middle-income countries where over 70% of people with diabetes live.[2] In the world's poorest countries, not enough is spent to provide even the least expensive life-saving diabetes drugs.[3]

"India leads the world in the looming epidemic of diabetes", was told in the 20th annual World Diabetes Congress of International Diabetic Federation (IDF) [4]. WHO has also acknowledged that India has the maximum number of diabetic patients? India is thus the "Diabetic Capital of World". [2] According to Diabetes Atlas published by the International Diabetes Federation (IDF), there were 7.12% (of their adult populations) with diabetes in India in 2007.[3]

So this study was conducted to find out the quality of life of Diabetes Mellitus patients at various domains.

II. METHODOLOGY

This case series type of descriptive study was in year 2010 conducted on 250 Diabetic patients attending at endocrinology outdoor of Sawai Man Singh (SMS) Hospital, Jaipur (Rajasthan) India.

2.1 Sample Size

In India prevalence of Diabetes is recorded 7 % in 2007[3] but 12% in 2008[5] so for sample size calculation prevalence of diabetes is accepted 15%. Adequate sample size with 95% confidence limit and at allowable error is 5% assuming diabetes prevalence 15% was calculated 224 subjects. To make it rounded of sample size for study population was accepted **250** diabetes mellitus cases.

2.2 Study Population

Every confirmed case of Diabetes Mellitus having more than one year and aged between 16 to 64 years attending at endocrinology outdoor from 1st March 2010 was included in the study. Out of these selected cases patients who were either gestational or drug induced were excluded from study. Even seriously ill cases and cases that were not able to or willing to participate in study were also excluded from study.

2.3 Diagnostic Criteria

Diabetes mellitus is diagnosed as per diagnostic criteria issued by World Health Organization (WHO) recommendation i.e. either Fasting plasma glucose >126.0 mg/d or venous two hours plasma glucose >200mg/dl i.e. venous plasma 2 hrs after ingestion of 75 grams oral glucose.

2.4 Study Tools

A predesigned proforma is being used for the study. This **proforma** was divided into two parts:

Part I – This part is having introductory data of the patient with observations of detailed history and examinations. This part of proforma was filled by the investigator.

Part II – This part is "WHOQOL – BREF"[6] questionnaire.

Hindi version of the proforma was used for investigation. It was introduced to the patients and filled by them only. If the patient was not able to read or write *Hindi* with understanding his/her companion or investigator had filled the same in accordance of patient and in his/her presence.

Data collected were summaries and analyzed in percentage and proportions on MS Excel.

III. RESULTS

Study population for this study was in the age group of 18 year to 60 years with mean age 46.24 ±10.06 years with slight male preponderance. Majority were graduate followed by secondary & illiterates. (Table 1)

When it was discovered about occupation, majority were unemployed followed by professionals and likewise when socio-economic status of study participants was evaluated it was observed that majority were of Class II followed by Class III, Class I, Class IV and Class V. (Table 1).

Table No. 1
Socio-demographic Profile of Cases (N = 250)

Socio-demographic Variable	Cases	
	No.	Percentage
Age wise distribution of cases		
16-30 Years	87	34.8
31-45 Years	**140**	**56**
46-60 Years	23	9.2
Sex wise distribution of cases		
Female	108	43.2
Male	**142**	**56.8**
Education		
Illiterate	41	16.4
Up-to Primary	24	9.6
Middle	18	7.2
Secondary	41	16.4
Graduate	**101**	**40.4**
Postgraduate	25	10
Occupation		
Unemployment	**99**	**39.6**
Unskilled	29	11.6
Semiskilled	10	4
Skilled	17	6.8
Semiprofessional	26	10.4
Professional	60	24
Farmer	9	3.6
Socio-economic Status		
Class I	46	18.4
Class II	**115**	**46**
Class III	50	20
Class IV	37	14.8
Class V	2	0.8

Age range=18 years to 60 years

When patient's perception about their quality of life was asked, it was found that majority (i.e. 134 i.e. 54.4%) were unable to level their quality of life, they say neither good nor bad. But 23.2% were feeling bad and 22.4 % were good about their quality of life. (Figure 1).

Figure 1

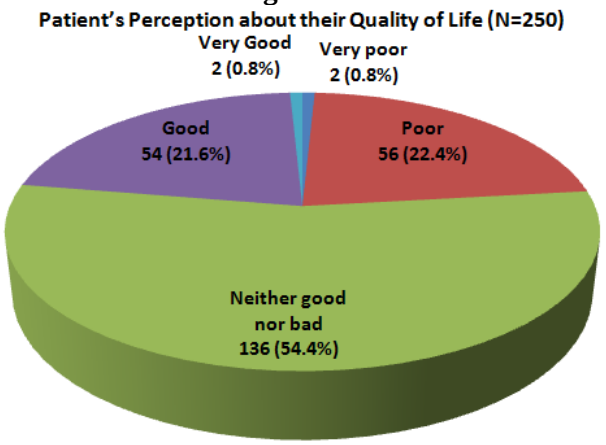
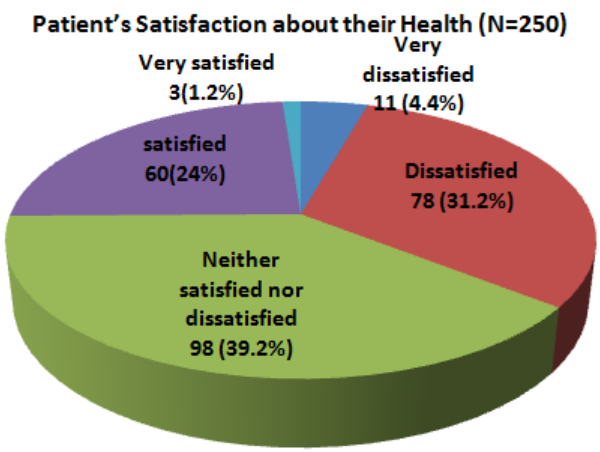


Figure 2



When patient's satisfaction about their health was asked, it was found that majority (98 i.e. 39.2%) were unable to level their quality of life, they say neither good nor bad. But 35.6% were dissatisfied and 25.2 % were satisfied with their health. (Figure 2)

When association between patient's perception about their quality of life and patient's satisfaction about their health was analyzed it was revealed that distribution of cases were not with similar feeling for quality of life and health (P<0.05). On further evaluation it was found that highest difference was observed in indifferent feeling of patients, where indifferent feeling was found significantly more (P<0.001) for perception of their quality of life than for satisfaction about their health. (Table 2)

Table No. 2
Comparison of Patient's Perception of their Quality of life and Health

Grading of Quality of life and their Health	Quality of life No. (%)	Health No. (%)	Level of Significance 'Z' Score Test
Very poor	2 (0.8)	11 (4.4)	Z=2.248, P=0.025 **S**
Poor	56 (22.4)	78 (31.2)	Z=2.12, P=0.034 **S**
Neither good nor bad	**136 (54.4)**	**98 (39.2)**	Z=3.316, P<.001 **HS**
Good	54 (21.6)	60 (24)	Z=0.533, P=0.594 **NS**
Very Good	2 (0.8)	3 (1.2)	Z=0, P= 1 **NS**
Grand total	250 (100)	250 (100)	

Chi-square = 16.529 with DF4, P=0.002, LS=S

When association between patient's quality of life and quality of life as per various domains, it was found that there was significant (P<0.05) variation as per various domains of quality of life derived from WHO-BREF questionnaire (Table 3).

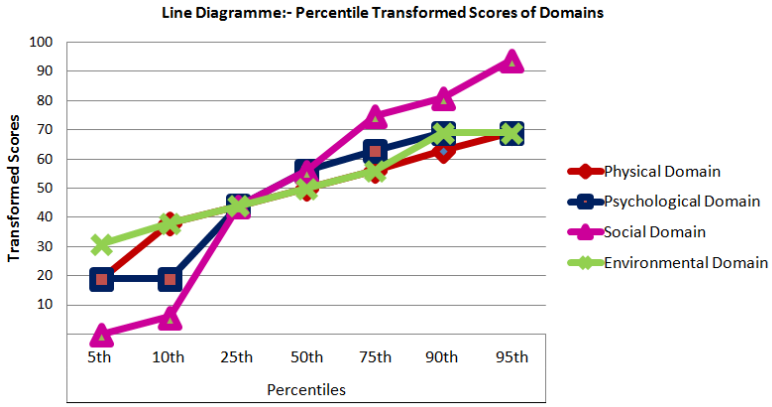
Table No. 3
Association of Quality of Life with Type of Domains

Quality of Life	Domains				Significance Level Chi-square at DF3 P Value, LS
	Physical	Psychological	Social	Environmental	
Poor QL (< 25 TS)	24 (9.6)	33 (13.2)	47 (18.8)	8 (3.2)	32.255, **P<0.001, HS**
Fair QL (25-75 TS)	223 (89.2)	217 (86.8)	155 (62)	239 (95.6)	117.737, **P<0.001, HS**
Good QL (> 75 TS)	3 (1.2)	0 (0)	48 (19.2)	3 (1.2)	110.641, **P<0.001, HS**
Grand Total	250 (100)	250 (100)	250 (100)	250 (100)	
Chi-square at DF2 **P Value, LS**	530.652 **P<0.0001 HS**	487.267 **P<0.0001 HS**	138.684 **P<0.001 HS**	654.492 **P<0.0001 HS**	

Chi-square = 162.240 with DF 6 P<0.0001 LS = HS

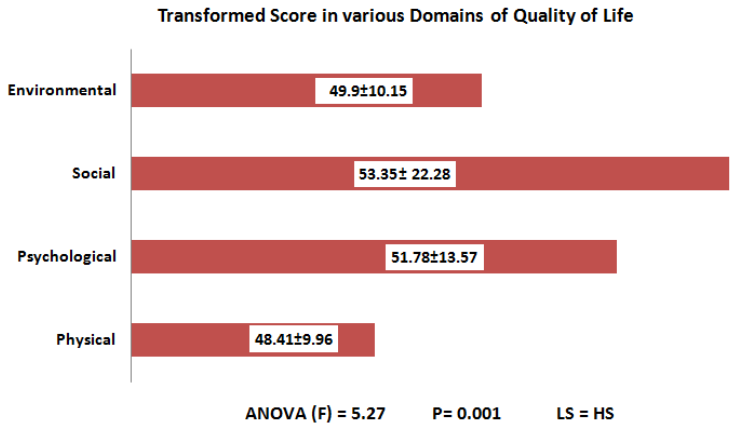
On further analysis minimum variation (31 as 5th percentile to 69 as 95th percentile) can be seen in environmental domain of quality of life where as maximum variation (0 as 5th percentile to 94 as 95th percentile) can be seen in social domain of quality of life. (Figure 3)

Figure 3



When mean scores of WHO-BREF of various domains were compared, it was found that minimum mean score (48.41±9.96 SD) was observed in physical domain and maximum mean score (53.35±22.275 SD) in social domain. This variation was found significant (P<0.001). (Figure 4)

Figure 4



ANOVA (F) = 5.27 P= 0.001 LS = HS

IV. DISCUSSION

In the present study, it was found that more than half of cases perceived their quality of life indifferent. But, in some other studies like a study conducted at endocrinology clinic of University of Ilorin Teaching Hospital of Nigeria, the overall perception of quality of life was fairly good.[7]

Valentine U. Odili et al found that the overall perception of health-related quality of life was lower in the diabetic patients.[8] A French study, which did not specify the type of diabetes or complications status of its subjects, found that those with diabetes had lower quality of life on most scales.[9] Scandinavian studies which included people with both types of diabetes found that these subjects reported lower well-being [10]and more illness-related absences from work, less satisfaction with their leisure time, and fewer social contacts. Redekop et al evaluated 1348 diabetic patients recruited by 29 general practitioners and collected data regarding HR quality of life. They found that patients without complications had slightly lower HRQL.[11] Goldney et al evaluated 3010 patients and found that quality of life was lower in diabetics.[12]

In this study, a large proportion felt either dissatisfied or very dissatisfied with their health i.e. 3 of 10. These results are comparable to a study conducted at endocrinology clinic of University of Ilorin Teaching Hospital of Nigeria, here for health satisfaction, approximately 3 of 10 patient rated poor, compared to 1of 10 and 3 of 5 who rated good and fair respectively.[7]

In contradiction to results in this study, a recent German study, which included people with both types of diabetes found that quality of life did not differ between those with and without diabetes, except when those with diabetes had complications.[13]

Thus, most of the above researches support the finding that diabetes affects the quality of life even when no complications are present. In this study the concept of overall quality of life was not clear to the study population. More research is needed to create awareness and understanding of the concept of overall quality of life.

During the present study patients were assessed about their quality of life as per the four domains using the WHOQOL-BREF tool, it was found that quality of life significantly varied with the type of domains viz. physical, psychological, social and environmental($P<0.001$). Among the domains, social domain had the maximum variation ($P<0.001$). So, it can be concluded that social domain including personal relationships, social support and sexual activity was maximally affected in the diabetics. Other researchers have supported these findings that; higher levels of social support were associated with higher overall quality of life in patients with Type 1 diabetes;[14] higher self-reported levels of self-efficacy and diabetes-related social support were associated with higher scores on the Finnish version of the SF-20 in a group of patients with Type 1 diabetes.[15] Also, higher levels of perceived social support were associated with higher levels of social functioning in diabetic patients;[16] and better social relations and fewer family arguments were associated with better health-related quality of life as assessed by the Duke Health Profile and the General Health Perceptions Questionnaire.[17,18] In another study, the social relationship domain had the lowest mean score in HRQoL of our patients. This domain assesses personal relationships, social support and sexual activity; of these three, the subjects were least satisfied with the sexual functioning component. Changes in sexual function is a common problem with aging, however, diabetes mellitus predisposes one to early onset and increased severity of these problems. This finding however differs from that of a previous study by Awadalla et al which reported no difference in

the score of patients with diabetes in relation to a general population on the social relationship domain. It is worthy of note that Awadalla's sample of patients with diabetes had a good level of social support in the sense that they had strong family care giver support system. It has been shown that the family is a major source of support and the stronger the family support the better the psychological adjustment of the patient to the disease.

Some have suggested that health-related quality of life in people with diabetes may be affected by psychosocial factors such as health beliefs, social support, coping strategies and personality traits. For example, Rose and colleagues, found that subjects who reported feeling more socially competent, who received more practical support for diabetes management, and who coped more actively, reported higher levels of functioning and well-being as well as higher levels of global life satisfaction.[13,19]

Many studies provide a good evidence that psychosocial issues are critical to good diabetes care.[20] Psychosocial factors often determine self-management behaviors, and psychosocial variables (such as depression) are often stronger predictors of medical outcomes such as hospitalization and mortality than are physiologic and metabolic measures (such as the presence of complications, BMI and HbA1c).[18]

V. CONCLUSION

It was concluded from this study that about one fourth were feeling bad and about the same proportion were feeling good about their quality of life. Likewise regarding patient's satisfaction about their health one third was dissatisfied and one fourth were satisfied with their health. It was also concluded that significantly more cases were unable to understand about their quality of life than their satisfaction to their health. It was also concluded that Physical quality of life was affected most in diabetic patients than the social, mental, environmental dimension. Least affected was environmental domain of quality of life.

CONFLICT

None declared till date.

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