PSYCHOLOGICAL DISTRESS AND DISEASE: LEVEL OF STRESS IN VICTIMS OF TYPE 2 DIABETES MELLITUS

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ABSTRACT

Objective: To measure the level of stress and its relationship and comparison with demographic variables among Type 2 diabetes mellitus patients.

Methodology: This was a cross sectional comparative study conducted during April 2016 to July 2016 in Faisalabad. A sample of 120 diagnosed type 2 diabetes mellitus (T2DM) patients between aged 20 to 50 years, mean age 34.57 ± 8.36 were selected through random sampling techniques from different public hospitals of Faisalabad. A self-report measure perceived stress scale 10 items (PSS-10) Urdu was used to measure the level of stress among T2DM Patients. Statistical analysis was run through SPSS version 21.

Results: A significant positive relationship observed between gender and stress at $p < 0.05$, and significant negative relationship between age and stress $p < 0.01$. Significant gender difference observed at $p < 0.05$ and significant age differences at $p < 0.01$ among T2DM patients.

Conclusion: Stress is negatively linked with increasing age and positively linked with gender. Men and adults experience low level of stress as compared to women and early adults with T2DM.

Key Words: Type 2 diabetes mellitus, Stress, Gender difference, Adult

INTRODUCTION

The figure of populace with diabetes has ascended from 108 to 422 million during 1980 to 2014. Worldwide prevalence of diabetes amongst adults above 18 years of age has climbed beginning 4.7% to 8.5% in 1980 to 2014 and its occurrence swiftly mounting in developing and under developed countries[1]. Diabetes mellitus is a disease of the pancreas, an organ behind the stomach that produces the hormone insulin that helps the body use food for energy. In type 1 diabetes mellitus, the pancreas makes little or no insulin, so sugar cannot get into the body's cells for use as energy formerly recognized as insulin-dependent, adolescent or childhood onset. In T2DM, the pancreas makes insulin, but it either doesn't produce enough insulin or the insulin does not work properly, in earlier times identified as non-insulin reliant or mature onset[2]. In Pakistan during 2015, approximately 86,364 adults died due to diabetes and 2,927 cases of diabetes in adults remained undiagnosed as reported by International Diabetes Federation Middle East and North Africa[3].

WHO ventures that diabetes will be the 7th most important cause of fatality in 2030[4]. On the other side, stress is a progression in which ecological hassle sprain an organism's adaptive competence follow-on in co-operation psychosomatic burden as well as biological alteration that could rest at jeopardy for poor health[5]. Stress is negative or harmful when it surpasses one's capability to manage, fatigues body systems and grounds behavioral or corporeal troubles, it is called distress[6]. Adults with diabetes are more likely to experience psychological distress than adults without diabetes[7]. Main objective of current study was to measure the level of stress and its relationship and comparison with demographic variables among T2DM patients.

METHODOLOGY

This was a cross sectional comparative study conducted during April 2016 to July 2016 in Faisalabad. A sample of 120 diagnosed T2DM patients with mean age 34.57 ± 8.36 were selected through purposive sampling techniques from in door and outdoors of different public hospitals of Faisalabad. Post hoc power analysis for an independent sample t-test was conducted in G-POWER to determine a sufficient sample size using an alpha of 0.05, a power of 0.80, a large effect size (d = 0.8), and two tail[8]. The allocation of participants was 64 into first group and 56 in second group. Based on the aforementioned assumptions, the desired sample size

was 120 having statistical power of 0.99.

Inclusion criteria for study sample was the men and women between age 20 years to 50 years who have been using medicines for type 2 diabetes mellitus from last three years' minimum.

A self-report measure perceived stress scale 10 items (PSS-10) Urdu (translated by Mariam et al[9]) was used to measure the level of stress among T2DM Patients. Consent was obtained from participants and briefed about the study purpose. They were directed to rate the statements on 5-point scale "not at all=0" and "frequently=4".

Four items are positively stated and negatively scored which include item number 4, 5, 7, and 8. Maximum score on PSS-10 can be 40 and minimum can be zero; a high score indicates a high level of stress and low score indicates a low level of stress. Statistical analysis was run through SPSS version 21.

RESULTS

Internal consistency of PSS-10 is Cronbach's alpha 0.77 which indicates a high reliability of this scale. Frequencies and percentage of demographic characteristics of study sample are organized in table 1. Level of stress among T2DM was higher than the normal population. furthermore, the relationship involving all study variables measured with 95% and 99% confidence interval indicated a significant positive relationship between gender and stress and significant negative relationship between age and stress observed through bivariate correlation in SPSS and indexed in table 2. Independent sample t-test indicated significant gender difference with 95% confidence interval depicted that women with T2DM have high level of stress as compared to men with T2DM. Age differences at 99% confidence interval signifies that early adults with T2DM have high level of stress as opposed to adults with T2DM as stated in table 3.

DISCUSSION

Type 2 diabetes is highly prevalent in adults and stress is generally low in this age. This controversial relationship motivated the researcher to assess the stress level in T2DM patients as chronic illness itself play a role of stressor plus response to stress decreases as the age increases. Distress is measured in two ways, physiological and psychological. Psychological measurement further has two categories self-report and observers rating. Here in this study distress is measured using a self-report stress scale (PPS-10)[9]. This scale measured the condition of subjects with reference to condition during last one month, mean assessing the level of stress consequent by T2DM. Results are corresponding to previous studies that level of stress in type 2 diabetes

Table 1: Frequency and percentage of all study variables

Variables		F	%
Age	Early Adults	60	50
	Adults	60	50
Gender	Men	64	53.3
	Women	56	46.7
Education	Intermediate	70	58.3
	Graduation	50	41.7
Living Area	Urban	91	75.8
	Rural	29	24.2

Table 2: Relationship between study variables calculated using bivariate correlation

Variables	Gender	Education	Living Area	Stress	Age
Gender	1	.02	-.14	.19*	1.12
Education		1	-.04	-.13	.16
Living Area			1	-.11	-.09
Stress				1	-.35**
Age					1
Mean (SD)	-----	12.78(2.10)	-----	19.61(4.72)	34.57(8.36)

*p<0.05**p<0.01

Table 3: Independent sample t-test of gender and age groups on perceived stress scale among patients with diabetes mellitus

Variables	Mean (SD)	n	P
Men	18.80 (4.23)	64	0.04*
Women	20.54 (5.09)	56	
Early Adults	21.78 (4.48)	60	0.001**
Adults	17.43 (3.90)	60	

*p<0.05, **p<0.01 df= 118,

mellitus patients with complications was significantly higher than those without complications[10].

A study in Karachi proved that age and stress level have inverse relationship as response to stress decreases with the age counts increases[11]. A study in Faisalabad indicated that women with type 2 diabetes mellitus has significantly high level of stress than men with Type 2 diabetes mellitus[10]. A supplementary study specified that women have high level of stress as compared to men[12,13] which may be caused by stressful life events accompanying negative bang on women than do men[14].

Stress in general population is low with maximum mean value across gender and adult age group was 17.47[11] as compared to T2DM patients with minimum mean 19.61 in current study. These findings can be considered by physicians while dealing with diabetic patients to monitor the illness carefully and take precautionary measures to prevent patients from worsening of the mental condition as diabetes-related distress may also affect self-care behavior[15,16.] Moreover, T2DM patients must be educated by physician or clinicians to manage stress in their daily life.

CONCLUSION

Stress is negatively linked with increasing age and positively linked with gender. Women are more prone to stress in T2DM patients. Men and adults experience low level of stress as compared to women and early adults.

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