

RELATIONSHIP OF DIABETES RELATED DISTRESS WITH PSYCHOLOGICAL DISTRESS IN TYPE 2 DIABETIC PATIENTS

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ABSTRACT

Objectives: To examine the predictive role of diabetes related distress (emotional burden, physician-related distress, regimen-related distress and interpersonal distress) in psychological distress among type 2 diabetic patients.

Methodology: It was a correlation study conducted on type 2 diabetic patients dwelling in Faisalabad city. One hundred and twenty diabetic patients were recruited through purposive convenient sampling technique. Brief interview form, 17-items diabetes distress scale and 10-items psychological distress scale were used for data collection. Linear, multiple regression analysis and independent t-test were computed via SPSS.

Results: Out of 120 participants, 60 were males and 60 were females. Age ranged from 21 to 50 years (mean 37.3 ± 7.48146). Diabetes distress ($p = .000$) emotional burden ($p = .019$) and interpersonal distress ($p = .000$) significantly predicted psychological distress among type 2 diabetic patients. Additionally, a significant gender difference was found in respect to diabetic distress ($p = .000$) regimen-related distress ($p = .01$) and interpersonal distress ($p = .025$).

Conclusion: Diabetes related distress in the form of emotional burden and interpersonal distress are significant predictors of psychological distress among type 2 diabetic patients. However male and female diabetic patients differ in experiencing distress associated with their disease.

Key Words: Diabetes mellitus, Psychological distress, Diabetic distress

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INTRODUCTION

Type 2 diabetes mellitus (T2DM) is commonly diagnosed in adults, mostly after 30 years of age, which encompasses insulin resistance and insulin deficiency^{1,2}. This chronic disorder is also characterized by hyperglycemia and glycosuria³ and is an outcome of interaction among genetic, environmental and behavioral elements⁴.

Type 2 diabetes is considered as devastating for person's quality of life⁵. Diabetes adversely influences physical, psychological and social functioning of its victim⁶. Perturbing nature of this chronic disease impairs all aspects of human's life creating continuous distress for the patients. Most of the time, it is owing to the affiliated requirements like managing behavior, proper food diet, and healthier exercises⁷. Diabetes distress is a significant health concern for type 2 diabetic patients⁸. Diabetic patient usually experiences distress in forms of emotional burden, physician-related distress, regimen-related distress and interpersonal distress⁹.

Diabetes related distress cause psychological prob-

lems due to associated self-care behavior¹⁰. Diabetic patients are more worried about their disease and strive to cope up with associated emotional and psychological burden¹¹. As a result, diabetes distress cultivates frustration, anger, disappointment, shock, stress, depression, fatigue and denial¹². Diabetes distress is equated with poor health outcomes among diabetic patients¹³. Emotional disruptions include worry, frustration¹⁴, anger¹⁵, anxiety and depression¹⁶, depression¹⁷ doumit¹⁸ and stress².

Patients with diabetes distress are overwhelmed by negative feelings that further impede their psychosocial growth. As a result, people could not combat with their disease in a long run. Patients, who do not feel confident enough to manage their disease while experiencing maximum distress, are more likely to develop associated chronic illnesses. Various complications such as cardiovascular problems, renal failure, amputations, cancer, psychiatric disorders, cognitive decline, liver damage have been evident with diabetes. Sometimes, underlying factors mediate the relationship between two associated problems. From this perspective, the

present study will be helpful in discussing the nature of diabetes distress and its significant role in predicting psychological distress to benefit diabetic patients and health professionals as well. For that purpose, following hypotheses have been postulated;

1. Diabetic distress (emotional burden, physician-related distress, regimen-related distress and interpersonal distress) will significantly predict psychological distress among type 2 diabetic patients.
2. There would be a significant difference among male and female diabetic patients in relation to diabetes distress and psychological distress.

METHODOLOGY

The present study was conducted from July 2016 to December, 2016. One hundred and twenty ($n = 120$) patients diagnosed with type 2 diabetes mellitus, diagnosed at least 2 years ago, were approached through purposive convenient sampling technique. Their minimum educational level was graduation so that they could understand and respond to English version of research instruments. Diabetic patients with others associated chronic problems such as cardiac problem, renal failure, hypertension, hepatitis, body deformation and any kind of mental health disorder were excluded.

The statistical power was 0.91 for the desired sample ($n = 120$), calculated via G-Power Software for regression analysis (one tailed), whereas, effect size was 0.15 with alpha level of .05. Another post hoc analysis was done for independent t-test (two tailed). Obtained statistical power was 0.99 for total sample of 120 (60 in each group) with effect size d of 0.8 and alpha level of .05.

With the written consent of participants, data was collected using all required research instruments. Information pertaining to demographic characteristics (age, gender, educational level, occupation, department, socioeconomic status, marital status, family system, number of family members, and residency) of participants as well as regarding diabetes mellitus (nature, type, duration of diabetes and treatment procedure) were gathered using brief interview form.

Diabetes distress was measured by diabetes distress scale⁹. It comprised of 17 items and four sub-scales; emotional burden (5- items), physician -related distress (4- items), regimen-related distress (5- items) and interpersonal distress (3- items). Items are scored on 6 points Likert scale [from not a problem-1, a slight problem-2, a moderate problem-3, somewhat serious problem-4, a serious problem- 5, to a very serious problem-6]. Cronbach alpha of full scale is ($\alpha = 0.99$), whereas for the sub-scales ranged from 0.88 to 0.90.

Psychological distress was measured using 10-point psychological distress scale¹⁹. Items are scored on 5 points Likert scale [from none of the time-1, a little of the time-2, some of the time-3, most of the time-4, to all of the time-5]. Reliability of this scale ranged from 0.42 to 0.74.

After data collection, items were scored as per instructions given for each scale. Descriptive statistics, linear, multiple regression analysis and independent t-test were computed with the help of statistical package for the social sciences (SPSS), version 20.0.

RESULTS

Out of 120 diabetic participants, 60 were males and 60 were females. Age ranged from 21 to 50 years (mean 37.3 ± 7.48146). Table 1 indicated that 60.8% participants were having bachelor degree (14 years of education) and 58.3% were getting oral treatment for their disease.

Linear regression analysis (table 2) revealed diabetes related distress as a significant predictor of psychological distress among type 2 diabetic patients ($p = .000$). The value of R^2 was $.145$ which showed 14 % of variance in psychological distress accounted for independent variable.

Table 3 shows multiple regression analysis and demonstrated a relationship of emotional burden, physician-related distress, regimen-related distress and interpersonal distress with psychological distress among type 2 diabetic patients ($R = .490$) that further appeared to be significant ($p = .000$). Among four domains of diabetes distress, emotional burden ($p = .019$) and interpersonal distress ($p = .000$) have emerged as significant predictors of psychological distress among type diabetic patients. Other two variables physician-related distress ($p = .176$) and regimen-related distress ($p = .484$) did not predict psychological distress. About 24% variance in psychological distress accounted for independent variables as evident by the value ($R^2 = .240$).

Table 4 revealed significant gender difference in relation to diabetes distress ($p = .025$), regimen related distress ($p = .000$) and interpersonal distress ($p = .01$). But a non-significant gender difference was observed on the variable of emotional burden ($p = .462$), physician related distress ($p = .874$) and psychological distress ($p = .414$).

DISCUSSION

Main findings of the present study draw attention toward the significance of diabetes distress in cultivating psychological distress among type 2 diabetes mellitus. Diabetes distress and emotional burden are more vulnerable for psychological health of type 2 diabetic patients. Previous scientific evidences support pres-

Table 1: Demographic characteristics of the participants

Characteristics		Frequencies	Percentages
Age	21-30	27	22.5
	31-40	51	42.5*
	41-50	42	35
Gender	Male	60	50
	Female	60	50
Educational level	Graduation	73	60.8*
	Masters	41	34.1
	Above	6	5
Type of treatment	Oral	70	58.3*
	Injection	18	15
	Both	32	26.6

Table 2: Summary of linear regression analysis

Predictor Variable	Model				
	B	SE	B	t	P value
Constant	13.681	3.182		4.299	.000
Diabetic Distress	.238	.053	.381	4.477	.000

a. Dependent variable: psychological distress; $R^2=.145$, $\Delta R^2=.138$, $F= 20.043$

Table 3: Summary of multiple regression analysis

Predictor variables	Model				
	B	SE	β	t	P value
Emotional burden	.268	.113	.209	2.373	.019
Physician -related distress	.161	.118	.112	1.360	.176
Regimen- related distress	.068	.097	.063	.702	.484
Interpersonal distress	.539	.133	.377	4.047	.000

a. Dependent variable: psychological distress; $R^2=.240$, $\Delta R^2=.214$, $F= 9.081$

Table 4: Independent t-test showing gender difference in respect to diabetic distress and its sub-scales

Variables	Male (n=60)		Female (n=60)		Significance	
	M	SD	M	SD	T	P
Diabetes Distress	60.86	5.90738	58.18	6.99514	2.270	.025
Emotional Burden	16.81	2.61995	16.38	3.71936	.738	.462
Physician Related Distress	13.43	2.84257	13.35	2.92172	.158	.874
Regimen Related Distress	22.76	2.93643	19.25	3.76255	5.707	.000
Interpersonal Distress	7.85	2.88082	9.20	2.73583	-2.632	.01
Psychological Distress	27.53	4.20438	28.15	4.02882	-.820	.414

ent findings showing diabetes distress and emotional burden as having strong connection with distress⁸, depression^{13,20} and anxiety²¹. Living with illness requires rigorous management including taking medicines, obligations with regards to diet, physical activity and heedful monitoring to control glucose/insulin level in the body. Resultantly, patients get frustrated and feel to be overwhelmed by emotional burden¹⁰.

It also has been noticed that interpersonal distress significantly predicts psychological distress among participants of present research. A previous study also has shown a significant association of interpersonal distress with psychological constructs such as self-efficacy²². Managing chronic disease till death is extremely arduous that entails continuous emotional support from significant relations. Previous researches documented emotional and social support as indispensable for managing diabetes²³. Feelings of not being understood, sympathized and appreciated by others, specifically significant relations, are precarious for diabetic patients. As a result, they experience distress in the domain of interpersonal relation. This interpersonal distress explicitly seems to ascertain psychological distress among diabetic patients, as highlighted by present results. It is therefore emphasized on giving due attention to interpersonal distress while treating diabetic patients²².

In the present study, physician and regimen-related distress have not emerged as significant predictors of psychological distress (table 3). In fact, diabetic patients learn to adhere with treatment process and trust their doctor. Though, for the present study, minimum duration of type 2 diabetes mellitus was 2 years, therefore, it implies that patients would have been coping with their disease for last 02 consecutive years. During that time, they might have learnt to control their eating habits and activities which helped them in managing treatment schedule. With the passage of time, patients showed adherence to treatment procedures especially injection and diabetic test related pain. It is also justified by a previous research that depicts a significant association of duration of diabetes mellitus with diabetes distress⁸.

With regards to gender difference, it was observed that male patients experienced more diabetic distress and regimen-related distress than females, whereas female patients experienced more interpersonal distress than males. Gender related results are not consistent with previous research findings that have shown female diabetic patients experiencing more diabetic and regimen-related distress as compare to male patients^{24,25}. It might be due to the culture differences existing between males and females pertaining to their life style, activities and social roles. In Pakistan, males are more indulged in outdoor activities such as doing paid job, staying with friends, enjoying social circles, etc. Due to diabetes related regimen, they had to change their life

style and to spend extra time in diabetes management at the expense of fun seeking activities. As a result, they reported more regimen-related and diabetes related distress. On the other hand, females mostly get disturbed and angry owing to relationship problems²⁶. Previous studies also proved that women value their social relationship and are more socially emotional than men²⁷. For that reason, in comparison to male diabetic patients, females reported more interpersonal distress.

CONCLUSION

Emotional burden and interpersonal distress, as diabetes related distress, are significant predictors of psychological distress among type 2 diabetic patients. However, physician-related distress and regimen-related distress were not found to have predictive role in psychological distress. Moreover, male diabetic patients experience more diabetes distress and regimen-related distress, whereas female diabetic patients experience more interpersonal distress.

IMPLICATIONS

It is essential to overcome diabetes related and psychological distress. Monitoring medical nutrition, changing life style and managing diseases is not possible without having sufficient physical and mental energy. Thus, taking into account the present research findings, health care professionals may advocate the nature and management of diabetes related and psychological distress to their patients suffering from type 2 diabetes mellitus. Patients, themselves, can understand and learn to lessen their diabetes-related and psychological distress so that they could manage their disease efficiently and move towards the enhancement of their health related quality of life in future.

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CONTRIBUTORS

RS conceived the idea, planned the study, and drafted the manuscript. AB helped acquisition of data, did statistical analysis and critically revised the manuscript. All authors contributed significantly to the submitted manuscript.