

**Original Article****Diabetes Distress, Depression and Coping Strategies in Adults with Type 2 Diabetes**Nudra Malik¹, Momina Arshad¹ and Amina Muazzam¹¹Department of Applied Psychology, Lahore College for Women University, Lahore, Pakistan

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ABSTRACT

People with diabetes often experience two mental health conditions which are diabetes distress and depression. Both the conditions affect them negatively and increase their risk of diabetes complications and poor disease management. **Objectives:** To find out the prevalence of diabetes distress and depression in our sample and examine the relationship among diabetes distress, depression and coping strategies among adults with Type 2 diabetes. **Methods:** Cross-sectional research design was used in this study. The sample consisted of 125 patients of Type 2 diabetes with age range between 40 to 55 years (M=49.94, SD=4.21). Non probability purposive sampling technique was used to select the sample. Diabetes distress scale, depression scale and coping scale were used to assess the study variables. **Results:** 34% patients had moderate distress worthy of attention. Being woman, younger age, having poor coping skills and depression were significantly associated with diabetes distress. **Conclusions:** High rates of diabetes distress in the study highlights the significance of identifying distress and other mental health issues in individuals having diabetes to provide psychological management and collaborative care to them.

INTRODUCTION

Worldwide, 463 adults are estimated to have diabetes with 90% of the people suffering from Type 2 diabetes mellitus [1]. Pakistan is ranked 3rd in diabetes prevalence in the world after China and India and according to the International Diabetes Federation (2022), about 27% of the people are suffering from diabetes in Pakistan which makes it almost 33,000,000 cases. This is an alarmingly high number which is increasing every year. Not only this but a large number of patients remains undiagnosed exacerbating to risk of diabetes related complications even higher [2]. Diabetes distress refers to the emotional distress related to living with diabetes and managing it, and not attributable to any other factors of general emotional distress or mental health issues [3]. A number of adults living with diabetes go through high levels of emotional distress originating from their apprehensions and

uncertainties about diabetes. Diabetes distress affects individuals' mood, relationships, quality of life and overall diabetes management. Individuals experiencing diabetes distress get less benefit with the diabetes treatment and need be supported by the doctor and family by encouraging them to use coping strategies to overcome diabetes distress [4]. Effective coping skills help the patients in improving perception about themselves, improving their ability to cope up with the situation, minimizing disease burden and by involving others to assist with the situation. Often the emotional distress of adjustment resulting by negative disease appraisals can result in maladaptive coping behaviors which may result in poor disease management. Health professionals should address the aspects of healthy emotional state by providing effective coping strategies for diabetes distress while providing

standard medical treatment of diabetes as well [5]. Coping skills have important role in helping individuals with diabetes distress and are recommended as a helpful tool for diabetes distress prevention. Coping skills like acceptance, optimism, planning, action and self-care could be learned and acquired by the patients and facilitate them in taking proper diet, regular exercise, taking proper medications, and self-monitoring [6]. Depression is highly prevalent in diabetic population. The prevalence rates of depression are 3 times higher in patients with type-1 diabetes and 2 times higher in people with type-2 diabetes as compared to the worldwide general population. Patients with depression and diabetes tend to have poor prognosis and higher death rates. An individual experiences psychological burden after being diagnosed with diabetes which could trigger symptoms of depression. Comorbid depression could result in reduction in quality of life and have more negative impact on an individual. In such a case, diabetes and depression should be treated simultaneously to avoid health related complications and to maintain diabetes control in patients. Depression is usually under diagnosed and remains untreated in diabetic patients and awareness should be made for depression in diabetes to improve health-related consequences and there should be method to screen depression in diabetic follow up [7]. Biologically, depression and diabetes are linked with the dysfunction in hypothalamic pituitary adrenal (HPA) axis. Cortisol (stress hormone) increases during the stimulation of hypothalamic pituitary adrenal axis. Excess stress hormone levels (cortisol) results in increased glucose level. Depressive symptoms are worsened by changes in monoamine system and hippocampus by induction of cortisol. Collaborative care interventions are effective in comorbid depression and diabetes which leads to increased health care and improved glycemic control in diabetic patients. According to guidelines given by American Diabetes Association, a stepwise collaborative care technique is essential for the management of depression in patients with diabetes. It could consist of a multidisciplinary team which provides recommendations to reduce potential risk of incidents of diabetes and depression by providing education, medication managing technique and focuses on patient's empowerment by developing appropriate coping skills in them with regular supervision combined with treatment intervention, education, learning and mental support to facilitate patient outcomes [8]. Population based studies have shown diabetes distress and depression to be fairly prevalent among adults with type 2 diabetes [9, 10].

Despite all the data, there is not much data available in Pakistan examining the factors associated with diabetes distress. Although work has been done on depression in diabetes patients in Pakistan but diabetes distress is not

given much attention to. Hence, this study aimed at examining diabetes-specific distress, depression and coping skills in patients with type 2 diabetes in Pakistani population.

METHODS

Cross-sectional research design was used in the study in order to investigate the relationship between diabetes distress, depression and coping strategies among adults with diabetes. Non probability purposive sampling technique was used in the study. The sample consisted of 125 patients having diabetes with age range between 40-59 years ($M=49.94$, $SD=4.21$). The sample size was selected through G power analysis. Data was collected from outdoor units of two private hospitals of Lahore. For inclusion, patients with selected if they had: confirmed diagnosis of Type 2 diabetes; their minimum duration of illness was at least one year. Individuals with diagnosis of any other diabetes, or women with gestational diabetes were not included. Also individuals having a diagnosis of any terminal illness were also excluded. The data were collected between January 2023 and April 2023. Demographic form was used for information on gender, age, marital status, education, occupation and duration of disease. Diabetes Distress Scale consisting of 17 items was used in the study. Its reliability for the scale is .92. The response format ranges from '1' not a problem to '6' a very significant problem based on a six-point Likert scale. This scale explains four critical dimensions of distress which include emotional burden, regimen distress, interpersonal distress and physician distress. The total score obtained by an individual and the mean score is used to determine the severity of distress with little/no distress (0-2), moderate distress (2-2.9), and severe distress (3 and more) [11]. Beck Depression Inventory was used to assess the presence and degree of depressive symptoms. It consists of 21 items and a score of 0-13 is considered minimal, 14-19 is mild, 20-28 is moderate, and 29-63 is severe depression. It has excellent internal consistency reliability [12]. To assess the level of coping in our sample, the 13 item coping scale was used. The response items of the scale range from 1 (not true about me) to 4 (mostly true about me). The score ranges between 13-52 and higher scores indicate better coping [13]. Ethical approval for the study was obtained from the Convener, research Ethics, Institutional Review Board of Lahore College for Women University vide letter no. ORIC/LCW/447. Approval was also obtained from the hospital authorities for collecting data from the patients visiting the diabetes units. The consent to use the scales was taken from the authors of the scales. Complete briefing was given to the participants about the purpose and nature of the study. Informed consent was taken from the participants and they were assured that the

information would remain confidential and be used for research purpose only. Confidentiality, anonymity and privacy was assured. Next according to inclusive criteria, the study participants of interest were approached. The questionnaires were given to the participants to be filled and instructions were given. The participants had to pick any one option according to his/her choice on the basis of previous experiences. The maximum time taken by each participant for filling the form was 10-15 minutes. After data collection, data were entered into SPSS software and was analyzed by using SPSS version 22.0. In the first step, frequencies and percentages were computed for socio demographic and clinical characteristics of sample to get clear information about the characteristics of sample. Pearson product moment correlation was applied to gauge the relationship between main study variables (diabetes distress, depression, coping strategies) as well as with the demographics (gender, age, marital status, duration of disease) in the study. In the next step, multiple linear regression analysis was applied for diabetes distress and coping to predict depression in adults with diabetes.

RESULTS

The demographic and clinical characteristics of the sample have been numerically represented in the table 1. Sample consisted of both genders with 46.4% males and 53.6% females. Most of the patients were married that made 76.8% while 23.2% were single. 55.2% were unemployed while 44.8% were employed. The mean duration of illness was 3.85 and standard deviation was 2.06. The percentages of patients falling into various categories of diabetes distress and depression are also given in table 1. Almost 46% of the patients had moderate distress and 40% were experiencing severe distress. For depression, 26% patients had mild, 33% moderate and 7% had severe depression.

Table 1: Demographic and Clinical Characteristics of the Sample (N=125)

Characteristics	F (%)
Age	
Mean ± SD	49.94 ± 4.21
Gender	
Male	58 (46.4)
Female	67 (53.6)
Marital Status	
Married	96 (76.8)
Single	29 (23.2)
Occupation	
Employed	56 (44.8)
Unemployed	69 (55.2)
Duration of Diabetes	
Mean ± SD	3.85 ± 2.06

Depression Level	
No or Minimal	52 (41.6)
Mild	43 (34.4)
Moderate	21 (16.8)
Severe	09 (7.2)
Diabetes Distress	
No Distress	28 (22.4)
Moderate Distress	57 (45.6)
High Distress	40 (32)
Coping	
Mean ± SD	26.18 ± 3.11

Results in table 2 revealed that there was a strong positive correlation between age and duration of disease ($r=.51^{**}$) and moderate negative correlation between age and diabetes distress ($r=-.16^*$) indicating higher distress in younger age. There was a significant moderate relationship between duration of disease and diabetes distress ($r=.146^*$) which indicated that distress increased with more duration of diabetes. Distress also had a strong relationship with coping strategies ($r=-.239^{**}$) and depression ($r=.427^{**}$) which showed that with higher levels of distress there was less coping and higher depression levels. There was a significant relationship between coping strategies and depression ($r=-.458^{**}$).

Table 2: Bivariate Correlations among Main Study Variables (N=125)

Variables	1	2	3	4	5	6	7
Gender	-	.085	-.135	-.038	.053	.104	.056
Age	-	-	-.177*	.509**	-.161*	-.067	.127
Marital Status	-	-	-	-.042	-.043	-.099	-.172
Duration of Disease	-	-	-	-	.146*	-.129	.045
Diabetes Distress	-	-	-	-	-	-.239**	.427**
Coping	-	-	-	-	-	-	-.458**
Depression	-	-	-	-	-	-	-

Note: **Correlations is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Table 3 reports the results of multiple linear regression. It was hypothesized that diabetes distress and use of coping will predict depression in individuals with diabetes. The results showed that diabetes distress ($\beta=.33^{**}$) and coping methods ($\beta=.29^*$) were significant predictors of depression. The overall model was also significant [$F=10.38$; $p<.05$] and the predictor variables contributed to 35% variance in depression.

Table 3: Multiple Linear Regression Analysis for Depression (N=125)

Variables	Depression		
	B	SEB	β
Duration of Diabetes	.10	.021	.21
Diabetes Distress	.13	.024	.33**
Coping	.11	.01	.29*
R ²	-	-	.35
F	-	-	10.38**

DISCUSSION

This study identified the level of diabetes distress and depression in individuals with Type 2 diabetes and examined its association with coping strategies. The study found a significant number of individuals reporting a moderate (46%) to high (32%) level of distress. The findings are consistent with previous studies conducted in Pakistan. A study conducted in Islamabad, Pakistan also reported similar statistics with 76.2% patients to experience diabetes distress with 47% having moderate and 29% having high level distress. The findings are also comparable to that of studies conducted elsewhere which have reported high levels of distress in these patients. Findings from other countries have reported diabetes distress prevalence of 64% in China [14], 37% in Iran [15] and 42% in India [16]. Our study found a substantial number of patients reporting moderate (17%) to severe (7%) symptoms of depression. This presence of depression symptoms observed in our study is quite similar with other studies which have indicated both diabetes distress and depression to be prevalent among these patients. However, the rate of depression found in our study was lower as compared to studies conducted elsewhere which have reported a prevalence of 28% to 44% depression in diabetic patients. Two other studies reported depressive symptoms to be present in 22% [17] and 58% [18] of the diabetic patients. The prevalence of depression was assessed in Kuwait and the results indicated that there is high prevalence of depression in individuals with diabetes distress with a rate of comorbid depression and diabetes distress to be 29% and 14% respectively [19]. Diabetes distress is an important condition which involves worries and concerns of the patients about their disease management, emotional burden and access to healthcare resources [4]. Our study found a significant correlation between diabetes distress, depression and coping in adults with diabetes indicating that increase in diabetes distress and depressive symptoms were associated with decrease in coping skills and vice versa. Studies conducted on role of coping mechanisms in diabetes have also supported this finding [20]. Another study found active coping skills to be associated with better health outcomes and maladaptive coping to be associated with low quality of life, and more

depressive symptoms and distress [21]. Our study found significantly higher distress levels in younger adults as compared to older ones. Consistent with other studies, this could be due to the reason that diabetes needs a lot of lifestyle adjustments and is stressful for them to cope with a chronic disease demands. This suggests that these individuals could benefit from clinical attention to lower their distress. Our study found diabetes distress and level of coping to be significant predictors of depression. This finding supports the existing literature and is comparable to other studies that signifies not only the co-occurrence of depression and diabetes distress in patients with diabetes but also indicates diabetes distress as a predictor of depression [22]. This could be due to the reason that diabetes is a health condition that requires lifetime management and could place emotional and psychological burden on the patient. They experience setbacks with diabetes self-care and management and consequently may avoid dealing with their diabetes and experience setbacks, such as hypoglycemia, hyperglycemia contributing further to their feelings of distress and depression [23]. The findings of the study could be implicated in health settings. As high levels of diabetes distress can also lead to poor diabetes management and lack of self-care behaviors, hence, health psychologists and clinical psychologists may help patients by devising proper management plans for their health and wellbeing.

CONCLUSIONS

The study concluded that diabetes distress and depression (mild to severe) were prevalent in patients with Type 2 diabetes. Also, higher levels of diabetes distress and poor coping strategies predicted depressive symptoms in these patients. However, diabetes and depression can be managed by diabetes self-management programs to help patients manage diabetes distress and depression through effective coping and improve their quality of life.

Authors Contribution

Conceptualization: NM, AM

Methodology: NM, MA

Formal analysis: NM, AM, MA

Writing-review and editing: NM

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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