

GENDER DIFFERENCES IN LIVING WITH TYPE 2 DIABETES

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ABSTRACT

Type 2 diabetes is the major form of diabetes prevalent in our country. It demands medical, social, economic and behavioral adjustments. Woman and the girl-child have been shown to have poorer access to medical care. We have therefore evaluated the psychological adjustments in living with diabetes and compared the differences between men and women. Three questionnaires were administered to 226 type 2 diabetes persons: quality of life, well being and psychological adjustment to a diabetes scale. Living with diabetes (LVD) score was obtained by summing up the scores on all three scales. The first quartile on the score were taken as living ineffectively with diabetes (n:56) and those in the last quartile were taken as living effectively (n:55). Men scored higher on LVD scores. They reported higher positive well being, in contrast to women with low LVD who had more anxiety, social worry and decreased ability to cope with the disease. Women must therefore be advised to develop a more positive attitude towards the disease and its management.

KEY WORDS: Gender differences; Living with diabetes scale; Psychosocial adjustments.

INTRODUCTION

Diabetes mellitus is characterized by abnormalities in insulin production, action or both, and its prevalence in India varies from 2.7 percent to 4.1 percent of the population (3). Further, diabetes is more prevalent in males (2.3%), than in females (1.4%).

The major aims of treatment of diabetes are to (a) alleviate the symptoms due to diabetes, (b) secure the best blood glucose control (c) encourage self-reliance and self-care and (d) to prevent psychological complications and ensure optimum quality of life. Management of diabetes rests on the fact that it cannot be cured but can be controlled.

A perusal of the nature and treatment of diabetes underscores two important issues. One, diabetes is the most psychologically and behaviorally demanding chronic disorder. Second, diabetes cannot be cured, it can be controlled. Diabetic patients have to learn to live with the disease. Living with diabetes means coping with the regimen of dietary management, physical exercise and periodic testing. Patients following a diabetes regimen are faced with several unique psychological and behavioral challenges. The regimen involves many daily behavioral tasks as well as changes in basic life habits such as diet and exercise, all of which must be performed throughout life. Perhaps, most important from a psychological and behavioral perspective, the patients must adhere to the demanding requirements of diabetes management while knowing that the eventual onset of complications is almost inevitable. Thus, diabetes management calls for a change in the patient's habits and lifestyle.

It was only a decade ago that psychologists began to realize the potential contribution of their expertise to diabetes and its treatment (4). The last ten years have witnessed a significant increase in the number of research studies conducted in this area.

Studies have been conducted to examine the consequences of living with diabetes and have concentrated on correlates like quality of life, well-being and adjustment to the disease. The majority of studies examining the impact of diabetes on quality of life showed no significant influence of factors like age (5,6), duration of diabetes, education (7), and metabolic control (8) on the quality of life. On the other hand, adherence to regimen and complications has been found to have significant influences (9,10). The well-being of diabetic patients was significantly influenced by their ability to control blood sugar levels (11). Some of the other factors that also have an

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influence are gender and age (12). The majority of studies on psychological adjustment to diabetes have been conducted on children and adolescents. Factors like metabolic control and cohesiveness in the family significantly influenced adjustment to the disease (13,14). Age and gender were significant in adult diabetics (15).

Metabolic control (especially blood glucose levels), age and gender significantly affect their psychosocial responses to disease. Psychosocial problems may also occur secondary to negative diabetes related experiences including diagnosis, increased stress and onset of complications. Although significant problems do not occur in all diabetic patients, they occur in some. More work is needed in the area of identifying those patients having adjustment difficulties to diabetic-related challenges. We examine the correlates of living with diabetes.

MATERIALS AND METHODS

Sample. The study was conducted on a sample of 226 patients with diabetes (143 males and 83 females), visiting the diabetic clinics of a shipbuilding industry and the port of Visakhapatnam. The average age of the males was 49.1 years and 49.2 for females. The average duration of diabetes of the male subjects was 5.4 years and that of the female subjects was 6.3 years. The sample of males included those working in the technical and non-technical departments. The samples of females were predominantly non-working and they were housewives.

Scales. Three standardized questionnaires were used to assess the psycho-social correlates of living with diabetes. The questionnaires were Quality of Life Measure, Well-Being Scale (17) and the Psychological Adjustment to Diabetes Scale (18). The quality of life scale measured the patients' personal experience of diabetes care and treatment. It provided scores on four areas, namely satisfaction (with checkups and tests), impact (pain, illness and embarrassment), social and diabetes worry (regarding marriage, vocation and complications). A total quality of life score was estimated from a sum of these sub-scores. The well-being scale measured the depressed mood, anxiety and various aspects of positive well-being of the patients. The scale

provided scores on depression, anxiety, energy and positive well being. A total general well-being score was estimated from the sum of the sub-scale scores. The psychological adjustment to diabetes scale measures the extent to which the patients are able to adjust to diabetes and integrate it into their life style. The scale provided scores on diabetes stress, coping, guilt, alienation-cooperation, illness, conviction and tolerance for ambiguity.

High scores in each of the dimensions of the three scales indicated high levels of the same. However, the scoring was reversed for the depression and anxiety sub-scales. The internal consistency reliabilities of the three scales ranged from 0.798 to 0.824.

Metabolic risk factors were estimated in the form of fasting blood glucose and post prandial blood glucose levels and these estimates were obtained from the medical records being maintained by the diabetes clinics. Fasting blood glucose levels were grouped into (a) ≤ 120 mg/dl (low) (b) between 121 and 140 mg/dl (moderate) and (c) >140 mg/dl (high). Post prandial blood glucose levels were grouped into (a) ≤ 140 mg/dl (low) (b) between 141 and 160 mg/dl (moderate) and (c) > 160 mg/dl (high)

Analysis of Data. Data was analyzed to prepare profiles of patients living effectively and ineffectively with diabetes. The profiles were prepared by considering the first and last quartiles on the living with diabetes (LVD) score. This score was obtained by summing up the scores on total general well being, total quality of life and diabetes integration score. Patients scoring low on this total score ($n=56$) were considered as living ineffectively with diabetes; while those scoring high ($n=55$) were considered as living effectively with diabetes. Profiles were prepared on the biographical variables, metabolic risk factors and psychosocial correlates.

RESULTS

Profiles of patients living effectively and ineffectively with diabetes are presented in table 1. The two groups did not differ significantly on average age and average duration of diabetes. However, those who had better living with diabetes scores were younger and had been diabetic for a shorter duration.

Table 1: Profiles of Diabetic Patients Living

Ineffectively and Effectively with Diabetes

Variable		Group 1 (n=56)	Group 2 (n=55)	t-value
Biographical variables				
Age	Mean	51.9	48.5	1.99
	S.D.	9.5	8.2	
Duration of diabetes	Mean	6.7	5.2	1.74
	S.D.	5.1	4.4	
Metabolic risk factors [@]				
Fasting blood sugar	Low	13 (29.6)	13 (28.3)	
	Moderate	4 (9.1)	13 (28.3)	
	High	27 (61.4)	20 (43.5)	
Post prandial blood sugar	Low	6 (18.8)	3 (12.5)	
	Moderate	0	5 (20.8)	
	High	26 (81.3)	16 (66.7)	
Psycho-social correlates				
Well-being				
Depression	Mean	8.3	3.5	9.83 **
	S.D.	2.8	2.3	
Anxiety	Mean	8.8	2.9	11.52 **
	S.D.	3.0	2.4	
Energy	Mean	5.7	10.1	12.33 **
	S.D.	2.0	1.7	
Positive well-being	Mean	10.7	16.2	11.25 **
	S.D.	3.1	1.8	
Quality of life				
Satisfaction	Mean	56.7	65.7	7.16 **
	S.D.	7.7	4.5	
Impact	Mean	74.2	90.9	11.54 **
	S.D.	9.8	4.3	
Social worry	Mean	22.6	28.9	4.97 **
	S.D.	8.5	3.9	
Rating of health	Mean	2.3	1.9	2.65
	S.D.	0.9	0.8	
Psychological adjustment to diabetes				
Diabetes stress	Mean	28.6	38.8	11.57 **
	S.D.	4.0	5.1	
Coping	Mean	36.7	40.9	6.04 **
	S.D.	3.3	3.9	
Guilt	Mean	15.4	20.8	9.65 **
	S.D.	3.3	2.5	
Alienation-conviction	Mean	17.9	20.8	6.01 **
	S.D.	2.6	2.5	
Illness Conviction	Mean	21.8	22.2	0.81

Variable		Group 1 (n=56)	Group 2 (n=55)	t-value
Tolerance for ambiguity	S.D.	3.1	3.2	4.86 **
	Mean	13.0	15.2	
	S.D.	2.1	2.7	

Group 1 = Patients living ineffectively with diabetes; Group 2 = Patients living effectively with diabetes; @ = Metabolic risk factors were analyzed taking into consideration the data of patients for whom medical information was available; Figures in parentheses indicate percentage values; * = $p < .05$ ** = $p < .01$

Regarding the metabolic risk factors, it is observed that the percentage of diabetics with lower fasting blood glucose levels is more or less similar in both groups, but the percentage of diabetics with high fasting blood glucose levels is higher in the group living ineffectively with diabetes. With regard to post prandial blood glucose levels, it is observed that higher percentages of diabetics living effectively with diabetes have low or moderate levels of post prandial blood glucose levels. A significant percentage of diabetics living ineffectively with diabetes have high postprandial blood glucose levels. These findings indicate that metabolic risk factors influence the effectiveness with which a diabetic lives with the disorder. Better metabolic risk factor control is associated with more effective living with diabetes.

There were significant differences in the psychosocial correlates. Persons living effectively with the disease had significantly lesser depression and lesser anxiety. Further, they were more energetic and had a more positive well being. They were more satisfied with the management of diabetes which has a lesser impact on their life and consequently experienced lesser social worry.

Persons living effectively with diabetes experienced lesser stress due to the illness and manifested a better ability to cope with it. They adopted a more independent approach to manage their diabetes and could tolerate the ambiguities and anxiety associated with it.

Effective Living with Diabetes: Gender-Wise Comparison

Table 2 shows the results of gender-wise comparison of persons living effectively with diabetes. There were no significant differences between the males and females in their average age and duration of diabetes, though the males were slightly older and had been diabetic for a shorter period.

Table 2: Profiles of Male and Female Diabetic

Patients Living Effectively with Diabetes

Variable		Group 1 (n=34)	Group 2 (n=20)	t-value
Biographical variables				
Age	Mean	49.9	48.6	0.49
	S.D.	8.4	10.1	
Duration of diabetes	Mean	5.4	6.0	0.44
	S.D.	4.6	5.4	
Metabolic risk factors[@]				
Fasting blood sugar	Low	12 (30.0)	1 (16.7)	
	Moderate	12 (30.0)	1 (16.7)	
	High	16 (40.0)	4 (66.7)	
Post prandial blood sugar	Low	3 (13.6)	0	
	Moderate	5 (22.7)	0	
	High	14 (63.6)	2 (100.0)	
Psycho-social correlates				
Well-being				
Depression	Mean	3.2	4.0	1.32
	S.D.	2.3	2.1	
Anxiety	Mean	2.3	3.7	2.21
	S.D.	1.7	2.8	
Energy	Mean	10.1	9.0	2.26
	S.D.	1.7	1.8	
Positive well-being	Mean	16.7	14.9	3.48 **
	S.D.	1.7	2.0	
Quality of life				
Satisfaction	Mean	65.5	62.7	1.93
	S.D.	4.9	5.4	
Impact	Mean	91.5	89.6	1.51
	S.D.	3.9	5.2	
Social worry	Mean	29.3	27.3	1.73
	S.D.	4.5	3.0	

Variable		Group 1 (n=34)	Group 2 (n=20)	t-value
Rating of health	Mean	1.8	1.9	0.39
	S.D.	0.7	0.6	
Psychological adjustment to diabetes				
Diabetes stress	Mean	40.1	36.4	2.59
	S.D.	5.2	4.4	
Coping	Mean	41.3	39.5	1.57
	S.D.	3.7	4.4	
Guilt	Mean	21.4	20.4	1.42
	S.D.	2.4	2.5	
Alienation- conviction	Mean	21.8	19.8	2.76
	S.D.	2.4	2.5	
Illness conviction	Mean	22.3	22.3	0.01
	S.D.	3.4	3.0	
Tolerance for ambiguity	Mean	15.2	14.8	0.46
	S.D.	2.8	2.9	

Group 1 = Patients living ineffectively with diabetes; Group 2 = Patients living effectively with diabetes; @ = Metabolic risk factors were analyzed taking into consideration the data of patients for whom medical information was available; Figures in parentheses indicate percentage values; * = $p < .05$ ** = $p < .01$

With regard to the metabolic risk factors, it is observed that higher percentage of male diabetics had low or moderate levels of fasting blood glucose levels. Higher percentage of females had high fasting blood glucose levels. A similar trend is observed with regard to post prandial blood glucose levels. These findings indicate that the male diabetics living effectively with diabetes have better control of the metabolic risk factors.

With regard to the psycho-social correlates, males had significantly higher score on positive well-being.

Ineffective Living with Diabetes : Gender-Wise Comparison

Table 3 shows gender differences in persons living ineffectively with diabetes. There were no differences between the two groups on the biographical variables though the females were slightly older and had been diabetic longer. Higher percentage of female diabetics had high fasting blood glucose levels and post prandial glucose levels. These findings indicate that the female diabetics have lesser control over the metabolic risk factors.

Table 3: Profiles of Male and Female Diabetic Patients Living Ineffectively with Diabetes

Variable		Group 1 (n=36)	Group 2 (n=19)	t-value
Biographical variables				
Age	Mean	51.1	52.5	0.54
	S.D.	8.2	10.2	
Duration of diabetes	Mean	6.1	6.6	0.36
	S.D.	5.3	4.2	
Metabolic risk factors @				
Fasting blood sugar	Low	8	5	
		(42.1)	(20.0)	
	Moderate	2	2	
		(10.5)	(8.0)	
	High	9	18	
		(47.4)	(72.0)	
Post prandial blood sugar	Low	5	1	
		(29.4)	(6.7)	
	Moderate	0	0	
	High	12	14	
		(70.6)	(93.3)	
Psycho-social correlates				
Well-being				
Depression	Mean	8.1	8.7	0.84
	S.D.	2.0	3.9	
Anxiety	Mean	7.8	10.0	2.71 *
	S.D.	2.5	3.2	
Energy	Mean	6.2	5.4	1.40
	S.D.	2.16	1.8	
Positive well-being	Mean	11.3	9.8	1.65
	S.D.	3.1	2.7	
Quality of life				
Satisfaction	Mean	60.4	51.4	4.71 **
	S.D.	6.8	6.3	
Impact	Mean	75.5	71.6	1.42
	S.D.	8.6	10.95	
Social worry	Mean	24.6	19.1	2.57 *
	S.D.	7.8	6.5	
Rating of health	Mean	1.9	3.0	4.40 **
	S.D.	0.78	0.92	
Psychological adjustment to diabetes				
Diabetes stress	Mean	28.8	29.3	0.72
	S.D.	4.4	4.3	
Coping	Mean	38.1	35.6	2.39 *
	S.D.	3.7	3.2	
Guilt	Mean	14.9	16.2	1.42
	S.D.	3.1	3.0	
Alienation-conviction	Mean	16.9	19.2	3.09 *
	S.D.	2.4	2.6	

Variable		Group 1 (n=36)	Group 2 (n=19)	t-value
Illness conviction	Mean	21.1	22.9	1.98
	S.D.	3.3	2.7	
Tolerance for ambiguity	Mean	13.1	13.0	0.18
	S.D.	2.2	2.0	

Group 1 = Patients living ineffectively with diabetes; Group 2 = Patients living effectively with diabetes; @ = Metabolic risk factors were analyzed taking into consideration the data of patients for whom medical information was available; Figures in parentheses indicate percentage values; * = p<.05 ** = p<.01

With regard to the psychosocial correlates it is observed that the female diabetics had a slightly higher score on anxiety. Males were significantly more satisfied, had lesser social worry and also rated their health as being better. Males coped far better than females, while females tended to adopt an independent approach to diabetes.

Profiles of Diabetics Living Effectively and Ineffectively with Diabetes.

The results of the profiles indicate that more than age and duration of diabetes, it is the metabolic risk factors that seemed to determine the effectiveness of living with diabetes. Diabetics with low fasting and post prandial blood glucose levels live effectively with diabetes. Male diabetics are observed to be living more effectively with diabetes. Diabetics living effectively with diabetes report lesser depression and anxiety but more energy and better positive well-being. They are more satisfied with their management of the disease and experience lesser social worry. They experienced lesser stress due to the disease, had better coping abilities, could tolerate the ambiguities and anxieties associated with diabetes, and tended to adopt a more independent approach to manage their diabetes.

Male diabetics are observed to live more effectively with diabetes. They reported low to moderate levels of fasting and post prandial blood glucose levels. Males living effectively with diabetes had higher positive well-being scores. Females living ineffectively with diabetes reported more anxiety, more social worry and decreased ability to cope with diabetes.

Gender differences become crucial when one has to learn to live effectively with diabetes. Female diabetics need to develop a more positive attitude towards the disease and its management. This is crucial especially in those responsible for tasks such as cooking and caring for others, which may make it

difficult for them to follow their own diets, medication and eating schedules. They need to realize that the disease can be controlled and it is they themselves who have to do so, undoubtedly, with support from others such as their physicians and the family members. Women must therefore develop a more positive attitude towards the disease and its management.

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