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Gender Difference across Diabetes Distress, Cognitive Emotional Regulation, and Diabetes Related Quality of Life among Type II Diabetics

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Abstract

Background. Diabetes Mellitus is widely acknowledged as a major public health issue and is a prominent concern for middle- and lower-income countries like Pakistan. Considering its impact on physical and psychological health, scarce literature and limited prevalence surveys have halted the efforts to cope with this chronic illness adding to the disease burden.

Method. Keeping this broader context in mind the present research employed a cross-sectional research design, with an aim to examine gender differences across psychological aspects related to Type II diabetes, sample (N = 100) was approached to respond on a set of questionnaires including Diabetes Distress Scale, Cognitive Emotional Regulation Questionnaire, and Revised Version of Diabetes Quality of Life. Results were analyzed on SPSS 26 Version.

Results. Significant gender differences were observed across all study variables indicating that female had higher diabetic distress, poor diabetes related quality of life, and use more negative cognitive emotional regulation strategies in comparison to men. In comparison, men use more positive cognitive emotional regulation strategies to cope with the distress related to illness.

Conclusion. These findings of the present research could support in providing psychological help to diabetic patients considering their coping strategies and dealing with stress related to disease. These findings further highlight that differential interventions need to be designed for males and females to deal with distress related to diabetes. Awareness sessions, educational programs, intervention strategies could further be designed considering demographic related differences and other indigenous factors.

Keywords. Diabetes mellitus, cognitive emotion regulation, diabetes distress, diabetes related quality of life.

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Introduction

Diabetes is a metabolic condition that develops when pancreas does not contain sufficient insulin or when the body cannot use insulin it produces efficiently. Diabetes Mellitus (DM) is one of the most critical issues of public health with significant increase in cases globally and specially in middle- and lower-income countries (Cho et al., 2018). Earlier, projected cases of DM, according to Global Burden of Disease (GBD) and Human Development Index (HDI), indicate an upward trend with an increase of 3.73 cases per 100,000 people annually (Balooch et al., 2023). However, recently, it is estimated that these numbers will exceed from 495 million in 2017 to 693 million by 2045 (Ogurtsova, 2017). Among 463 million diabetic patients globally, 55 million are in the Middle East and North Africa (MENA) region and are projected to reach 108 million by 2045 (International Diabetes Federation, 2020). Pakistan, a developing country is facing a sharp increase in the diabetic patients. Aamir and colleagues (2019) highlighted 16.98% diabetic prevalence in a community sample of 18,856. They further highlighted that female had higher prevalence of DM (51.17%) as compared to males (48.83%). Similarly, most individuals living in urban areas were diabetic with 60.55 % prevalence. The influx of diabetic patients poses a serious threat to developing countries like Pakistan, with scarce financial resources and poor health care facilities. Therefore, it is imperative to understand how both male and female are coping with the illness, given the socioeconomic conditions of the country. Moreover, Pakistan has high prevalence of diabetes, but the psychological issues of diabetics are mostly ignored, so this study was carried out to explore the psychological aspects of diabetes.

Type II diabetes is a chronic disorder that has a substantial influence on people's physical and mental health. Gender disparities in how people manage and perceive diabetes are becoming more well acknowledged, although they remain underexplored. Women with Type II diabetes frequently experience increased diabetic distress, which can impair their capacity to control emotions and general quality of life (Perrin et al., 2017) . Women are more prone to experience emotional burden, and regimen related distress. Men, on the other hand, may use distinct cognitive emotional control mechanisms, which might contribute to differences in diabetes treatment and results. Understanding these gender-specific characteristics is critical for creating targeted therapies to meet the distinct issues that both men and women with Type II diabetes encounter.

Literature (Groot et al., 2001; Thomas et al., 2015) indicates that diabetic patients, especially female, experience psychological distress (anxiety, depression, and emotional distress) due to their illness, and are more likely to focus on the negative side of the disease and use of maladaptive cognitive emotional regulation strategies (Fisher et al., 2009; Rubin & Peyrot, 1999). These factors decrease coping with the disease and quality of life. Keeping this in view, the present research aims to examine gender differences on psychological aspects of type II diabetes among diabetic patients.

Strong comorbidity has been documented between Diabetic Distress (DD) and negative emotions including denial, stress and guilt perception. Empirical findings strongly indicate that the likelihood of experiencing negative and aversive emotions increase manifold because of diabetes. This tends to push individuals to employ negative cognitive emotional regulation strategies to deal with these aversive co-morbid negative emotions. With reference to epidemiology, findings indicate that one in every five individuals diagnosed with type II diabetes report experiencing diabetic distress (Kreider, 2017). This is found to be more prevalent in females in comparison to males (Graue et al., 2012), and it is further strongly associated with issues related to mental health (Nawaz et al., 2018). This is further complicated by the fact that that along with management of physical symptoms, psychological aspect related to disease apparent in the form of diabetic distress needs to be managed as well, which if often ignored. This poses a dual burden on countries like Pakistan where mental health facilities are already scarce (Islam et al., 2013). As a consequence it remains a challenge for individuals to manage both aspects of the disease simultaneously.

Coping strategies employed by the individuals play a crucial role in managing the distress related to disease. These strategies encompass a wide range of mechanisms that control and regulate the strategies that are employed usually at cognitive level to deal with distress and develop an understanding of the situation. These can be both negative and positive depending on how they are playing a role in developing an understanding of the disease and perceived control over it (Kane et al., 2018). With gender being the main focus the findings indicate that females tend to employ more negative cognitive emotional regulation

strategies in comparison to males putting them at risk of mental health problems like distress and depression.

Diabetes Quality of Life (DQoL) broadly refers to the quality of life of people diagnosed with diabetes. It is shaped by a wide variety of factors that include perception of disease, perceived control over the disease, and life satisfaction (Bujang et al., 2018). Diagnosis of diabetes has a significant impact on lives of the individuals that further affects the quality of their life. Gender is one of the significant contributing factors influencing DQoL among diabetic patients (Timar et al., 2016), as male patients have higher quality of life as compared to female suffering with the disease (Al Ayed et al., 2020; Fisher et al., 2009).

DM's association with co-morbid distress results in the dual burden on patients and the community hallmarks its chronic health issue for Pakistan (Islam et al., 2013). Though diabetes is a physiological condition, it significantly impacts the psychological health of patients. Diabetic patients encounter many difficulties in life as they must deal with the chronic illness with the rest of their lives. They need physical as well as psychological strength to cope with the illness. It can be established that both male and female perceive the illness differently and have different levels of distress and quality of life. Hence, this study intended to add into the literature how psychological help can be provided to patients considering their capabilities based on their gender.

In light of the above argument, the present research was carried out to examine gender differences among Pakistani diabetic patients across diabetic distress, cognitive emotional regulation strategies, and diabetic quality of life. The study hypothesized that female would have higher diabetic related stress, and male will have better diabetic related quality of life as well as they will score higher on using adaptive emotional regulation strategies to cope with their illness. The study aims to examine these differences to understand how psychological help, awareness, education, and self-help training and guides can be developed for both male and female to cope with the illness.

Method

Sample

This descriptive-comparative research study was carried out in the North region of Pakistan (Baltistan). Type II diabetic patients (N = 100) participated, from different areas of Baltistan through purposive and snowball sampling techniques. Participants with a minimum qualification of Intermediate were included in the study. The patients were informed about the objective of the study and informed consent was obtained. Around 250 participants were approached and only 100 agreed or returned the filled questionnaire. A booklet comprising of all study measures was shared with the participants. Participants were briefed about the purpose of the study, it was shared with them that the data would be used only for research purpose and they have the right to withdraw from the study at any stage.

Assessment Measures

Diabetes Distress Scale (Yousaf et al., 2014). This 17-item Urdu version assesses diabetes related distress on a 6-point Likert scale. The scale has four dimensions: diabetes related interpersonal distress, physician-related distress, emotional burden, and regimen related distress. The scale had acceptable Cronbach alpha reliabilities ranging from=.76 to = .92 (Chin et al., 2017; Yousaf et al., 2014).

Cognitive Emotion Regulation Questionnaire (Butt et al., 2013). Urdu version of 36 item Cognitive Emotion Regulation Questionnaire with five positive cognitive emotion-regulation domains (acceptance, positive reappraisal, refocus on planning, positive refocusing, and putting into perspective) and four negative cognitive emotion-regulation domains (catastrophizing, rumination, other-blame, and self-blame) was used to assess cognitive emotion regulation strategies. The high scores, on a 5-point Likert scale vary from 1 to 5, suggesting a higher possibility of a negative or positive regulation of cognitive emotions vice versa. The alpha reliability of different domains ranged from = .75 to = .87 (Kraaij & Gernifski, 2007).

Revised Version of Diabetes Quality of Life Instrument (DQOL; Bujang et al., 2018). English version of DQoL comprising of 13 items with three subscales: satisfaction (6 items; 1-6), impact (4 items; 7-10), and worry (3 items; 11-13) was used to assess diabetes related quality of life among patients with type II diabetes. High scores, on a 6- point Likert scale vary from scale 1 (very satisfied) to 6 (very dissatisfied), indicate poorer quality of life and low score indicates better quality of life. The alpha reliability of subscales ranges from = .78 to = .92 (Bujang et al., 2018).

Results

The age of the sample (N = 100) with male (n = 59) and female (n = 41) ranged from 17-85 years (M = 45.02, SD = 12.89). Sample distribution indicated most of the patients were (78 %), taking tablet (98 %) to control their diabetes instead of insulin, living in joint family system (66 %), had HbA1c above average (57 %). Additionally, participants reported they had blood pressure (49 %), and eye problem (40 %). However, some of them also indicated absence of any other disease (20.3 %).

Psychometric properties of the scales and data distribution across the sample are explained in Table 1. Results indicated satisfactory Cronbach alpha reliability of all scales and their subscales and ranged between α = .67 to α = .97.

Table 1

Descriptive Statistics of the Variables of the Study (N = 100)

Scale	*k*	*M*	*SD*	α	Range		Skewness	Kurtosis
					Actual	Potential		
Diabetic Distress	17	60	24	.97	24-96	17-102	-.15	-1.7
Emotional Burden	05	17.40	7.91	.93	6-30	5-30	-.11	-1.6
Physician Distress	04	14.27	5.88	.87	5-23	4-24	-.12	-1.51
Regimen Distress	05	18.91	7.91	.93	5-30	5-30	-.26	-1.58
Interpersonal Distress	03	10.00	4.4	.85	3-18	3-18	.05	-1.37
. Positive Cognitive Emotional Regulation								
Positive Refocusing	04	11.60	4.47	.86	4-20	4-20	.18	-1.29
Refocus on Planning	04	11.29	5.04	.89	4-19	4-20	.17	-1.63
Positive Reappraisal	04	11.12	5.16	.92	4-20	4-20	.21	-1.51
Putting into Perspective	04	11.55	4.35	.80	4-19	4-20	.20	-1.45
Acceptance	04	10.79	3.81	.67	4-18	4-20	-.08	-.91
Negative Cognitive Emotional Regulation								
Self-Blame	04	13.00	4.71	.89	5-20	4-20	-.06	-1.37
Rumination	04	12.45	5.04	.84	4-20	4-20	-.11	-1.43
Catastrophizing	04	11.90	6.44	.93	4-20	4-20	-.09	-1.74
Others Blame	04	10.35	4.6	.90	4-20	4-20	.47	-1.01
Diabetic Quality of Life	13	40.02	16.95	.97	17-61	13-65	-.25	-1.81
Satisfaction	06	18.55	08	.95	8-29	6-30	-.19	-1.78
Impact	04	12.45	5.34	.91	4-20	4-20	-.26	-1.71
Worry	03	9.02	4.05	.86	3-15	3-15	-.10	-1.69

In order to assess mean differences across gender, the *t*- test was computed. Table 2 illustrates mean difference across patient's gender on study variables. Significant mean difference was apparent across all the scales and their subscales except for acceptance, subscale of positive cognitive emotional regulation. Female scored higher on all the scales and domains of Diabetes Distress and Diabetic Quality of Life as compared to male. However, male scored higher on positive domain of the Cognitive emotional Regulation and female scored higher on negative domain of the scale.

Table 2

Mean Differences of Patient's Gender across Study Variables ($N = 100$)

Variables	Gender		$t(98)$	p	95 % CI		Cohen's d
	Male ($n = 59$)	Female ($n = 41$)					
	M (SD)	*M (SD)*			*LL*	*UL*	
Diabetic Distress	54.00 (26.22)	70.04 (19.81)	3.48	.00	-25.19	-6.90	.69
Emotional Burden	15.49 (8.29)	20.14 (6.50)	3.14	.00	-7.59	-1.71	.62
Physician Distress	12.83 (6.15)	16.34 (4.81)	3.19	.00	-5.69	-1.32	.63
Regimen Distress	16.94 (8.58)	21.73 (5.86)	3.31	.00	-7.64	-1.91	.65
Interpersonal Distress	8.72 (4.18)	11.82 (4.10)	3.67	.00	-4.77	-1.42	.74
Positive Cognitive Emotional Regulation							
Positive Refocusing	12.49 (4.82)	10.31 (3.59)	2.58	.01	.50	3.84	.51
Refocus on Planning	12.47 (5.27)	9.58 (4.20)	3.04	.00	1.00	4.77	.60
Positive Reappraisal	12.28 (5.22)	9.43 (4.64)	2.80	.00	.83	4.86	.57
Putting into Perspective	12.35 (4.57)	10.39 (3.78)	2.34	.02	.30	3.62	.46
Acceptance	11.20 (3.53)	10.19 (4.16)	1.30	.19	-.52	2.54	.26
Negative Cognitive Emotional Regulation							
Self-Blame	11.88 (4.67)	14.60 (4.33)	2.95	.00	-4.56	-.89	.61
Rumination	11.32 (5.04)	14.07 (4.63)	2.76	.00	-4.72	-.77	.56
Catastrophizing	10.61 (6.67)	13.75 (5.67)	2.53	.01	-5.6	-.68	.50
Others Blame	9.18 (4.10)	12.02 (4.82)	3.16	.00	-4.61	-1.05	.63
Diabetic Quality of Life	35.38 (17.39)	46.68 (13.98)	3.59	.00	-17.53	-5.04	.71
Satisfaction	16.37 (8.11)	21.68 (6.79)	3.54	.00	-8.28	-2.33	.70
Impact	11.10 (5.48)	14.39 (4.53)	3.27	.00	-5.28	-1.29	.65
Worry	7.91 (4.20)	10.60 (3.27)	3.59	.00	-4.18	-1.20	.71

Discussion

The present study aimed to examine gender differences for psychological aspects across gender for Baltistan community. Findings of *t*-test indicated that women with type II diabetes have higher diabetic distress, use negative cognitive emotional strategies to cope with the illness and have poor quality of life as compared to men with type II diabetes. Further, women are more likely to blame themselves for the onset of disease. They are usually more attentive towards minute details of the disease and as a consequence tend to have a magnified and loud emotional expression (Kane et al., 2018). These findings are closely in line with existing literature across different cultures which indicate females experience and report more diabetic distress and have poor diabetes related quality of life in comparison to males (Kautzky-Willer et al., 2023) . One plausible reason for this could be an excessive focus on negative aspects of disease. Further this chronic illness leads to other related fears regarding declining physical health and fertility related issues. Females are further at higher risk of chronic illnesses such as diabetes dur to underlying conditions of hormonal fluctuations and obesity. Interpreting these findings within the indigenous context and culture reveal that women experience relational problems when they are diagnosed with an illness, and being an Eastern woman, are expected to must juggle home and their work life which makes them more vulnerable to distress due to their illness. Lack of adequate knowledge and diagnostic delay can further complicate the process of acceptance. Previous literature indicated that males with diabetes show better quality of life in comparison to the female patients. These findings hold special relevance with the culture of Baltistan where males can access the health facilities more readily in comparison to females. This can be attributed to the fact that males in our society have more access to medical facilities. The perception of control over the symptoms of diabetes is much better in males as compared to females. This perceived control is a supporting factor that aids males in dealing with diabetes related distress more effectively (Nawaz et al., 2018).Negative cognitive emotional regulation strategies further include strategies like rumination, self-blame and catastrophizing. Empirical findings pair

the use of these strategies with more distress and poor mental health outcomes in context of both chronic disease and childhood trauma. The use of more negative cognitive emotional regulation strategies among women can affect their disease perception as a consequence, they are less likely to manage the disease more effectively. This can foster experiencing negative emotions and are likely to aggravate the diabetes distress which can further negatively affect the quality of life (Huebschmann et al., 2019; Kautzky-Willer et al., 2023).

These findings can be interpreted better keeping the Pakistani context in mind. Women in Pakistan are usually expected to play a significant role in maintaining relationship. The additional burden of role expectation of keeping the family intact and maintaining the important familial connections adds on the disease related distress. This is further complicated by the fact that chronic health conditions like diabetes are likely to affect the reproductive ability of the female as well. The element of poor health literacy specifically among the females in Pakistan is additional missing piece of the puzzle in this context. All these factors put the women at risk where they are likely to experience more negative cognitive emotional regulation strategies. This negatively impacts the quality of life.

The finding that males experience a better diabetes related quality of life in comparison to females can also be understood keeping the similar aspect in mind. Health sensitivity and literacy among males in Pakistan is much higher in comparison to females. Similarly taking the expected gender roles into account, males are not expected to maintain the sense of care, responsibility and connection with in the context of family. As a consequence, the sole distress they need to manage is the one related to disease. Stigmatization related to disease is not same across both genders (Nawaz et al., 2018). All this lead to use of more problem focused and positive coping strategies in comparison to females which ultimately leads to better quality of life.

The findings of present research strongly indicated a need to design both preventive measures and intervention strategies through the gender lens. Further, these should be culturally tailored as gender roles play a crucial role in shaping diabetic distress, cognitive emotional regulation strategies and quality of life tend to vary across cultures. Support groups and group therapies can play a facilitative role by providing women with safe spaces to vent out the feelings related to distress.

Conclusion

The present research aimed to study gender differences across diabetes distress, cognitive emotional regulation strategies and quality of life among women with type II diabetes. Findings indicated that women are likely to experience more diabetic distress and tend to have a poor quality of life in comparison to males. Similarly, males tend to use more positive cognitive emotional regulation strategies in comparison to females.

Implications

The findings of the present research can be used to spread awareness among masses that diabetes needs to be managed both at physical and psychological levels. A special attention needs to be given to gender and societal gender roles and norms in designing preventive strategies and interventions to deal with diabetic distress and enhance the quality of life of patients with type II diabetes. . Additionally, the study could be a source for professionals, as their can advise and encourage their female patients to be more expressive about their emotions. This could reduce the negative effects of the disease such as distress, control of frustration, loss of trust in family and friends, and tension of persistence symptoms. Despite the significant contributions of the present research there are some limitations. A smaller sample size and reliance on self-report measures limit the generalizability of the findings and add the element of desirability to it. Further, samples were only collected from the Baltistan region which is an additional threat to external validity of the study. To conclude, the study reflects on a novel finding of developing tailored gender based preventive and intervention strategies to manage diabetes distress and improve the quality of life of patients with type II diabetes.

Declaration

Funding. No funding was received for this study.

Conflict of Interest. The authors declare that they have no conflict of interest.

Ethical Approval. Ethical approval was taken from the institutional ethical review board, further both written and verbal informed consent was taken from the participants.

Competing Interest. The authors have no competing interests to declare.

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