Psychological well-Being of type 2 Diabetes men with and Without foot Complications

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ABSTRACT *The study aims to determine the psychological well-being and specific medical parameters in 30 type 2 diabetes men with foot complications and 30 type2 diabetes men without foot complications. Selection of sample included 60 men between age group 40 to 60 years. Inclusion criteria: subjects having diabetes mellitus with duration more than 1 year without other complications. The Assessment tool used was the Well-being Questionnaire by Bradley and Gamsu, 1994. Demographic data and medical parameters were recorded. Results indicated significant difference in Age, Post Prandial Blood Sugar and Waist-to-Hip-Ratio between the two groups. Men with foot complications showed significant positive correlation between age and depression, negative correlation between duration of diabetes and energy level. Men without foot complications showed significant negative correlation between HbA1C and General well being, positive correlation between age and positive well-being, positive correlation between level of anxiety and PPBS and negative correlation between age and energy level. As the level of education increased the incidence of foot complications was decreased. Highest percentage of foot complication was found among business men.50% of men with foot complications belonged to middle income group. The patients with foot complications were treated mostly with insulin whereas patients without foot complications were treated with oral hypoglycemic agents.*

INTRODUCTION

A healthy individual is not only physically healthy, but is also mentally health. WHO (1990) defines mental health as "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

Diagnosis of diabetes and the task of coping with the disorder and its complications have major effects on people's lives, affecting psychological as well as physical well being. The term "diabetes mellitus" describes a metabolic disorder of multiple etiologies characterized by chronic hyperglycemia with disturbances of carbohydrate, fat and protein metabolism resulting from defects in insulin secretion, insulin action, or both. The effects of diabetes mellitus include long–term damage, dysfunction and failure of various organs (WHO 1999).

Type 2 diabetes (T2B) usually develops in adulthood and is related to obesity, lack of physical activity, and unhealthy diets.

Diabetic foot disease, due to changes in blood vessels and nerves, often leads to ulceration and subsequent limb amputation. It is one of the most costly complications of diabetes, especially in communities with inadequate footwear. It results from both vascular and neurological disease processes. Regular inspection and good care of the foot can prevent amputations. Comprehensive foot programs can reduce amputation rates by 45-85%.

METHODOLOGY

Sample Selection

Selection of sample included 60 men between age group 40 to 60 years. Inclusion criteria included subjects having diabetes mellitus with duration more than 1 year without any other complications. Among the sample 30 men were suffering with foot complications and 30 men were without foot complications. Purposive sampling technique was used for data collection. Ex- post facto research design was used for the study.

The Assessment tool used was the Well-being Questionnaire by Bradley and Gamsu (1994). Demographic data and medical parameters were recorded in the performer attached to the questionnaire. About 2-3 subjects were interviewed each day till the sample size was obtained.

Hypotheses In the light of the research studies reviewed pertaining to the problem selected there are not much studies relating to well-being and type 2 diabetes men with and without foot complications. Hence null hypotheses were framed.

Hypothesis 1 There would be no significant difference in the level of general well-being between type 2 diabetes men with and without foot complications.

Hypothesis 2 There would be no significant difference in the level of depression between type 2 diabetes men with and without foot complications.

Hypothesis 3 There would be no significant difference in the level of anxiety between type 2 diabetes men with and without foot complications.

Hypothesis 4 There would be no significant difference in the level of energy between type 2 diabetes men with and without foot complications.

Hypothesis 5 There would be no significant difference in the level of positive well-being between type 2 diabetes men with and without foot complications.

The medical parameters like age, duration of diabetes mellitus, Post Prandial Blood Sugar(PPBS), glycosylated Hemoglobin (HbA1C), Body Mass Index(BMI) and Waist-to-Hip-Ratio(WHR) were included in the study to see whether

there is significant difference of these factors in type 2 diabetes men with and without foot complications.

Hypothesis 6 There would be no significant difference of age between type 2 diabetes men with and without foot complications.

Hypothesis 7 There would be no significant difference of duration of diabetes mellitus between

type 2 diabetes men with and without foot complications.

Hypothesis 8 There would be no significant difference of post prandial blood sugar (PPBS)

between type 2 diabetes men with and without foot complications.

Hypothesis 9 There would be no significant difference of glycosylated hemoglobin (HbA1C)

between type 2 diabetes men with and without foot complications.

Hypothesis 10 There would be no significant difference of

Body Mass Index(BMI) between type 2 diabetes men with and without foot complications.

Hypothesis 11 There would be no significant difference of Waist-to-hip Ratio(WHR) between type 2 diabetes men with and without foot complications.

Description of the Tool The Assessment tool Well being Questionnaire by Bradley and Gamsu (1994) was used. It includes four subscales: Depression (6 items), Anxiety (6 items), Energy (4 items) and positive well-being (6 items), total 22 items. Each item is scored on a 0 to 3 Likert Scale. Higher the score, higher the depression, Anxiety, energy, positive well-being or total general well-being.

Cronbach's alpha indicated that each subscales was internally reliable (alpha ranged from 0.70 to 0.88) and evidence to construct validity was provided by predicted associations with the variables collected at the time of the study. (Bradley and Gamsu, 1994).

Statistical Analysis The Mann Whitney U-Wilcoxn Rank sum of the W-test ,t-test, product moment correlation analysis and percentage profile were used.

RESULT AND DISCUSSION

Table 1 The mean, Standard deviation and Z-Value between the type 2 diabetes men with and without foot complications for Psychological well being

Psychological Well –being	Type 2 Diabetes Group	N	Mean	Mean Diff.	Std. Dev	df	Z-Value	Level of Significance
General Well- Being	men with foot complications	30	36.03	2.2	3.45	29		0.08 NS
	men without foot complications	30	38.23		4.78	29	1.73	
Depression	men with foot complications	30	7.27		1.64	29		
	men without foot complications	30	7.03	0.24	1.90	29	0.39	0.69 NS
Anxiety	men with foot complications	30	13.77		2.81	29		
	men without foot complications	30	12.13	1.64	3.56	29	1.79	0.07 NS
Energy	Men with foot complications	30	5.83		1.68	29		
	men without foot complications	30	5.77	0.05	2.07	29	3.08	0.91 NS
Positive Well- Being	men with foot complications	30	15.23		2.11	29		
	men without foot complications	30	15.63	0.18	2.18	29	0.74	0.46 NS

The mean, standard deviation and Z-values for level of general well-being and its factors depression, anxiety, energy and positive well being did not show any significant difference. Hence the null hypotheses 1 to 5 were accepted.

Table 2 The mean, Standard deviation and Z-Value between the type 2 diabetes men with and without foot complications for Medical Parameters

Medical Parameters	Type 2 Diabetes Group	N	Mean	Mean Diff.	Std. Dev	df	Z-Value	Level of Significance
Age	men with foot complications	30	54.2		0.99	29		*0.02 Sig
	men without foot complications	30	0.5	3.7	1.19	29	2.4	
Duration of Diabetes Mellitus	men with foot complications	30	13.8		1.42	29		
	men without foot complications	30	11.2	2.6	1.55	29	1.22	0.23 NS
Post prandial blood sugar (PPBS)	men with foot complications	30	274.6		15.39	29		
	men without foot complications	30	229.7	44.9	14.05	29	2.15	*0.03 Sig
Waist- to-Hip Ration (WHR)	men with foot complications	30	1.02		0.07	29		
	men without foot complications	30	0.97	0.05	0.06	29	3.08	*0.003 Sig
Body Mass Index (BMI)	men with foot complicationsmen without foot complications	30 30	25.20 25.38	0.18	0.71 0.53	2929	0.21	0.84 NS
Glycosylated Haemoglobin (HbA1C)	men with foot complications	30	9.43	0.71	2.16	29		
	men without foot complications	30	72		1.72	29	1.4	0.17 NS

The results of Duration of Diabetes Mellitus, BMI, HbA1C were in accordance with the hypothesis which states that there will be no significant difference between the two groups. Hence the hypotheses 7,9,10 were accepted. This result indicates there was no significant difference between groups with the above mentioned medical parameters. The results of AGE, PPBS and WHR were not in accordance with the hypothesis which states that there will be no significant difference between the two groups. Hence the hypotheses 6, 8, 11 were rejected. This result indicates there was significant difference between the two groups with the above mentioned parameters.

Table 3 Correlation Analysis between Psychological well-being and medical parameters for type 2 Diabetes men with foot complications

Correlation	Age	Dur-DM	PPBS	HbA1C	BMI	WHR
General well-being	r=-0.21 p=0.13	r=-0.19 p=0.14	r= 0.03 p=0.41	r=0.26 p=0.07	r=-0.01 p=0.47	r=-0.02 p=0.45
Depression	r=0.30 p=*0.05	r=-0.02 p=0.45	r=0.09 p=0.30	r=-0.16 p=0.18	r=-0.13 p=0.24	r=-0.15 p=0.21
Anxiety	r=-0.05 p=0.38	r=0.01 p=0.47	r=-0.23 p=0.10	r=-0.26 p=0.07	r=0.14 p=0.22	r=-0.01 p=0.47
Energy	r=-0.18 p=0.15	r=-0.34 p=*0.03	r=0.01 p=0.47	r=0.09 p=0.31	r=0.19 p=0.14	r=0.03 p=0.42
Positive Well-being	r=-0.03 p=0.42	r=-0.04 p=0.39	r=-0.18 p=0.16	r=-0.12 p=0.25	r=-0.09 p=0.30	r=-0.19 p=0.14

Dur-DM-Duration of Diabetes Mellitus   PPBS-Post Prandial Blood Sugar   HbA1C-Glycosylated Hemoglobin BMI-Body Mass Index   WHR- Waist-to-Hip Ratio

The significant results are discussed below:
Age and Depression
The correlation analysis results indicate that there was positive correlation between age and depression which indicates that as age increases depression also increases and vice versa at 0.05 level of significance. Numerous studies have also reported that the presence of depressive symptoms, with or without depressive disorder is associated with decreased functioning and poorer well-being in older adults.(Blazer 1989)

Duration of Diabetes Mellitus and Energy
The correlation analysis results indicate that there was negative correlation between duration of diabetes and energy which indicates that as duration of diabetes increases the level of energy decreases at 0.03 level of significance. As duration increase diabetes becomes severe and the consequent neuropathic pain becomes chronic. This makes the patient tired, less energetic and increasingly depressed and the depression leads to an intensification of pain. This leads to depression and low energy level. (Murphy1987)

Table 4 Correlation Analysis between well-being scale factors and medical parameters for type 2 Diabetes men without foot complications(n=30)

Correlation	Age	Dur-DM	PPBS	HbA1C	BMI	WHR
General well-being	r = -0.04 p=0.40	r=0.007 p=0.48	r=-0.19 p=0.15	r=-0.30 p=*0.05	r=-0.10 p=0.29	r=-0.16 p=0.18
Depression	r=0.07 p=0.35	r=0.08 p=0.32	r=0.05 p=0.38	r=0.26 p=0.07	r=-0.08 p=0.33	r=0.04 p=0.39
Anxiety	r=0.02 p=0.43	r=-0.10 p=0.29	r=0.33 p=*0.03	r=0.24 p=0.09	r=0.15 p=0.20	r=0.08 p=0.32
Energy	r=-0.30 p=*0.05	r=-0.20 p=0.14	r=-0.14 p=0.21	r=-0.09 p=0.31	r=-0.09 p=0.31	r=-0.18 p=0.16
Positive Well-being	r=0.29 p=*0.05	r=0.11 p=0.27	r=0.28 p=0.06	r=0.06 p=0.37	r=0.05 p=0.39	r=-0.003 p=0.49

Dur-DM-Duration of Diabetes Mellitus   PPBS-Post Prandial Blood Sugar   HbA1C-Glycosylated Hemoglobin BMI-Body Mass Index   WHR- Waist-to-Hip Ratio

The significant results are discussed as follows
General Well –Being and HbA1C: The correlation analysis results indicate that there was negative correlation between HbA1C and general well-being which suggests that as HbA1C increases general well –being decreases and vice versa at 0.05 level of significance. The results of Van Der Does(1996),study indicates that higher HbA1C levels were significantly associated with higher symptom scores, with worse mood and with worse general well-being.

Age and Positive Well-being: The correlation analysis results indicate that there was positive correlation between age and positive well-being which suggests that as age increases positive well –being increases and vice versa at 0.05 level of significance.

According to the Diabetologist Ramachandran(1994) the knowledge about the disease and its treatment, accepting the responsibility to care for the disease for a long time, acquiring skills and confidence to manage and organize according to life situations increases positive attitude towards life.

PPBS and Anxiety: The correlation analysis results indicate that there was significant positive correlation between level of anxiety and PPBS which indicates that as the PPBS increases the level of anxiety also increases and vice versa at 0.03 level of significance.

NIDDM patients are more prone to anxiety due to change required in life style, repeated blood tests, complication of diabetes, hospitalizations and their financial burden. Having been dependent on others because of diminished vision, foot problems or renal failure is what leads to anxiety, depression and decreased sense of well-being. Poorer well-being is associated with poor glucose control and inadequate treatment adherence (Van Der Does 1996)

Age and Energy level: The correlation analysis results indicate that there was negative correlation between age and energy which means that as age increases the level of energy decreases and vice versa at 0.05 level of significance. Diabetes, depression and low energy level are common health conditions among older adults.(Kenny 1995) They are recognized as having substantial negative effects on both physical and functional health(Markidas 1996)

Discussion of Demographic Data

Table 5 Compares the demographic data between the type 2 diabetes men with and without foot complications.

Educational Qualification	Men with foot complications n=30		Men without foot complication n=30	
	n	%	n	%
Illiterate	1	3.3	-	-
Elementary	17	55.7	3	10
Higher Secondary	4	13.3	11	36.7
Graduation	3	10	6	20
Graduation & above	5	16.7	10	33.3
Level of Occupation				
Professional	2	6.7	8	26.7
Skilled Worker	2	6.7	6	20
Office Jobs	8	26.7	7	23.3
Business	14	46.6	8	26.7
Others	4	13.3	1	3.3
Socio-Economic Status				
High Income (above 30,000)	13	43.3	23	76.7
Middle Income (15,000-30,000)	15	50	5	16.7
Low Income(Less than 15,000)	2	6.7	2	6.7
Religion				
Hindu	23	76.7	26	86.7
Christian	3	10	2	6.7
Muslim	4	13.3	2	6.7
Residential Area				
Urban	21	70	24	80
Rural	9	30	6	20

The table depicts that as the level of education increases the incidence of foot complication decreases. The highest percentage of foot complications was found among business men. The possible reason may be due to business tension they not able to concentrate on their health.

50% of men with foot complications belong to middle income group. The possible reason may be that they were not able to meet the cost involved in the prevention and treatment of diabetes. Hence the consequent uncontrolled diabetes may lead to complications. Incidence of diabetes and its complications were higher in Hindus than Christians and Muslims. The possible reason for foot complications may be they walk bare foot inside the house, temple and at times on road; hence the chance of foot injury may be greater. In urban area, the incidence of diabetes and its complications are higher than rural area. The possible reasons may be lack of exercise, work tension, dense population, pollution, irregular food habits, fast food and high fat diet.

Table6 compares the Medications between the type 2 diabetes men with and without foot complications.

Medication	Men with foot complications n=30		Men without foot complication n=30		Level of Significance
	n	%	N	%	
OralHypo-glycemic Agent(O.H.A)	4	13.3	20	66.7	*0.000025 SIG
O.H.A+ Insulin or Only Insulin	26	86.7	10	33.3	

The table indicates that the patients with foot complications are treated mostly with insulin whereas patients without complications use O.H.A (tablets) for treatment. To prove this significant difference chi-square test was done and the p-value was 0.000025 which shows that there is high significant difference in the treatment between the two groups. Many diabetologists confirm that in type 2 diabetes, a change from maximum dosage of tablets to insulin therapy often leads to marked improvement in well-being.(Ratzmann 1991)

CONCLUSION

Significant difference in Age, Post Prandial Blood Sugar, Waist-to-Hip-Ratio was present between the two groups. Among men with foot complications significant positive correlation was observed between age and depression. Negative correlation was observed between duration of diabetes and energy level. Among men without foot complications significant negative correlation was present between HbA1C and General well being, positive correlation was noted between age and positive well-being. Positive correlation between level of anxiety and PPBS was present. Negative correlation between age and energy level was observed. As the level of education increased the incidence of foot complications was decreased. Highest percentage of foot complication was found among business men.50% of men with foot complications belonged to middle income group. The incidence of diabetes and its complications was high among the Hindus. In urban areas, the incidence of diabetes and its complications was high. The patients with foot complications were treated mostly with insulin whereas patients without foot complications were treated with oral hypoglycemic agents. No significant difference was observed in psychological well being scale between the two groups.

Scope of the Research:

Based on the results following suggestions are give to cope with diabetes. Diabetes team have to improve communication with the person with diabetes to enrich their knowledge about the disorder. Care should be taken by the treatment team to protect patients' self-esteem. Psycho educational awareness needs to be provided to help patients learn about their own individual responsibility. Proper care is necessary to motivate self care. Organisations can also promote the well-being of their employees by enhancing their lifestyle through various wellness programmes thereby increasing employees health and promoting organizations production.

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