



Happiness and Stress Tolerance in Type 2 Diabetic Patients

Justine Joseph* & Joseph, M. I**

* Research Scholar, Department of Psychology, Sree Sankaracharya University of Sanskrit, Kalady, Kerala.

** Associate Professor, Department of Psychology, Sree Sankaracharya University of Sanskrit, Kalady, Kerala.

Abstract

Received: 20 May 2016
Revised: 26 May 2016
Accepted: 13 Jun 2016

Keywords:

Happiness, Stress Tolerance,
Type 2 Diabetes, Non-
diabetics

The present study investigates the happiness and stress tolerance of type 2 diabetes patients. This study specially focused on type 2 diabetic patients (N=60) aged between 30 – 60. Oxford Happiness Questionnaire and Stress Tolerance scale were administered to collect the relevant data. The collected data were analysed using 't' test, ANOVA, and Pearson Correlation Coefficient. The results indicated that there is significant difference between type 2 diabetic patients and non diabetics in the level of happiness. The stress tolerance level is not varied in diabetic and non diabetic person. Stress tolerance is high in male diabetic patients than female. Happiness is not varied among them. Both of them have more or less similar level of happiness. There is no significant relationship between stress tolerance and happiness among diabetic patients.

© 2016 Guru Journal of Behavioral and Social Sciences

Diabetes is one of the most devastating lifestyle diseases of chronic nature. Diabetes is a chronic disease. Chronic disease is defined as a long term (three to six months or longer) complex illness that can be controlled but not cured (Halloram, Miller, & Britt, 2004). Diabetes is a major health problem in the world and is a fast growing chronic disease of India. It widely influences the field of public health of developed and developing countries. According to diabetic Atlas (2012), there is an estimated 40 million persons with diabetes in India and is expected to rise to almost 70 million people by 2025. By 2030, countries with the largest number of diabetic patients will be India, China, and USA. It is estimated that every 5th person with diabetes will be an Indian. It means that the rate of diabetic patients increase day- by- day. According to the WHO estimate, India has the largest number of people with diabetes and the trend will continue in future (King, Aubert, & Herman, 1998).

Diabetes or diabetes mellitus is a chronic condition that occurs when the body cannot produce enough insulin or effectively use insulin. Insulin is a hormone produced by the pancreas that allows glucose from food to enter the body's cells where it is converted into energy needed by muscles and tissues to function. Type 2 diabetes is caused by insulin resistance or the inability of the body to use insulin properly. As a result, a person with diabetes does not absorb glucose properly, and glucose stays circulating in the blood (hyperglycemia) damaging tissues over time. This damage leads to life-threatening health complications (Diabetic Atlas, 2012). The complications of diabetes mellitus include retinopathy, nephropathy, and neuropathy (both peripheral and autonomic). The risk for atherosclerotic vascular disease is also increased in persons with diabetes mellitus (Hoogwerf, 2005). Normal thirst and dry mouth, frequent urination, extreme tiredness or lack of energy, constant hunger, sudden weight loss, slow-healing wounds, recurrent infections, and blurred vision, etc are the major symptoms of diabetes mellitus (Diabetic Atlas, 2012).

Reports from the world around indicate that the prevalence of type 2 or non insulin dependent diabetes mellitus varies widely from as low as below 1% to as high as above 30%. Moreover, the prevalence varies within the same population among people of different ethnic descent. Among people of the Indian origin, prevalence figures vary between Indians in India and Indians living abroad. All these suggest that while diabetes has a genetic basis, lifestyles

also play an important part in determining the expression of the disease (Ramankutty, Aleyamma, & Soman, 1999). A number of other studies have reported different prevalence rates of diabetes at different geographical areas ranging from 1.6% to 12.4% (Basavanagowdappa et al., 2005). The rate of diabetes is increasing due to sedentary lifestyles and unhealthy diet of people, which are common features of modern life in Kerala.

There are three types of diabetes, type 1, type 2, and gestational diabetes. Type-I or insulin dependent diabetes is an autoimmune disease where the immune system attacks and destroys cells in the pancreas that produce insulin. In type I diabetes, the persons has either completely stopped producing insulin or only produce a very small quantity of the hormone. Without insulin, the body's cells cannot utilize glucose and remains in a state of starvation, regardless of how much the person eats. The reason why this occurs is not fully understood. The disease can affect people of any age, but it usually occurs in children or young adults. People with this form of diabetes need injection of insulin every day in order to control the level of glucose in their blood. Without insulin, people with type 1 diabetes will die. Type 1 diabetes, formerly called 'juvenile diabetes' constitutes around ten percentage of all diabetes.

Type 2 or non insulin dependent diabetes tends to develop gradually in later life. It is also known as maturity or adult onset diabetes. This type of diabetes accounts for 90 percent of all people with diabetes. Many people with type 2 diabetes have none of the usual symptoms and therefore remain oblivious to the problem for years. Type 2 diabetes is the most common type of diabetes. It usually occurs in adults, but is now increasingly seen in children and adolescents. In type 2 diabetes, the body is able to produce insulin but it is either not sufficient or the body is not responding to its effects, leading to a build-up of glucose in the blood.

Gestational diabetes develops in some women during pregnancy and then disappears after delivery. There is a connection between gestational diabetes and the onset of type 2 in later life. Pregnancy raises a woman's chances of developing diabetes by 16 percent after she turns 40. Thirty to forty percent of women who experience gestational diabetes may develop type 2 diabetes within five to ten years. Gestational diabetes shows up in the last half of the pregnancy from the 24th week onward. During pregnancy, the body must produce an increasing supply of insulin that enables glucose to move from the bloodstream into the cells.

Stress tolerance and happiness may be affected the diabetic patients in many ways. The relationship between stress and diabetes is complex. But widely considered causal factor is, high level glucose released while the time of stress. Continuous presence of high level glucose leads to diabetes. Stress may have negative effects on health and that patients with type 2 diabetes may be at increased risk. The experience of stress is related with the release of counter regulatory hormones and energy mobilization, often resulting in elevated glucose levels (Surwit, & Schneider, 1993). In addition, stress can disrupt diabetes control indirectly through effects on diet, exercise, and other self-care behaviors. Several studies have demonstrated a relationship of stress to glycemic control in samples of patients with type 2 diabetes (Inui, et al., 1998). Stress can be managed through the use of behavioral stress management programs or through the administration of anxiolytic medications. Both types of interventions have been reported to improve glycemic control in patients with type 2 diabetes (Lane, Mc Caskill, Ross, Feinglos, & Surwit, 1993).

Beyond the types of diabetes, this condition makes various adverse impacts in normal life. Both children and adults face psychological distress on discovering that they have diabetes. They require a lot of support from the family as well as health care providers (Dharmalingam, 2005). Diabetes is a psychologically and behaviorally demanding disease; therefore, psychosocial factors are relevant to nearly all aspects of its management. The psychosocial impact of diabetes has been recognized as a stronger predictor of mortality in diabetic patients than many clinical and physiological variables (Kawakami, Takatsuka, Shimizu, & Ishibashi,

2005). A large number of people in India are living, working and coping with this illness in their daily life. Diabetes is one of the most common lifestyle diseases in our country along with cancer, and cardiovascular diseases. Chronic illnesses lead to various problems in careers, marriages, and loss of self-esteem and personal worth. Anxiety, depression, hopelessness, loneliness, and fear can become full time engagement for such persons. These emotions have significant effect on the body and its capacity to cope with illness and to heal. The drastic mood swings become part of life (Dubey, 2012). Diabetic patients' level of happiness may be impaired due to diabetes and it may produce stress in various areas of their daily life. It will be fruitful to make a study on happiness level and stress tolerance capacity of diabetic patients, since it may suggest means for improving those.

Objectives

1. To find out whether there are significant differences in happiness and stress tolerance between diabetic and non-diabetic persons.
2. To find out whether there are significant differences in happiness and stress tolerance among different groups of diabetic patients categorized on the basis of relevant socio-demographic variables like gender, age, and occupation.
3. To find out whether there is significant relationship between happiness and stress tolerance in diabetic patients.

Hypotheses

1. There will be significant differences in happiness and stress tolerance between diabetic and non-diabetic persons.
2. There will be significant differences in happiness and stress tolerance among different groups of diabetic patients categorized on the basis of relevant socio-demographic variables like gender, age, and occupation.
3. There will be significant relationship between happiness and stress tolerance in diabetic patients

Method

Participants

The study made use of two participants groups, viz a clinical participants, comprising of 60 diabetic patients and a matched group (matched with respect to age, sex, and occupation) of 60 non-diabetic persons, who reported that they do not suffer from any other illness. The age of the participants ranged from 30 to 60 years.

Instruments

1. Oxford Happiness Questionnaire: The Oxford Happiness Questionnaire developed by Hills and Argyle (2002) at Oxford University, was designed to help one see how happy he/she is. This is one of the best proactive mental health tools available. The questionnaire consists of 29 items provided with a six point response category from strongly agree to strongly disagree, a high score indicating more happiness. The questionnaire demonstrated high reliabilities, and the inter-item correlations ranged from .03 to .58.
2. Stress Tolerance scale: The Stress Tolerance Scale was constructed by Resmi and Sanandaraj (1999) at Kerala University. The scale consists of 24 items from different aspects related to stress tolerance, provided with a five point response category from strongly agree to strongly disagree. It consists of equal number of negative and positive items and a high score indicating more stress tolerance. The split half reliability is 0.82 and criterion related validity is 0.72.

Procedure

The patient participants were selected from different diabetic clinics in Idukki district, Kerala. The matched comparison group was also selected from the same district using purposive sampling. The participants were met individually and administered the tools. The collected data were analysed using appropriate statistical techniques like 't' test, one way ANOVA and Pearson's correlation coefficient.

Results and Discussion

To test the first hypothesis, the will be significant differences in happiness and stress tolerance between diabetic and non-diabetic persons, comparison of mean scores in stress tolerance and happiness of diabetic and non-diabetic people were compared using 't' test and the results are presented in table 1.

Table 1

Mean, Sd and 't' values of Happiness and Stress tolerance by diabetic and non-diabetic

Variables	Mean of Diabetic Patients (N=60)	SD	Mean of Non-diabetics (N=60)	SD	t value
Happiness	109.31	11.07	123.89	18.930	5.139**
Stress tolerance	92.27	7.51	94.81	12.895	1.313

**p< .01

The results given in table 1 shows that there is significant difference between the diabetic patients and the comparison group in their reported levels of happiness as hypothesized, the diabetic patients have significantly lower levels of happiness than the non diabetic persons. Who have reported that they are not suffering from illness of any sort. It is certain that diabetes has adversely affected the happiness level of the patients. The present findings are supported by previous findings in this regard, especially with respect to diabetics and depression. For example, Lustman , Griffith , Freedland , Kissel , and Clouse, (1998) have reported that depression is more common among diabetic patients, and at least 15 percent of diabetic patients have clinical depression.

In the core of the stress tolerance, the difference between the diabetic patients and the non diabetic persons is not significant. Though the non diabetic persons have obtained a slightly highest score than the diabetic patients, the difference is not significant. This lack of significant difference between two groups suggests that diabetes do not adversely affect stress tolerance level.

To examine the possible sex differences in happiness and stress tolerance among the diabetic patients, the mean scores in there variables obtained by males and females were computed and tested for significant difference using the 't' test.

Table 2

Mean, Sd, and 't' value of happiness and stress tolerance by Sex

Variables	Mean (Males)	S D	Mean (Female)	S D	't' value
Happiness	109.70	11.176	104.10	13.95	1.39
Stress tolerance	94.60	5.292	81.20	6.94	6.93**

**p< .01

The results presented in the table show that there is no significant sex difference in happiness among the diabetic patients. Since the impact of this disease is more or less the same for both the males and the females, it may not differently affect the happiness levels of males and females. The results with respect to stress tolerance show that there exist significant sex difference ($t=6.93$, $p < .01$). The mean score obtained by the male diabetic patients in stress tolerance is significantly higher than that of their female counterparts. In a male dominated society men have more exposure and opportunities than the females. It is men who shoulder responsibilities both at home and at job and these may equip them with increased stress tolerance capacities.

To examine whether there are significant differences in happiness and stress tolerance among diabetic patients belonging to the different age groups, the clinical sample was divided into three groups viz; below 40 years; 40 to 50 years; above 50 years, and the scores obtained by these groups in happiness and stress tolerance were tested for significant difference using one-way ANOVA and the results are presented in table 3.

Table 3

Summary of one-way ANOVA of Happiness and Stress tolerance by Age

Variables	Source of Variance	Sum of squares	df	Mean Square	F Value
Happiness	Between groups	550.552	2	275.276	2.07
	Within groups	7582.182	57	133.021	
	Total	8132.733	59		
Stress tolerance	Between groups	1209.846	2	604.924	16.48**
	Within groups	2092.088	57	36.703	
	Total	3301.933	59		

** $p < .01$

The results presented in table 3 show that the F value obtained for happiness is not significant, while the stress tolerance is significant at the .01 level. Those results indicate that happiness among diabetic patients do not differ with respect to age. However, there are significant differences among the different age groups in stress tolerance. In order to find out which age group of the diabetic patients from each other in stress tolerance, multiple comparisons of the mean scores were made using Scheffe's test.

Table 4

Results of Scheffe's test with respect to age and stress tolerance

Age Groups	N	Subset for alpha =0.05	
		1	2
Above 50	7	80.29	
Below 40	33		93.18
40 - 50	20		95.25

The results of the post hoc test revealed that the highest mean score in stress tolerance was obtained by the diabetic patients belonging to the 40 to 50 years age group, followed by below 40 years age group, and the least mean score was obtained by the diabetic patients belongs to the above 50 years age group. Of these differences, the latter group and the other two younger age groups are significant. However, the difference between the two younger age groups is not significant. These results suggest that in the case of diabetic patients, their stress tolerance capacity decreases after they cross the age of 50 years.

There were three types of occupational groups and to know whether occupation of respondents have any role in determining happiness and stress tolerance, one-way ANOVA was carried out and the results are presented in table 5.

Table 5

Summary of one-way ANOVA of happiness and stress tolerance by Occupation

Variables	Source of Variance	Sum of squares	d f	Mean Square	F value
Happiness	Between groups	79.816	3	26.605	0.91
	Within groups	8052.917	56	143.802	
	Total	8132.733	59		
Stress tolerance	Between groups	37.356	3	12.452	0.88
	Within groups	3264.577	56	58.296	
	Total	3301.933	59		

The results of the one-way ANOVA in happiness and stress tolerance with respect to occupation showed that there are no significant differences among the occupational groups (business, teaching, driving) either in happiness or in stress tolerance. That is, beyond the occupational differences, there characteristics of diabetic patients are more or less similar.

In order to find out whether there is significant correlation between happiness or stress tolerance among diabetic patients, the correlation between them was computed. The obtained correlation ($r=0.09$) indicates that there is no significant correlation between happiness and stress tolerance in diabetic patients. Though high stress tolerance may enable persons to cope better with stress, it may not be contributing to their happiness, at least in the case of diabetic patients.

Conclusion

Diabetes mellitus is chronic disease adversely affecting the lives of many people all over the world. Since it affects all aspects of life, it warrants research attention not only from the medical field, but also from social sciences. The findings of the present study reveals that diabetic patients long behind in happiness, and that there occurs a decline in stress tolerance among older diabetic patients and point towards the need for psychological intervention. The fact that life styles also contribute to its occurrence to a large extent highlights the need for training in adopting a healthy life style to prevent the disease as well as to cope with the emotional problems faced by the diabetic patients.

References

- O'Halloran, J., Miller, G. C., & Britt, H. (2004). Defining chronic conditions for primary care with ICPC-2. 21(4):381-6.
- The International Diabetes Federation, (2012). Diabetic Atlas, Belgium
- King, H., Aubert, R. E., & Herman, W. H. (1998). Diabetic care; Global burden of diabetes, 1995-2025: prevalence, numerical estimates, and projections. 21 (9):1414-31.
- Hoogwerf, B. J. (2005). *Diabetes in Developed Countries, vol. 25, Diabetes Mellitus and Coronary Heart Disease Risk: Focus on Dyslipidemia.* pp 35-41.
- Ramankutty, V., Aleyamma, & Soman, C. R. (1999). *Ethnicity and Health 4(4), Prevalance of Type 2 Diabetes in Urban settlement in Kerala, 231-239*
- Basavanagowdappa, H., Prabhakar, A. K., Prasannaraj, P., Gurudev, K. C., Virupaksha., & Suma, (2005). *Diabetes in Developed Countries, vol. 25, study of prevalence of diabetes mellitus and impaired fasting glucose in a rural population,* pp 98-101.



- Mala, D, (2005). *Diabetes in Developed Countries, vol. 25, Psychological Distress and Diabetes: Clinical and Metabolic Connections*, 92- 97.
- Kawakami, N., Takatsuka, N., Shimizu., & Ishibashi, H. (2005). *Recent advances in Understanding Depression in Adults with Diabetes*,
- Reshmy, C. S., & Sanandaraj, H. (1998). Stress tolerance scale, University of Kerala, Department of Psychology.
- Hills, P., & Argyle, M. (2002). The Oxford Happiness Questionnaire : a compact scale for the measurement of psychological well-being. *Personality and Individual differences*, 33, 1073 – 1082.
- Lustman, P. J., Griffith, L., Freedland. K., Kissel S., & Clouse, R. (1998). Cognitive behavior therapy for depression in type 2 diabetes: a randomized controlled trial. *Ann Intern Med*; 129: 613–21.
- Dubey, A. (2012). *Psychological Perspectives on Chronic Illnesses*, New Delhi, Concept Publishing Company Pvt. Limited.
- Surwit, R. S., & Schneider, M. S. (1993). Role of stress in the etiology and treatment of diabetes mellitus. *Psychosom Med* 55:380–393.
- Inui, A., Kitaoka, H., Majima, M., Majima, M., Takamiya, S., Uemoto, M., ... Taniguchi, H., (1998). Effect of the Kobe earthquake on stress and glycemic control in patients with diabetes mellitus. *Arch Intern Med* 158: 274–288.
- Lane, J. D., Mc Caskill, C. C., Ross, S. L., Feinglos, M. N., & Surwit, R., (1993). Relaxation training for NIDDM: predicting who may benefit. *Diabetes Care* 16:1087–1094.

Paper presented at National Conference on Enhancing Psychological Well-being, 2014. organized by Dept. of Psychology, Bharathiyar University, Coimbatore. Tamil Nadu