Original Research Paper

Stress and Quality of Life among Diabetes Mellitus Patients

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ABSTRACT

Background: In particular, stress can have influence on glycemic control in different ways, especially in some "stress reactive" individuals (Riazi et al 2004). Diabetes itself is an important cause of stress in these patients .in fact ,this disease involves life style changes ,diet, frequent medical examinations, drugs, serious complications. *Objectives:* 1. To assess stress and quality of life among diabetic patients both male and female working in sedentary and non sedentary jobs. 2. To examine the difference if any between patients practicing exercise and non practicing exercises and both type1 and type 2 categories and there quality of life. *Sample:* The sample for the present study consists of 400 diabetic patients who attending for treatment in and around Tirupati, Kurnool city were selected for the present study. *Results:* the male and female patients found to be different in the experience of quality of life and no difference in the stress experience. The study also reveals that there are differences between patients of sedentary and non sedentary jobs with regard to their stress and no difference on their quality of life. The study further, shows that type 1 diabetic patients experiencing more stress and less quality of life then compare to type 2 diabetic patients, Study also indicates that there are differences between patients with exercises and without exercises with regard to their stress and no difference on their quality of life.

Keywords: *Level Of Stress, Quality Of Life, Diabetic Patients , Gender, Occupation, Exercise Pattern*

Stress is present in human's life at any time and its influence on human life is undoubtedly multi-dimensional. Stress triggers different physical and mental reactions in women and men with diabetes in which case comes to decrease quality of life and So in this paper we wanted to determine the impact of stress on quality of life of patients with diabetes. Diabetes is a disorder of glucose metabolism caused by a lack of the pancreatic hormone insulin, which results in the accumulation of sugar in the bloodstream (hyperglycemia) and the appearance of sugar in the urine. Symptoms include thirst, fatigue, weight loss, and excessive urination. The failure to metabolize glucose leads to the breakdown of fats in the body as an alternative source of energy; this process disturbs the acid-base balance in the body and results in the

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accumulation of ketones in the blood (ketosis) which, if untreated, can lead to convulsions, coma, and death. There are two main categories of the disease: Type 1,or insulin-dependent diabetes mellitus (IDDM) and Type 2, non-insulin-dependent diabetes mellitus (NIDDM). In Type 1 diabetes, which begins in childhood or adolescence, genetic factors and autoimmune processes damage the insulin-producing (beta) cells in the pancreas, so that patients depend on insulin injections for their survival. Type 2, also called 'mature onset diabetes', generally appears after the age of 40 and also has a hereditary component; Type 2 diabetics usually retain some beta cell function but show insulin resistance, often exacerbated by obesity. In the initial stages of the disease, Type 2 diabetes may be treatable with a combination of diet and exercise alone; in more severe or advanced cases, oral hypoglycemic and, eventually, insulin injections may be required. There is no evidence that stress causes diabetes. However, stress may sometimes unmask diabetes, by causing blood glucose levels to rise (Kahn and Weir, 1996). The body gears up to take action in response to stress. This preparation is called the fight-or flight response (ADA, 2007). Repeated stress may lead to failing rheostat phenomenon of hypothalamus leading to less efficient hormonal control through feed-back mechanisms (Dilman,1986). In people who have diabetes, the fight-or-flight response does not work well. Insulin is not always able to let the extra energy into the cells, so glucose piles up in the blood (ADA, 2007). Making things worse, many sources of stress are not short-term threats. For example, it can take many months to recover from surgery. Stress hormones that are designed to deal with short-term danger stay turned on for a long time. As a result, long-term stress can cause long-term high blood sugar levels. Many long-term sources of stress are mental.

In particular, stress can have an influence on glycemic control in different ways, especially in some "stress reactive" individuals (Riazi et al…2004*).* Diabetes itself is an important cause of stress in these patients. In fact, this disease involves life style changes, diet, frequent medical examinations, drugs, serious complications. All these components affect the quality of life of diabetics. Changes in lifestyle including stoppage of smocking, diet and learning to manage injections may all contribute in addition to the worry regarding chronic illness (Davis et al., 1999).

Quality of life (QOL) is a concept increasingly appreciated as an outcome variable in bio behavioral research. It is viewed as a multidimensional, dynamic concept related to but distinct from, well-being, health status, life satisfaction and hope (King Cr,, 1998). The expression health related quality of life (HRQOL), refers to quality of life associated with health conditions. HRQOL is the value assigned to duration of life as modified by the impairments, functional states, perceptions and social opportunities influenced by disease, injury, treatment or policy. (Shumaker S. Naughton M, 1995*)* QOL in diabetes is like a formalized way of talking about the personal side of diabetes, the felt burden of living with the illness (Polonsky W.2000). Different clinical features of diabetic patients and type of complications can be critical components of the global individual perception of quality of life. However, diabetes can compromise not only physical function (e.g. decreased energy, limitations and physical suffering) but also psychological status (e.g. depression and stress,

wellbeing) and social relationships *(*Von et al.. 2005) . All these components affect the QOL and the illness perception of diabetics. Certainly, stress, like other patients' psychological features and conditions , is a critical component of QOL but also personal socio-demographic components and gender, too, can interfere concurrently (Wandell E, 2000) and be closely associated with self-rated health (Jonnson. P etal. 2001). For this purpose, some components that can have an influence on QOL, associated and socio-demographic elements, are considered and related to stress.

METHODOLOGY

Design:

This study was a quantitative study .It employed a purposive sampling method. It was completed in the hospitals of Andhra Pradesh

Participants:

A total of 400 clients (200 males and 200 females) participated in this study. All of them are diabetic patients in that 100 male and 100 female with type 1 diabetes and 100 male and 100 female with type 2 diabetes. The samples are taken in the random selection from the Endocrine department and Diabetic clinics from selected hospitals.

Materials:

1. **Stress questionnaire**: This study was used to check stress questionnaire (Dr. Terry looker & Dr Olga Gregson., A book of stress wise,1994) was used to measure stress in diabetic clients, it consists of 25 questions and evaluation will be done on 4 levels (low, moderate, high and very high).

2. **Quality of life questionnaire scale**: The quality of life questionnaire scale was taken from the concise manual for the quality of life, 2nd edition and the questionnaire was constructed and standardized by Stamm, B. H.(2010) and published by the QOL.org. It contains 30 statements indicating 3 items (Compassion satisfaction, Burn out, Secondary traumatic stress), Based on responses marked by client there level of stress, and quality of life evaluated.

Procedure:

Data were collected by using Purposive sampling method. Both the questionnaire i.e check stress and quality of life were based self report questionnaires The reason for choosing this design is that the design enabled the researcher to generalize from sample to discover the stress, quality of life in diabetic patients. The written request has kept and permission granted to meet the patients attending various diabetic clinics and hospitals. Total of 1000 patients were attending the hospital and clinics out of them 400 patients responded positively, Hence the sample for the study is 400. SPSS software was used for the statistical analysis of the data.

RESULTS

Data was collected on stress and quality of life from the diabetic patients and subjected to an appropriate statistical techniques. The data was analyzed by using descriptive statistic and t-test. The results obtained are presented in the following tables.

Table 1 shows the mean, SD , SEM and 't' value for the scores on stress in male & female

	Gender	N	Mean	Std. Deviation	Std. Error Mean	't' value
level of stress	male	201	2.82	.511	.036	1.860 NS
	female	199	2.72	.481	.034	

Table 1 shows the mean, standard deviation, standard error of mean and t-value for scores on stress obtained by male and female diabetic patients. The test was conducted to observe any difference if existence between this two regarding stress. The table shows no significant difference between male and female members (Mean =2.82 and 2.72 respectively and t=1.860 non significant at 0.05 level)

Table 2 shows the mean, SD, SEM and 't' value for the scores on stress obtained by the employees with sedentary and non-sedentary job.

	type of occupation	N	Mean	Std. Deviation	Std. Error Mean	't' value
level of stress	**Sedentary**	250	2.69	.463	.029	4.127**
	non sedentary	150	2.90	.528	.043	

**significant at 0.01 level

Further table 2 shows mean, standard deviation ,standard error of mean and t-value for scores on stress obtained by sedentary and non sedentary employees the obtain t-value of 4.127 was found to be significant at 0.01 level between sedentary and non sedentary employees, it shows that non sedentary employees experiencing more stress (M=2.90 then compare to employees with sedentary job M=2.69).The study conducted by Aikens JE.1997 revealed that extremely non sedentary(heavy workers) may strengthen life stress-glycemia associations in NIDDM.

Table 3 shows the mean, SD, SEM and 't' value for the scores on stress with Type A & Type B Diabetes

	diabetes type	N	Mean	Std. Deviation	Std. Error Mean	't' value
level of stress	type 1	200	2.97	.400	.028	8.768**
	type 2	200	2.57	.506	.036	

**significant at 0.01 level

Further table 3 shows mean, standard deviation ,standard error of mean and t-value for scores on stress obtained by type 1 and type 2 diabetic patients the obtain t-value of 8.768 was

found to be significant at 0.01 level between type 1 and type 2 diabetic patients, it shows that type 1 diabetic patients experiencing more stress (M=2.97 then compare to type 2 diabetic patients M=2.57). The study conducted by Clin Chim Acta 2002 revealed that insulin dependent diabetic patients had more stress compare to non insulin dependent diabetic patients.

Table 4 shows the mean, SD , SEM and 't' value for the scores on stress Obtained by diabetic patients with exercises and with out exercises

Level of stress	N	Mean	Std. Deviation	Std. Error Mean	't' value
Exercises	237	2.70	.466	.030	3.203**
Without exercises	163	2.87	.527	.041	

**significant at 0.01 level

Further table 4 shows mean, standard deviation ,standard error of mean and t-value for scores on stress obtained by diabetic patients based on exercises pattern with or with out exercises the obtain t-value of 3.203 was found to be significant at 0.01 level between exercises pattern of diabetic patients, it shows that who are not doing exercises regularly has more stress (M=2.87 compare to who are doing exercises regularly M=2.70). The health Harvard.edu 2011 clearly explain that exercises will decreases stress directly.

Table 5 shows the mean, SD , SEM and 't' value for the scores on Quality of life in male & female

	Gender	N	Mean	Std. Deviation	Std. Error Mean	t-value
Type of Quality of life	**Male**	201	1.24	.427	.030	6.195**
	Female	199	1.04	.185	.013	

**significant at 0.01 level

Further table 5 shows mean, standard deviation ,standard error of mean and t-value for scores on quality of life obtained by male and female diabetic patients the obtain t-value of 6.195 was found to be significant at 0.01 level between male and female diabetic patients, it shows male diabetic patients experiencing good QOL (M=1.24 then compare to female diabetic patients M=1.04)

Table 6 shows the mean, SD, SEM and 't' value for the scores on Quality of life obtained by the employees with sedentary and non-sedentary job

	Type of occupation	N	Mean	Std. Deviation	Std. Error Mean	t-value
Type of Quality of life	sedentary	250	1.13	.335	.021	-.711NS
	Non-sedentary	150	1.15	.362	.030	

Table 6 shows the mean, standard deviation, standard error of mean and t-value for scores on quality of life obtained by sedentary and non sedentary employees. The test was conducted to observe any difference if existence between this two regarding quality of life. The table shows no significant difference between sedentary and non sedentary employees (Mean =1.13 and 1.15 respectively and t=-.711 non significant at 0.05 level)

Table 7 shows the mean, SD , SEM and 't' value for the scores on Quality of life with Type A & Type B Diabetes

	Type of Diabetes	N	Mean	Std. Deviation	Std. Error Mean	t-value
Type of Quality of life	Type 1	200	1.05	.218	.015	
	Type 2	200	1.22	.419	.030	-5.241**

**significant at 0.01 level

Further table 7 shows mean, standard deviation ,standard error of mean and t-value for scores on quality of life obtained by type 1 and type 2 diabetic patients the obtain t-value of 5.241 was found to be significant at 0.01 level between type 1 and type 2 diabetic patients, it shows that type 2 diabetic patients experiencing good QOL (M=1.22 then compare to type 1 diabetic patients M=1.05).

Table 8 shows the mean, SD , SEM and 't' value for the scores on Quality of life Obtained by diabetic patients with exercises and with out exercises

	Type of exercises	N	Mean	Std. Deviation	Std. Error Mean	t-value
Type of Quality of life	Exercises	237	1.15	.360	.023	
	No exercises	163	1.12	.322	.025	1.028 NS

Further table 8 shows the mean, standard deviation , standard error of mean and t-value for scores on quality of life obtained by diabetic patients based on exercise pattern(with exercises and without exercises). The test was conducted to observe any difference if existence between this two regarding quality of life. The table shows no significant difference between patients practicing exercises and without exercises (Mean =1.15 and 1.12 respectively and t= 1.028 non significant at 0.05 level).

CONCLUSION

It can be conclude that no gender differences were observed in the level of stress but male diabetic patients experiencing good quality of life then compare to female diabetic patients. The study also revealed that non sedentary employees experiencing more stress then compare to employees with sedentary job because of heavy work load but no difference in quality of life. The study further, shows that type 1 diabetic patients experiencing more stress and less quality of life then compare to type 2 diabetic patients and study also reveals that who practice exercises regularly has less stress but no difference in quality of life.

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