

## **Gratitude, Self-Efficacy, Coping Strategies and Quality of Life in Patients with Type 2 Diabetes**

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This study examines the relationship between self-efficacy, gratitude, coping strategies, and quality of life in adults with Type 2 Diabetes (T2D). In a cross-sectional research design, a purposive sample of adult ( $M = 50.60$ ,  $SD = 9.23$ ) men ( $n = 31$ ) and women ( $n = 69$ ) with T2D from different hospitals of Lahore. The assessment measures included a Demographics Information Sheet, Gratitude Questionnaire (GQ-6), Coping Strategies Scale (CSS), Diabetes Self-Efficacy Scale (DSES), and Diabetes Quality of Life Scale- Brief Clinical Inventory (DQoL-BCI). The data were analyzed using correlation and hierarchical regression. Results revealed that increased gratitude was positively associated with better coping strategies and higher self-efficacy. Regression analysis indicated that gratitude and coping strategies as significant predictors of quality of life. The results highlight the importance of gratitude in promoting effective self-the management strategies that enhance psychological well-being and quality of life among patients with T2D.

*Keywords.* Gratitude, Self-efficacy, Coping strategies, Quality of life, Type 2 diabetes.

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### **Introduction**

Type 2 diabetes (T2D) is a chronic medical condition characterized by elevated blood glucose levels due to impaired insulin secretion and insulin resistance. The global prevalence of T2D is on the rise and it is estimated to include 500 million individuals by the year 2030 worldwide (International Diabetes Federation, 2019). Along with other serious physical health complications, diabetes impacts patients psychologically and reduces their quality of life (QoL). Effective management of diabetes requires a holistic approach and adherence to treatment to reduce psychological and behavioral problems. (Rubin et al., 2001). Effective control of T2D by managing its symptoms through different self-care

activities not only helps to treat medical issues but also deals with cognitive and behavioral problems. Gratitude, self-efficacy, and coping strategies are all important psychological factors that affect the quality of life in patients with T2D (Massey et al., 2019).

In Pakistan, the death rate by T2D is 89,000 patients per year and rising (International Diabetes Federation, 2021); and Pakistan ranks with the highest adult rate of diabetes in the world. In total numbers, it ranks third in the world to China and India and is estimated to have 33 million people (26% of the adult population) currently living with diabetes (International Diabetes Federation, 2021). Early detection and management are crucial in preventing complications like kidney failure, neuropathy, cardiovascular disease and reduce the mortality rate associated with T2D. Individuals with T2D have a 20-year shorter life span than those without diabetes (Azeem et al., 2022). The disease occurs mostly after the age of 40 because of heredity, unhealthy carbohydrate rich food, low socioeconomic status, lack of physical activities, depression, unhealthy lifestyle, obesity, ethnicity, and high blood pressure (Centre for Disease Control, 2020). Patients who suffer from diabetes have a higher frequency of social challenges, stressful life events, mental health issues, and reduced satisfaction in their daily life activities that directly impact QoL (Lustman et al., 2007).

Studies have focused on the role of psychological factors in the management of diabetes and have examined the impact of gratitude, self-efficacy, coping strategies, and QoL in patients with T2D. The relationship between these variables is both complex and interdependent. It is observed that gratitude is a pivotal factor in enhancing one's emotional wellbeing. It increases psychological resilience and improves self-efficacy in management of disease. With increased self-efficacy, patients try to incorporate better coping strategies to manage their disease well and improve their QoL (Emmons & McCullough, 2003). Research has demonstrated that a higher level of gratitude is linked with a better life as higher positivity, high self-esteem, pleasant emotions, meaning in life, optimism, and satisfaction decrease negative emotions, and hostility and improves satisfaction with life (Wood et al., 2007). Research has indicated that individuals with diabetes who practice gratitude stay less anxious or

depressed, are better able to accept the challenges of the disease, are more resilient, and exhibit better coping strategies that substantially improves their psychological wellbeing that those that do not express gratitude (Makhmur & Rath, 2023). According to Bandura, self-efficacy is the ability of an individual to manage behaviors and activities that are necessary to enhance a person's capability to cope with difficult situations. It has a direct relationship with adherence to diabetes management behaviors including proper medication, following a healthy diet plan, and regular physical activities (Karimy et al., 2018). The first step to appropriate treatment for diabetes is helping the patients to enhance their self-efficacy level to make them capable of talking about the difficulties that they face during management and tackling their symptoms. Both recently diagnosed patients and those with long-standing diagnoses can benefit from self-efficacy education (Mishali et al., 2011). Self-efficacy is a significant predictor of well-being and quality of life in T2D patients and help them to improve self-care activities. So, knowledge about the symptoms, self-care activities, and learning about preventive measures are important in long term management of the disease (Calli et al., 2021). By understanding and fostering these psychological constructs, healthcare providers can support individuals with T2D in adopting effective disease management strategies that enhance their well-being.

Another important psychological construct effective in management of diabetes is coping strategies. They are helpful for people who suffer from stressful life events and active coping strategies are helpful in the control and management of long-term diseases such as T2D. Coping strategies are the actions or thought processes that people adopt to cope with or tolerate, reduce, or minimize stressful life events (Lazarus et al., 1984). These are the strategies that people apply in their lives when suffering from stressful life events to manage their emotions, cognitions, and behaviors (Thomas et al., 2011). Coping strategies reduce stress levels, turn negative thought processes into positive thoughts, and improve psychological well-being in individuals with chronic illnesses. Recent studies have indicated that in patients who suffer from T2D, their participation in the treatment process with a high level of gratitude and their capability toward proper self-care behaviors with proper confidence

are the factors involved in development of effective coping strategies that overcome stress of disease related complications and improving QoL (Ghanbari et al., 2015).

People who adopt healthy coping strategies to cope with the disease have better perception of themselves, exercise effective self-care activities, and the disease has less impact on their QoL because they are open in seeking help when needed during difficult situations. People who adopt unhealthy coping strategies are unable to deal with their disease symptoms which can lead to inappropriate treatment and management. As patient suffers from psychological symptoms such as stress, low self-esteem, etc. which can cause negative health evaluation and poor management of the chronic disease, providing effective coping strategies and proper medical treatment can help to alleviate their diabetes distress and maintain their healthy emotional state (Karla et al., 2019).

Studies have indicated that self-management courses can increase patients' skills to adopt coping strategies (like effective problem-solving, positive reframing of thoughts, and seeking social support) and enhance their self-efficacy in dealing with self-management issues for a better QoL. Coping strategies and increased levels of self-efficacy in T2D are related to better disease management practices and the relationship between coping strategies and self-efficacy is seen to be effective (Thoolen et al., 2008). Patients could improve and learn coping strategies such as acknowledgment of their symptoms, positive thinking such as adopting gratitude and improving self-efficacy, organizing their pattern of thinking to perceive better aspects of life, practicing healthy activities that help them to modify their life schedule according to preventive measures, adopt effective self-care behaviors which help them to take proper medicine follow healthy diet plans, and take exercise regularly (Schechter et al., 2002). All these behaviors have a positive impact on their wellbeing and overall QoL, which is a critical to health. It is defined as a person's perception of their life and its several aspects such as their physical, social, and psychological wellbeing. It is closely associated with their perspective of their daily life. Poor management of diabetes give rise to the risk of developing lifelong complications such as neuropathy, cardiovascular disease, kidney issues which has a deteriorating impact on QoL. Effective

disease management, on the other hand significantly improves QoL. Participation of patients in the treatment process with a high level of gratitude and their capability toward proper self-care behaviors are the effective factors involved in leading to the adoption of coping strategies that overcome diabetes distress and improve QoL (Fisher et al., 2015).

Several factors have been studied in literature to see their impact on QoL in people having T2D. Effect of gratitude on the mental health and QoL of T2D patients is examined and the findings demonstrate that patients who value and implement gratitude in their lives do not suffer from stress and depressive symptoms and also have a higher QoL. It indicates that gratitude is a strong trait that helps to enhance QoL, helps in diabetes management and to adopt better coping strategies (Philipp et al., 2022). Despite the protective role of self-efficacy and coping in better management of diabetes, many studies in underdeveloped countries have indicated low self-efficacy and poor QoL in patients here. It has been shown that people with T2D suffer from stressful life events than those without disease. It results in more difficult situations for those people and is followed by a significant decline in the patient's QoL. Long-term injuries, imbalance, and failure of an organ are the negative results of T2D. (Mishra et al., 2015). Such studies strongly advocate holistic management plans for patients which could focus on both physical and psychological management.

### **Rationale of the Study**

Diabetes influences biological, social and psychological aspects of life. Due to unhealthy lifestyle and lack of exercise, the number of patients suffering from T2D increasing day by day. Gratitude, self-efficacy, and coping strategies for quality of life in T2D patients are important because they help manage and reduce psychological challenges that can enhance the ability of patients to manage the disease more effectively by promoting their self-care activities and overall well-being. Gratitude helps to promote positive psychological conditions such as increased happiness, reduced stress, and anxiety symptoms, and improved emotional regulation that automatically promote healthy behavior to manage disease symptoms. Self-efficacy helps patients enhance their self-confidence to manage their diabetes symptoms, and coping strategies strengthen their capability to

handle stressful life events and challenges associated with the disease. Researchers suggest that in patients who suffer from T2D, if they have a higher level of gratitude, improve their level of self-efficacy, and adapt. Hence, it is required to examine both the physical and psychological aspects of the disease for better management. Not much attention has been given to the interplay of psychological constructs like gratitude, coping strategies, and self-efficacy, in management of diabetes and their impact on QoL. Although there is literature on these variables with reference to chronic diseases not a lot is available on T2D and in Pakistan. So, it is important to study the relationship of these variables in Pakistan for better disease management. The current research will help healthcare providers to improve support for the better management of T2D and designing better management programs for people having diabetes. The current research is also fulfilling the gap in the literature by demonstrating the link between gratitude, coping strategies, self-efficacy, and quality of life in patients with T2D.

### **Objectives**

The major objectives of this study were to explore the gratitude, self-efficacy, and coping strategies on the quality of Life of patients with type 2 diabetes.

### **Hypotheses**

- The authors expect gratitude and coping strategies will positively associate with self-efficacy, and with quality of life in patients with T2D.
- Based on the first hypothesis the authors also expected gratitude, coping strategies, and self-efficacy will be significant predictors of quality of life in patients with T2D.
- Individuals with shorter duration of T2D would express lower levels of gratitude, coping strategies, self-efficacy, and quality of life than patients with longer duration of T2D.

## Method

### Research Design

The research design used in this research was Correlation (cross-sectional) approach. In this design, data were collected through questionnaires.

### Sample and Sampling Strategy

The study consisted of a purposive sample of adult ( $M = 50.60$ ,  $SD = 9.23$ ) men ( $n = 31$ ) and women ( $n = 69$ ) with T2D from different hospitals of Lahore.

### Inclusion and Exclusion Criteria

Individuals with a confirmed diagnosis of T2D that were 40+ years old were included in the study, and those with severe comorbidities (e.g., cancer, chronic kidney disease), psychological disorders and cognitive impairments were excluded. A majority (65%) of T2D patients lived with their condition for over 10 years, had middle level education (51%), were married (94%), and lived in urban areas (59%), see Table 1.

**Table 1**

*Demographic Characteristics of the Sample (100)*

<b>Variable</b>	<b>f(%)</b>
<b>Gender</b>	
Male	31(31)
Female	69(69)
<b>Education</b>	
Middle	51(51)
Secondary	35(35)
Higher Secondary	9(9)
Graduate	5(5)
<b>Marital Status</b>	
Married	94(94)
Single	6(6%)
<b>Occupation</b>	
Employed	90(90)
Unemployed	10(10)
<b>Duration of T2D</b>	
>10 years	65(65)
<10 years	35(35)
<b>Family history of Diabetes</b>	

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Yes	88(88)
No	12(12)
Age of the sample in years	( $M = 50.6$ , $SD = 9.23$ )

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### Measures

The scales used in this research are as follows:

- Gratitude Questionnaire-6 (GQ-6)
- Coping Scale (CS)
- Diabetes Self-efficacy Scale (DSES)
- Diabetes Quality of Life Brief Clinical Inventory (DQoL-BCI) scale.

**Demographic Information Sheet.** Demographic Performa was used to measure the basic information of the participant's gender, age, education, marital status, occupation, and duration of Diabetes.

**Gratitude Questionnaire-6 (GQ-6).** Emmons & McCullough, (2002) developed GQ-6 with a six-item questionnaire that measured self-reported gratitude levels. This questionnaire and all the scales below were translated into Urdu for participants' ease of use. Each item is measured on a 7-point agreement scale with a response range from strongly disagree (1) to agree (7). Items 3 and 6 are reversed scored, and compute a mean across the item ratings. The questionnaire has demonstrated good internal consistency ( $\alpha = .84$ ) and a high score indicates high levels of gratitude (Emmons & McCullough, 2003).

**Coping Scale (CS).** This questionnaire was developed to measure how people use cognitive, emotional, and behavioral strategies in dealing with problems. Some items (items 2, 3, and 4) that focused on some aspects of cognitive and emotional strategies were adapted from Coping Strategies Scale (Holahan & Moos, 1987), while other cognitive and emotional aspects were adapted from Spitzberg and Copach (2008) framework and included items 1, 5, 6, and 8. “Adapted items in the CS were reworded to focus on general coping patterns (versus a response to a specific situation) and simplified” (Hamby et al., 2015) for readability. The CS is a 13-item



self-report scale with each item measured on a 4-point Likert-type likelihood response format and ranges from mostly true about me (4) to not true about me (1). A composite score ranges from 13-52 with higher scores indicating better coping. The authors (Hamby et al., 2015) report CS has good internal consistency ( $\alpha = .86$ ) and strong validities with “Anger Management ( $r = .57$ ) and Endurance ( $r = .63$ ), Subjective Well-being ( $r = .53$ ) and Posttraumatic Growth ( $r = .65$ ).”

**Diabetes Self-efficacy Scale (DSES).** The scale was developed at the Stanford Patient Education Research Center and was based on the Chronic Disease Self-Efficacy Questionnaire developed by Lorig et al. (2009). The scale was used to find the self-efficacy in T2D patients and assess their self-management skills in regulating their “diet, physical activity, blood glucose monitoring, follow-up visits, and self-control” (Kerari, 2023). The DSES is an 8-item self-efficacy scale specially developed for T2D patients where each item is measured on an 8-point Likert-type scale with a confidence response format ranging from not confident at all (1) to totally confident (8). The composite scores ranged from 8 to 84 where higher scores indicate better self-efficacy. The scale has good reliabilities ( $\alpha = .79$  and  $.86$ ) as expressed previously (Lorig et al., 2009) and more recently (Kerari, 2023) respectively.

**Diabetes Quality of Life Brief Clinical Inventory (DQoL-BCI) scale.** The DQoL-BCI scale (Burroughs et al., 2004) consists of 15 items, where each item is measured on a 5-point Likert-type scale on a satisfaction response format ranging from very satisfied or never (1) to very dissatisfied or all the time (5). The DQoL-BCI scale contains two subscales QoL satisfaction (QoLS: items 1, 2, 5, 7, 8, 11) and QoL negative impact (QoLNI: Items 3, 4, 6, 9, 10, 12-15). The composite score ranges from 15 and 75 with higher scores indicate better QoL. The scale has good internal consistency ( $\alpha = .76$ ) (Burroughs et al., 2004).

### **Procedure**

The Ethical Review Board at the Applied Psychology Department approved the study. The authors sought permission for

data collection from the medical superintendents of the sampled hospitals of Lahore. The hospital authorities ensured that the participants were not in any psychological and/or physical pain when they completed the scales. All participants were asked to voluntarily sign a consent form after they were informed about the study briefly. To maintain confidentiality and anonymity, personal information (name, email or physical address, phone number etc.) was not sought in the demographic information sheet. The researcher would not include the name of the participant. And they were. All Urdu-translated scales were used in the study. After completion of the protocol, the participants were thanked by the researcher, and the data was entered in the SPSS software for further analysis. Correlational research design was used to investigate the relationship between gratitude self-efficacy, coping strategies, and quality of life in individuals with T2D.

### Results

The current study assessed the relationship between Gratitude, Self-efficacy, Coping Strategies and QoL in patient with type 2 diabetes. To test the correlations, Pearson's Product Moment Correlations were used and for prediction, Linear Regression Analysis was performed.

**Table 2**

*Descriptive Statistics and Correlation among Scales and Subscales (N=100)*

Variable	<i>M</i>	<i>SD</i>	GQ-6	CS	DSE S	QoL <sub>S</sub>	QoL <sub>NI</sub>	DQoL- BCI
GQ-6	35.96	3.41	-					
CS	44.82	6.51	.32**	-				
DSES	66.48	4.98	.27**	.31**	-			
QoL <sub>S</sub>	26.68	1.94	.28**	.32**	.17	-		
QoL <sub>NI</sub>	32.98	3.37	.14	.21*	.06	.34**	-	
DQoL- BCI	59.66	4.42	.23*	.30**	.12	.70**	.91**	-

*Note.* M = Mean, SD = Standard Deviation, GQ-6 = Gratitude Questionnaire-6, CS = Coping Scale, DSES = Diabetes Self-Efficacy Scale, QoL<sub>S</sub> = QoL Satisfaction treatment, QoL<sub>NI</sub> = QoL Negative Impact, DQoL-BCI = Diabetes Quality of Life-Brief Clinical Inventory

\*\**p* < .01, \**p* < .05

Table 2 shows the relationships among the studied variables. Results showed that patients with higher levels of gratitude also tended to have higher self-efficacy, coping strategies, and a quality of life. Gratitude was positively and significantly correlated with coping strategies, self-efficacy for managing T2D, and overall quality of life (positively with QoLS but no correlation with QoLNI). Coping Strategies were also positively and significantly correlated with self-efficacy and quality of life. This demonstrated that patients who coped well with their disease condition had higher level of self-efficacy for managing T2D and

**Table 3**

*Regression Analysis for Quality of Life of type 2 Diabetes Patients (N=100)*

Variable	B	SE	t	p	95% CI	
					LL	UL
Age	-.006	.02	-.03	.77	-.05	.04
Gender	-.27	.42	-.07	.52	-1.10	.56
Duration of Diabetes	-.69	.41	-.17	.09	-1.51	.12
Gratitude	.12	.06	.21	.04	.003	.24
Self-Efficacy	.02	.03	.08	.46	-.04	.08
Coping Strategies	.09	.09	.23	.03	.009	.17
$R^2$	.17					
F	3.26*					

Note. N = 100, CI = Confidence Interval, LL = Lower Limit, UL = Upper Limit

\*\* $p < .001$

The third analysis set used multiple linear regression, which ran gratitude, coping strategies, and self-efficacy as predictors for QoL. The regression model ( $p = .007$ ) revealed all predictors together had a significant positive effect on QoL (Table 3). The analysis demonstrated only gratitude and coping strategies had a significant positive effect on the QoL, but not self-efficacy or other demographic factors like age, gender, and duration of diabetes in this model. The regression model was statistically significant accounting 17% of the variance for QoL.

**Table 4**

*Independent Sample t-test Comparing Study Variables across duration of T2D*

Variable	Duration T2D (Years)				<i>t</i>	<i>p</i>	<i>d</i>
	< 10		> 10				
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Gratitude	35.40	3.80	36.80	2.31	-2.02	.03	.45
Self-Efficacy	65.50	6.34	68.20	6.52	-2.00	.91	.42
Coping Strategies	44.70	5.40	44.80	4.15	-0.09	.06	.02
Quality of life	59.80	4.53	59.40	4.27	0.43	.56	.08

Note. *M* = Mean, *SD* = Standard Deviation, *p* = probability value, *d* = Cohen's *d* (effect size)

The final analysis made a comparison between patients that suffered from T2D for less or more than ten years. Table 4 shows mean comparison of patient's duration of disease greater than 10 years to less than 10 years on gratitude self-efficacy, coping strategies, and QoL of T2D patients. Gratitude mean score between the two groups greater than 10 years and less than 10 years was very close between the two groups. The T value demonstrates a minimal difference and the p-value is significant at a 0.05 level. Cohen's *d* value which is the effect size demonstrates that there is a moderate difference in gratitude between the two groups. The mean difference in coping strategies between the groups is normal and p value 0.062 is significant which shows that there is a significant difference between these two groups.

Gratitude and coping strategies show a statistical difference and medium effect size. Patients with diabetes for less than 10 years demonstrate lower gratitude and coping strategies than those with diabetes for more than 10 years. Self-efficacy shows a moderate effect size but is not statistically significant. The other variables show a very small difference between the groups showing that length of time has minimal effect on QoL.

## Discussion

Diabetes is a lifelong chronic disease that changes the whole life of the person who suffers from it. It complicates the lives of the patients and has the potential to have serious complications for them if not managed properly (Gonzalez et al., 2005).

Previous researches show that several factors affect the QoL among patients who suffer from chronic diseases. Among these are gratitude (Emmons & McCullough, 2003), self-efficacy (Axelsson et al., 2013), coping strategies (Yousef & Kausar, 2016) that affects the QoL among patients with T2D. It was hypothesized that there is a significant correlation between gratitude, self-efficacy, coping strategies and quality of life in patients with T2D. The correlation analysis results demonstrate that a significant relationship was present between gratitude and self-efficacy ( $r=.274^{**}$ ), gratitude and coping strategies ( $r=.323^{**}$ ), and coping strategies and quality of life ( $r=.299^{**}$ ). This shows that there was a significant relationship between all these variables. And revealed that if patients adopt coping strategies, have high self-efficacy and have gratitude in their lives it makes their lives better and enhances their quality of life. The findings which are similar to previous literature show that coping strategies are effective for dealing with disease complications (Skinner, Altman & Sherwood, 2003). Also, research studies demonstrate that gratitude has a positive relationship with coping strategies and quality of life, moreover, coping strategies have a significant positive relationship with quality of life (Sarwer et al., 2024).

Self-efficacy scores were not associated significantly with the quality of life scores. However, the results show that high level of the self-efficacy was linked with a parallel increase in the level of quality of life. The results are consistent with some of previous research work where self-efficacy has links with less psychological distress important for adopting healthy self-care activities which in turn promote quality of life but not directly QoL (Kim et al., 2015). Another study with the same findings discussed that since QoL is about physical and psychological factors, it is observed that self-efficacy could have a stronger influence on physical aspects of QoL and not the social or psychological aspects (Sullivan & O'Connor, 2007).

It was hypothesized that gratitude, coping strategies and self-efficacy will be significant predictors of QoL. Current study findings partially supported this hypothesis. The regression analysis results demonstrate that gratitude ( $p=0.045$ ) and coping strategies ( $p=0.031$ ) are significant predictors of quality of life but self-efficacy is not ( $p= .468$ ). Gratitude as a predictor of QoL is in line with previous studies which have indicated a positive association between QoL and gratitude. It is observed that individuals who are grateful even when dealing with a chronic disease are overall happier and focus on positive aspects of life. It also has the ability to buffer the impact of negative events and emotions and enhance wellbeing and mental health (Emmons & McCullough, 2003).

Similarly, coping strategies as a variable is also a significant predictor of QoL. Consistent with previous findings, coping strategies have been indicated to be vital in reducing and managing stress, overcoming difficult life challenges and regulate one's emotions effectively. Effective coping also reduces diabetes distress and enhances quality of life (Jaser et al., 2017; Teli et al., 2023)

However, self-efficacy didn't come out as a significant predictor of QoL. This finding doesn't align with most of the previous, though some of the studies have indicated similar results (Kim et al., 2015; Sullivan & O'Connor, 2007). This could be attributed to a few factors. One, the other variables like gratitude and coping strategies had a stronger impact on QoL and self-efficacy was more strongly associated with these two rather than QoL. Second, self-efficacy had a more indirect impact on QoL through gratitude and coping.

### **Conclusion**

The study results demonstrate the significant relationship between gratitude, self-efficacy, coping strategies, and QoL in individuals with T2D. Results show that all of these psychological variables are significant but also play an important role in dealing with this type of chronic disease. Enhancing gratitude can help to promote positive psychological emotions and states, a high level of self-efficacy influences lifestyle modification and treatment compliance, adopt useful and effective coping strategies help to manage stressful life events in T2D patients and the relationship between these variables with QoL demonstrate that if patients have a high

level of gratitude coping strategies in their life they have a better quality life. This study is useful because its main focus is on examining the role of positive psychological variables and their relationship with the QoL in T2D.

Results of the study showed important implications for the prevention of unhealthy outcomes which contribute to the increased level of T2D, increase their gratitude level, which helps them to cope with difficult situations by adopting coping strategies and enhance their level of self-efficacy which helps them to take extra care by promoting their self-care activities which are important for their QoL. The research will be useful because it could be used to improve the coping strategies and quality of life in patients with type II Diabetes with the help incorporating gratitude and self-efficacy. This study adopts a holistic approach to treatment for promoting interventions that can help T2D patients to make their quality of life better.

### **Limitations and Strengths**

- The study was conducted in only one city with limited sample and due to it generalizing the findings onto a larger sample is difficult.
- Future research should survey different government and private hospitals so that the role of different factors can also be assessed. Continued research in this area is required and the relationship between these variables with other long-term conditions should also be investigated in Pakistan.
- Comorbid conditions and severity of the disease is not discussed in this study.

### **Implications**

This study provides valuable insights that can help raise awareness about the challenges faced by individuals living with chronic conditions like diabetes. The findings highlight the importance of addressing both physical and psychological needs of individuals having diabetes, which can significantly impact their overall well-being. By recognizing how diabetes and its complications affect a patient's quality of life, and overall mental health, healthcare providers can take a more comprehensive approach to treatment. This may include offering psychological support alongside medical treatment to improve not just the physical health of

patients, but also their emotional well-being. Cultivating gratitude and improving coping strategies can positively influence individuals' self-efficacy, which in turn could enhance their overall quality of life. By fostering gratitude, patients may develop a more optimistic outlook, which strengthens their ability to manage stress and challenges associated with living with diabetes. Moreover, higher self-efficacy and adopting effective coping mechanisms, can empower individuals to take control of their health, adhere to treatment regimens, improving their well-being.

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