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Original Article

Examining the Correlation Between Cognitive Emotion Regulation and the Mediating Role of Self-Care on Quality of Life in Patients with Diabulimia

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Abstract

Introduction: Diabulimia, characterized by the intentional omission of insulin to prevent weight gain, is associated with serious physical and psychological complications. This study examined the correlations between cognitive emotion regulation strategies and quality of life, with self-care as a mediating variable, among patients with diabulimia.

Methods: In this cross-sectional study, 161 patients with diabulimia attending diabetes clinics in Shiraz between July and October 2025 were recruited using convenience sampling. Participants completed the CERQ, DSQ, and WHO-QOL-BREF questionnaires. Data were analyzed using correlation analysis and partial least squares structural equation modeling, with no causal inference.

Results: Self-care showed a significant positive correlation with quality of life ($\beta = 0.380$, $P < 0.001$). Acceptance demonstrated a negative indirect association with quality of life through self-care ($\beta = -0.098$, $P = 0.011$), while positive refocus indicated a positive indirect association ($\beta = 0.115$, $P = 0.001$). Rumination and blaming others exhibited negative indirect associations with quality of life ($\beta = -0.191$, $P = 0.001$; $\beta = -0.110$, $P = 0.004$, respectively).

Conclusion: The findings indicate significant associations between cognitive emotion regulation strategies, self-care behaviors, and quality of life in patients with diabulimia. These results highlight the importance of addressing emotional regulation patterns alongside self-care behaviors in clinical practice. However, causal interpretations should be avoided due to the cross-sectional design.

Keywords: Cognitive emotion regulation, Self-care, Quality of life, Diabulimia

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Introduction

Diabetes is one of the most common chronic diseases and significantly affects both physical and psychological health. In 2019, its global prevalence was reported at 9.3% (approximately 463 million people), with projections indicating an increase to 10.2% by 2030 (1). This disorder is classified as a chronic autoimmune disease in which the body's immune system attacks insulin-producing cells. Although the exact cause remains unknown, both genetic and environmental factors are believed to contribute to its onset (2). In this condition, the body is unable to metabolize glucose effectively, necessitating continuous glucose monitoring, dietary management, and insulin injections. These demands can cause considerable stress and reduce an individual's quality of life (3).

Among the various challenges associated with diabetes, diabulimia is considered one of the most serious and dangerous psychological disorders. It is recognized as an eating disorder specific to individuals with diabetes, in which affected individuals intentionally reduce or omit insulin intake to prevent weight gain associated with insulin therapy (4). Such behaviors increase the risk of complications, including diabetic ketoacidosis, vascular damage, and even death. Evidence suggests that daily diabetes-related stress and negative body image perceptions are major contributors to the development of diabulimia. Additionally, unhealthy eating patterns—such as binge eating or purging—can disrupt blood glucose regulation and complicate diabetes management (5).

Emotional regulation difficulties involve challenges in understanding emotions and controlling behaviors during distress. Research shows that weaknesses in emotional regulation are associated with heightened psychological distress and poorer diabetes management. In contrast, effective emotional regulation strategies can enhance self-management behaviors and improve health outcomes (6). A study by Mourat et al reported that adaptive emotional regulation strategies (e.g., positive reappraisal) reduce disease-related ambiguity and improve self-care behaviors, whereas maladaptive strategies (e.g., rumination and catastrophizing) increase ambiguity and reduce self-management efforts (7). Patients with diabulimia often experience intense emotional challenges,

including stress related to ongoing diabetes management, concerns about body image, and fear of weight gain. These experiences can lead to emotional disorders such as anxiety and depression, which negatively influence diabetes-related behaviors (8). Emotions play a critical role in shaping an individual's behaviors in diabetes management, and the way in which individuals cope with these emotions can significantly influence the course of the disease. Positive strategies such as reappraisal and acceptance can help individuals cope with psychological and physical challenges. In contrast, negative strategies such as self-blame or rumination can intensify distress and worsen diabetes-related outcomes (9).

In individuals with diabulimia, emotional regulation becomes even more crucial. Intense negative emotions such as anxiety, shame, or guilt may impair emotion-management capacities, contributing to maladaptive behaviors such as intentionally reducing insulin doses and creating a cycle of physical and psychological problems (10). These individuals often rely on maladaptive strategies such as rumination and self-blame, which reinforce unhealthy behaviors such as reducing insulin or avoiding appropriate medical care. Limited use of adaptive strategies, including cognitive reappraisal and acceptance, further reduces their ability to cope effectively with disease-related challenges (11). Evidence also indicates that diabetes-related stress is associated with increased negative emotions and reduced emotional regulation skills, both of which are linked to higher levels of glycated hemoglobin. Some studies have even suggested that difficulties in emotion regulation may influence blood glucose levels more strongly than typical diabetes self-management behaviors (12). Another study demonstrated that enhancing emotional regulation skills and increasing emotional self-awareness can significantly reduce diabetes-related stress and improve blood glucose control in both type 1 and type 2 diabetes (13).

Neglecting self-care can lead to a decreased quality of life and increased risk of serious complications, such as cardiovascular, renal, and ophthalmic problems. Self-care involves monitoring blood glucose, adhering to dietary guidelines, engaging in physical activity, and complying with prescribed medications (14). Several factors, including stress, depressive symptoms, limited health literacy, and inadequate social support, can impede effective self-care behaviors. Conversely, enhancing self-care competencies, alongside expanding patient awareness and access to supportive resources, can substantially improve quality of life and diabetes management. In line with these findings, Jafari et al demonstrated that diabetes health literacy, social support, and self-care behaviors directly promote quality of life, whereas diabetes-related distress, burnout, and medical complications are associated with poorer outcomes (15). Similarly, Wong et al reported that psychological difficulties, limited knowledge, and insufficient social support serve as significant barriers to effective self-care in individuals with diabetes, while motivation, supportive relationships, and access to educational resources act as facilitators (16-18).

Given the interplay of psychological and behavioral factors influencing the quality of life in individuals with diabetes and diabulimia, a deeper understanding of these correlations is essential. Identifying how cognitive emotion regulation strategies relate to self-care behaviors and quality of life can help clarify underlying risk factors and guide targeted interventions.

Accordingly, the present study seeks to examine these associations within a descriptive-analytical framework, without engaging in predictive or structural modeling. By focusing on the empirical correlations among cognitive emotion regulation, self-care, and quality of life, this study aims to provide a clearer understanding of the psychological and behavioral challenges faced by individuals with diabulimia. The conceptual framework is illustrated in Figure 1.

Materials and Methods

The present study employed a quantitative, cross-sectional, descriptive-correlational design. It is classified as applied research, with the objective of examining the correlations among study variables. In this research model, cognitive emotion regulation serves as the independent variable, the quality of life in patients with diabulimia is the dependent variable, and self-care acts as the mediating variable.

The research population comprised all patients with diabulimia attending diabetes clinics in Shiraz between July and October 2025. From this population, a sample of 170 patients was obtained through convenience sampling. The sample size was determined using the Tabachnick and Fidell formula for regression models ($N \geq 50 + 8m$), where m represents the number of predictor variables. As the study included nine components of the Cognitive Emotion Regulation Questionnaire (CERQ) as predictors, a minimum of 122 participants was required. To enhance statistical power and account for potential attrition, 200 patients were initially recruited through convenience sampling. Of these, 170 completed the questionnaires fully and were included in the final analysis.

Inclusion criteria for participation in the study were a documented diagnosis of diabulimia, as confirmed by medical records; age between 30 and 55 years; sufficient literacy and cognitive capacity to comprehend the questionnaires; and provision of written informed consent. Exclusion criteria were a documented severe psychiatric disorder (e.g., psychosis or cognitive impairment) that interfered with their ability to complete the questionnaires, providing substantially incomplete responses (missing more than seven items), or demonstrating evidence of response inconsistency or random answering patterns during data screening.

Procedure

The research was implemented as follows. First, the necessary permissions were obtained from the relevant university authority. Subsequently, the researcher visited diabetes clinics in Shiraz that were selected

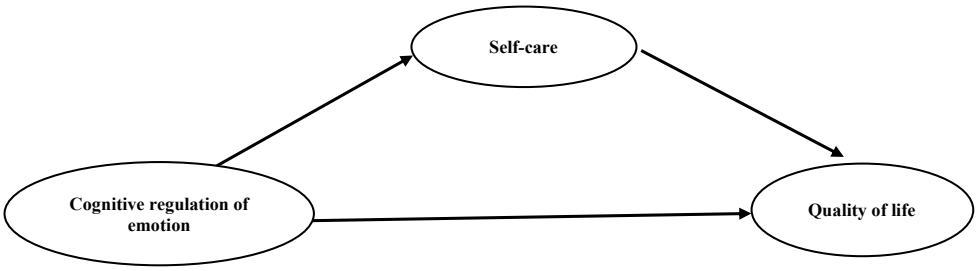

Figure 1. Conceptual Framework of the Research

through convenience sampling and coordinated with the clinic management to facilitate data collection. Then recruitment announcements were disseminated online via the clinics' official websites and social media platforms to patients with verified clinical records. Participants who responded to the recruitment announcements were randomly selected using a random number table and numbered sequentially. Message dissemination, individual selection, and questionnaire dissemination were conducted in person over four months. A total of 170 questionnaires were completed. Following data screening, nine questionnaires were excluded due to incomplete responses or evidence of intentional or inconsistent answering patterns. Consequently, data from 161 participants were retained for the final analysis. All questionnaires were administered in self-report frormat.

Instruments

Diabetes Self-Care Questionnaire

The Diabetes Self-Care Questionnaire (DSQ) is a 15-item self-report instrument designed to assess self-care behaviors among patients with diabetes during the past seven days. The questionnaire evaluates several key domains of diabetes management, including general dietary regimen and specific dietary regimen (5 items), physical activity (2 items), blood glucose testing (2 items), insulin injection or oral antidiabetic medication (1 item), foot care (4 items), and smoking behavior (1 item). Some items include: "How often did you follow a healthy eating plan recommended by your healthcare provider or treatment team during the past seven days?" "On average, how often did you adhere to your specific diabetic diet over the past seven days?" "How many times did you consume five or more servings of fruits and vegetables in the past week?" and "How often did you consume high-fat foods such as red meat or full-fat dairy products during the past seven days"? In this scale, all items are scored on a scale ranging from 0 to 7, while the smoking item is scored from 0 to 1. The overall self-care score is computed by summing the scores of all items, yielding a total score ranging from 0 to 99. The DSQ demonstrated acceptable content validity in the Iranian context, with a reported Content Validity Index (CVI) of 0.849. In addition, the internal consistency reliability of the Persian version was acceptable, with a Cronbach's alpha coefficient of 0.78, indicating satisfactory reliability among Iranian samples (19). In this study, the Cronbach's alpha coefficient was 0.711.

The Cognitive Emotion Regulation Questionnaire

This questionnaire is a multidimensional instrument used to assess cognitive coping strategies for cognitive and emotional regulation following negative or stressful events (20). This self-report instrument comprises 36 items derived from empirical and theoretical research on cognitive emotion regulation. The CERQ includes nine subscales representing different cognitive coping strategies: self-blame, acceptance, rumination, positive refocusing, refocus on planning, positive reappraisal, perspective-taking, catastrophizing, and blaming others. Each subscale includes four items rated on a five-point Likert scale ranging from 1 (almost never) to 5 (almost always). Subscale scores therefore range from 4 to 20, with higher scores indicating greater use of that strategy in coping with stressful and negative events. The obtained Cronbach's alpha coefficients for all subscales were satisfactory, with a mean of 0.83. Additionally, the subscales exhibited good internal consistency and significant test-retest reliability, with most item correlations exceeding 0.4. The Persian version of the CERQ showed strong content validity, with a CVI of 0.91 and a Content Validity Ratio (CVR) of 0.89 (21). In this study, Cronbach's alpha coefficients for the nine CERQ subscales were 0.846, 0.784, 0.687, 0.789, 0.728, 0.826, 0.761, 0.838, and 0.829.

The World Health Organization Quality of Life Questionnaire

The World Health Organization Quality of Life Questionnaire (WHOQOL-BREF) is a 26-item instrument developed by the WHO. It assesses four dimensions of quality of life: physical health (7 items), psychological health (6 items), social relationships (3 items), and environmental health (8 items) (22). Two additional items assess the individual's general health status. Responses are scored on a scale ranging from 0 to 3, where 0 indicates none, 1 indicates low, 2 indicates moderate, and 3 indicates high. The total possible score for the questionnaire ranges from 0 to 78. Previous research conducted in Iran has reported a Cronbach's alpha coefficient of 0.87 for this instrument. Additionally, the CVR and CVI were reported as 0.84 and 0.71, respectively (23). In this study, a Cronbach's alpha of 0.884 was obtained for the scale.

Data Analysis

Descriptive statistics and Spearman's rank correlation analyses were conducted using SPSS version 27. Path analysis among the study variables was performed using SmartPLS version 4. The normality of the distribution of research variables was assessed using the Shapiro-Wilk test. Since the results of this test indicated that the variables were not normally distributed, the partial least squares method implemented in SmartPLS was used. A significance level of 0.05 was considered for all statistical tests. In addition, the bootstrap method was employed to assess the mediating role of variables within the proposed model.

Results

Descriptive statistics were first calculated for the demographic characteristics of the participants. Patients with diabulimia were categorized into three age groups: 30-40 years (49.7%), 40-50 years (43.5%), and 50-55 years (6.8%). Participants were also classified by gender into male (24.2%) and female (75.8%) groups. With respect to marital status, participants were classified as married (76.4%) or single (23.6%). Regarding educational level, participants were divided into three groups: middle school (14.9%), high school (59.0%), and academic education (26.1%), as depicted in Table 1.

Table 2 presents the descriptive statistics for the main research variables, including measures of central tendency, dispersion, and distributional characteristics. As shown, the mean scores for self-care and quality of life were relatively high, indicating generally moderate to favorable levels among participants. In contrast, maladaptive cognitive emotion regulation strategies, such as self-blame, catastrophizing, and blaming others, showed moderate mean scores.

The results of the Shapiro–Wilk test indicated that the distributions of all study variables significantly deviated from normality ($P<0.001$). However, the skewness and kurtosis values for most variables fell within acceptable ranges (±2), suggesting no severe violations of normality assumptions. Given the sample size and the robustness of the statistical procedures used, the observed deviations from normality were considered acceptable for further analysis. Overall, these findings provide an adequate descriptive basis for subsequent correlational and multivariate analyses.

Table 1. Description of Demographic Variables

Variables	Groups	Frequency	Percent	Sample Size	Mode
Gender	Male	39	24.2	161	2
	Female	122	75.8		
Age	30-40	80	49.7	161	1
	40-50	70	43.5		
	50-55	11	6.8		
Marital Status	Married	123	76.4	161	1
	Single	38	23.6		
Education	Middle School	24	14.9	161	2
	High School	95	59.0		
	Academic	42	26.1		

According to Table 3, quality of life demonstrated a significant positive correlation with self-care ($r=0.708$, $P<0.001$). Conversely, it exhibited significant negative correlations with several variables, including self-blame ($r=-0.287$, $P<0.001$), ruminant behavior ($r=-0.695$, $P<0.001$), catastrophizing ($r=-0.421$, $P<0.001$), and blaming others ($r=-0.685$, $P<0.001$).

Additionally, quality of life indicated significant positive correlations with acceptance ($r=0.626$, $P<0.001$), positive refocus ($r=0.512$, $P<0.001$), refocus on planning ($r=0.240$, $P<0.01$), and positive reappraisal ($r=0.671$, $P<0.001$). However, no significant correlation was observed between quality of life and perspective-taking ($r=0.058$, $P>0.05$). Overall, the results indicate significant correlations between cognitive emotion regulation strategies, self-care behaviors, and quality of life.

Based on the results presented in Table 4 and Figure 2, significant relationships were identified between cognitive emotion regulation strategies, self-care, and quality of life. Acceptance showed a significant positive direct effect on quality of life ($\beta=0.356$, $P<0.001$) but a significant negative direct effect on self-care ($\beta=-0.258$, $P=0.006$). This indicates that while acceptance may improve overall well-being, it could detract from proactive self-care behaviors. Blaming others negatively affected both quality of life ($\beta=-0.317$, $P<0.001$) and self-care ($\beta=-0.289$, $P<0.001$), suggesting that this strategy is associated with poorer outcomes. In contrast, catastrophizing did not significantly influence quality of life ($\beta=0.022$, $P=0.686$) or self-care ($\beta=0.022$, $P=0.973$).

Perspective-taking was significantly negatively associated with quality of life ($\beta=-0.151$, $P=0.001$) but was not significantly associated with self-care ($\beta=-0.033$, $P=0.569$). Positive reappraisal and positive refocusing showed no significant direct associations with quality of life ($\beta=-0.005$, $P=0.939$; $\beta=-0.080$, $P=0.211$). However, positive refocusing demonstrated a significant positive association with self-care ($\beta=0.303$, $P<0.001$). Rumination was significantly negatively associated with self-care ($\beta=-0.504$, $P<0.001$), although it was not significantly associated with quality of life ($\beta=-0.080$, $P=0.305$). Self-blame showed no significant associations with either quality of life ($\beta=0.060$, $P=0.194$) or self-care ($\beta=0.013$, $P=0.813$). Importantly, self-care was significantly associated with quality of life ($\beta=0.380$, $P<0.001$).

Analysis of indirect effects indicated that acceptance had a significant negative indirect effect on quality of life via self-care ($\beta=-0.098$, $P=0.011$). Positive refocusing showed a significant positive indirect association with quality of life through self-care ($\beta=0.115$, $P=0.001$). In contrast, rumination ($\beta=-0.191$, $P=0.001$) and blaming others ($\beta\beta=-0.110$, $P=0.004$) exhibited significant negative indirect associations with quality of life through self-care. Catastrophizing, perspective-taking, positive

Table 2. Description of the Main Research Variables

Variable	Median	IQR	Mean	SD	Skewness	Kurtosis	Shapiro-Wilk	*P*-value	Min	Max
Self-care	56	5	56.640	5.04	0.308	-0.694	0.926	$P<0.001$	49	66
Quality of Life	49	15	49.969	7.24	0.298	-1.262	0.914	$P<0.001$	40	63
Self-blame	12	5	13.062	2.54	-0.031	-0.966	0.928	$P<0.001$	7	17
Acceptance	10	3	10.478	1.74	-0.289	-1.034	0.917	$P<0.001$	7	13
Ruminant Behavior	12	4	12.099	2.65	0.129	-0.750	0.956	$P<0.001$	7	17
Positive Refocus	10	3	10.093	1.82	-0.002	-1.220	0.919	$P<0.001$	7	13
Refocus on Planning	12	2	11.043	1.53	-0.731	-0.176	0.897	$P<0.001$	7	13
Positive Reappraisal	11	3	11.025	2.38	0.383	-0.321	0.933	$P<0.001$	7	16
Perspective-taking	9	1	8.832	1.32	1.235	1.703	0.835	$P<0.001$	7	13
Catastrophizing	12	4	12.602	2.31	-0.010	-0.678	0.916	$P<0.001$	7	16
Blaming Others	11	6	10.758	3.15	-0.018	-0.893	0.932	$P<0.001$	6	17

Note. IQR: Interquartile range; Mean: Arithmetic mean; SD: Standard deviation; Min: Minimum observed value; Max: Maximum observed value; *P*-value: Significance level of the Shapiro–Wilk normality test.

Table 3. Spearman's Correlations

Variable	1		2		3		4		5		6		7		8		9		10		11
Quality of life	—																				
Self-care	0.708	***	—																		
Self-blame	-0.287	***	-0.384	***	—																
Acceptance	0.626	***	0.489	***	-0.239	**	—														
Ruminant behavior	-0.695	***	-0.722	***	0.454	***	-0.554	***	—												
Positive refocus	0.512	***	0.530	***	-0.382	***	0.795	***	-0.476	***	—										
Refocus on planning	0.240	**	0.130		0.019		0.631	***	-0.158	*	0.532	***	—								
Positive reappraisal	0.671	***	0.575	***	-0.183	*	0.819	***	-0.626	***	0.672	***	0.458	***	—						
Perspective-taking	0.058		0.088		-0.034		0.330	***	-0.209	**	0.311	***	0.206	**	0.255	**	—				
Catastrophizing	-0.421	***	-0.420	***	0.269	***	-0.362	***	0.552	***	-0.281	***	-0.082		-0.363	***	-0.116	—			
Blaming others	-0.685	***	-0.599	***	0.313	***	-0.481	***	0.681	***	-0.393	***	-0.163	*	-0.549	***	-0.135	0.406	***	—	

reappraisal, self-blame, and refocusing on planning did not show significant indirect effects on quality of life through self-care ($P>0.05$). Overall, these findings underscore the complex and dynamic interplay between cognitive emotion regulation strategies, self-care behaviors, and quality of life. Acceptance and positive refocusing were associated with improvements in quality of life by facilitating self-care. In contrast, maladaptive strategies, such as blaming others and ruminative tendencies, are linked to poorer self-care practices and diminished quality of life.

The results indicate that some cognitive regulation strategies demonstrate opposing direct and indirect associations with quality of life when self-care is entered as a mediating variable. Most notably, acceptance showed a positive direct association with quality of life ($\beta=0.356$, $P<0.001$), while simultaneously demonstrating a negative indirect association through self-care ($\beta=-0.098$, $P=0.011$). This opposing pattern suggests that while acceptance is directly related to higher quality of life, it is also associated with reduced engagement in self-care behaviors, which, in turn, subsequently relates to lower quality of life. Similarly, positive reframing was not directly associated with quality of life ($\beta=-0.005$, $P=0.939$), but showed a significant positive indirect association through self-care ($\beta=0.115$, $P=0.001$). This indicates that the beneficial relationship between positive reframing and quality of life may primarily arise from its role in enhancing self-care practices rather than from a direct psychological effect.

In contrast, rumination demonstrated no significant direct association with quality of life ($\beta=-0.080$, $P=0.305$), but presented a significant negative indirect association through self-care ($\beta=-0.191$, $P=0.001$). This finding suggests that rumination may influence quality of life primarily through its detrimental impact on self-care behaviors rather than through a direct effect on psychological functioning. Finally, blaming others was significantly associated with lower quality of life ($\beta=-0.317$, $P<0.001$) and a significant negative indirect association via self-care ($\beta=-0.110$, $P=0.004$), indicating a consistent detrimental pattern across both pathways.

Discussion

The present study investigated the complex associations between cognitive emotion regulation strategies, self-care behaviors, and quality of life among patients with diabulimia. Unlike previous studies that primarily described associations, the current findings highlight the specific behavioral and psychological mechanisms

Table 4. Indirect and Direct Effects

	Path Coefficient	Estimate	SD	t-value	*P*	95% Confidence Interval	
						2.5%	97.5%
Direct Effects	Acceptance ->Quality of life	0.356	0.083	4.270	*P*<0.001	0.185	0.517
	Acceptance ->Self-care	-0.258	0.094	2.738	0.006	-0.466	-0.091
	Blaming others ->Quality of life	-0.317	0.068	4.663	*P*<0.001	-0.458	-0.191
	Blaming others ->Self-care	-0.289	0.081	3.550	*P*<0.001	-0.453	-0.129
	Catastrophizing ->Quality of life	0.022	0.055	0.404	0.686	-0.091	0.127
	Catastrophizing ->Self-care	0.002	0.052	0.034	0.973	-0.102	0.108
	Perspective-taking ->Quality of life	-0.151	0.047	3.229	0.001	-0.244	-0.060
	Perspective-taking ->Self-care	-0.033	0.058	0.569	0.569	-0.139	0.083
	Positive reappraisal ->Quality of life	-0.005	0.066	0.076	0.939	-0.134	0.125
	Positive reappraisal ->Self-care	0.163	0.106	1.528	0.127	-0.016	0.392
	Positive refocus ->Quality of life	-0.080	0.064	1.252	0.211	-0.209	0.048
	Positive refocus ->Self-care	0.303	0.071	4.253	0.000	0.157	0.430
	Refocus on planning ->Quality of life	-0.013	0.046	0.280	0.780	-0.109	0.070
	Refocus on planning ->Self-care	-0.044	0.053	0.821	0.412	-0.148	0.065
	Ruminant behavior ->Quality of life	-0.080	0.078	1.025	0.305	-0.233	0.067
	Ruminant behavior ->Self-care	-0.504	0.107	4.728	*P*<0.001	-0.707	-0.310
	Self-blame ->Quality of life	0.060	0.046	1.300	0.194	-0.031	0.152
	Self-blame ->Self-care	0.013	0.055	0.236	0.813	-0.088	0.124
	Self-care ->Quality of life	0.380	0.074	5.161	*P*<0.001	0.232	0.521
Indirect Effects	Acceptance ->Self-care ->Quality of life	-0.098	0.038	2.553	0.011	-0.181	-0.034
	Positive refocus ->Self-care ->Quality of life	0.115	0.034	3.406	0.001	0.049	0.186
	Ruminant behavior ->Self-care ->Quality of life	-0.191	0.056	3.432	0.001	-0.317	-0.092
	Catastrophizing ->Self-care ->Quality of life	0.001	0.020	0.033	0.973	-0.040	0.041
	Perspective-taking ->Self-care ->Quality of life	-0.013	0.022	0.561	0.575	-0.056	0.031
	Blaming others ->Self-care ->Quality of life	-0.110	0.038	2.891	0.004	-0.193	-0.041
	Positive reappraisal ->Self-care ->Quality of life	0.062	0.042	1.470	0.142	-0.006	0.154
	Self-blame ->Self-care ->Quality of life	0.005	0.021	0.237	0.813	-0.034	0.049
	Refocus on planning ->Self-care ->Quality of life	-0.017	0.021	0.794	0.427	-0.061	0.025

Note. SD**:** Standard deviation.

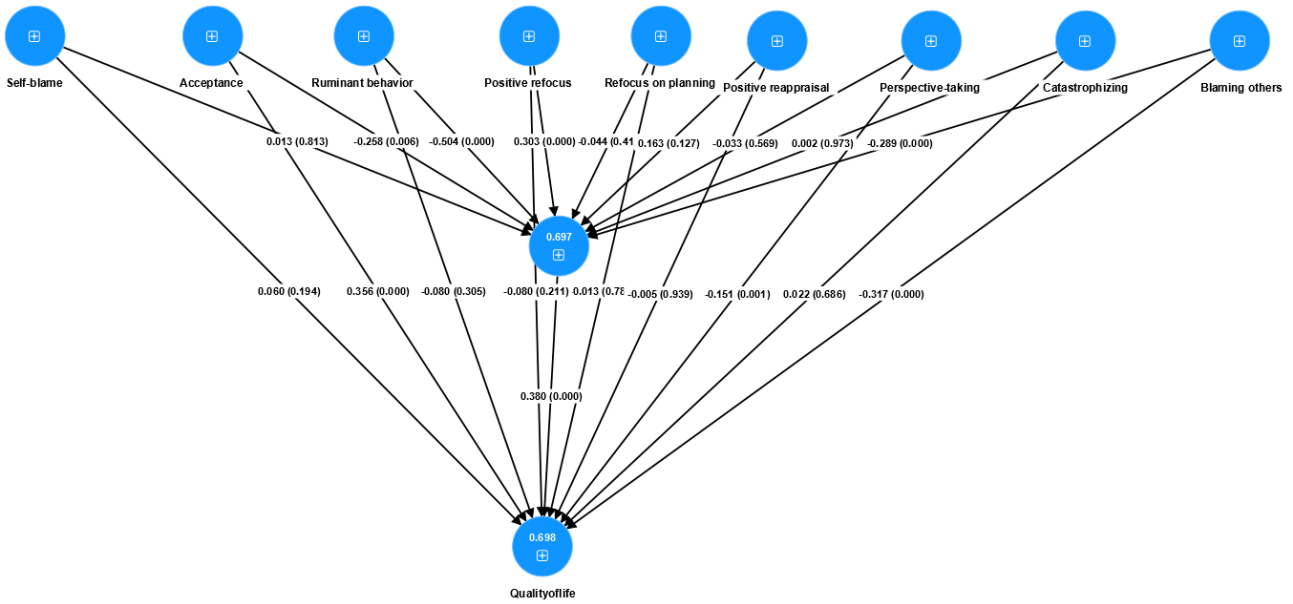

Figure 2. Path Coefficients With Significance Level

through which adaptive and maladaptive cognitive processes shape diabetes management and ultimately influence overall well-being.

First, the contrasting effects of acceptance illustrate how a single cognitive strategy may operate via divergent mechanisms. While acceptance exerted a positive direct effect on quality of life, it simultaneously showed a negative indirect effect mediated by self-care. This pattern suggests that while acceptance may alleviate immediate psychological distress and enhance emotional well-being (3, 13), excessive reliance on acceptance, particularly in chronic illness management, may lead to a passive coping style that reduces engagement in daily self-care tasks such as glucose monitoring and dietary regulation. Prior research similarly indicates that acceptance-based strategies may paradoxically undermine behavioral activation when they are used without complementary problem-focused coping strategies (7, 9).

In contrast, positive refocusing was not directly associated with quality of life but was positively associated with self-care behaviors, which subsequently predicted higher quality of life. This finding suggests that positive refocusing may not directly enhance emotional well-being; rather, it may facilitate behavioral regulation by redirecting attention away from distress and thereby enabling greater adherence to daily diabetes management routines. This mechanism aligns with findings demonstrating that emotion-focused cognitive strategies can indirectly support functional health behaviors (6, 24).

Conversely, maladaptive cognitive strategies such as rumination and blaming others demonstrated detrimental effects. Rumination was strongly associated with poorer self-care, which in turn predicted lower quality of life. This is consistent with evidence indicating that ruminative thinking impairs executive functioning and increases emotional distress, making it more difficult for patients to sustain the ongoing demands of diabetes care (8, 12). Similarly, blaming others negatively affected both quality of life and self-care, suggesting an externalization of responsibility that may reduce motivation for treatment adherence. Prior studies on diabulimia further indicatethat externalizing coping styles are associated with heightened psychological distress, lower illness insight, and poorer glycemic control (10, 11).

Interestingly, cognitive strategies such as catastrophizing, self-blame, perspective-taking, and positive reappraisal did not show significant indirect effects. This finding suggests that not all cognitive emotion regulation strategies meaningfully influence diabetes management behaviors within the context of diabulimia. Since diabulimia involves intentional omission of insulin, an active and often identity-related behavior, the psychological mechanisms underlying this condition may differ from those observed in broader diabetes populations. Previous studies have shown that diabulimia is uniquely associated with body image concerns, heightened stress, and emotional dysregulation (2, 5), which may limit the behavioral influence of certain cognitive strategies in shaping behavioral patterns.

A central and theoretically important finding of the present study is the strong positive effect of self-care on quality of life. This result aligns with extensive literature demonstrating that diabetes self-management, including dietary regulation, glucose monitoring, physical activity, and medication adherence, is among the strongest predictors of quality-of-life outcomes in individuals with diabetes (15, 24, 25). The mediating role of self-care further indicates that cognitive processes influence well-being not only through emotional pathways but also through their impact on daily health behaviors (14, 16).

Taken together, these findings provide deeper insight into the psychological mechanisms underlying diabulimia. The results demonstrate that cognitive emotion regulation strategies affect quality of life through both direct emotional effects and indirect behavioral pathways. Adaptive strategies such as acceptance and positive refocusing may enhance well-being when accompanied by active self-management behaviors, whereas maladaptive strategies undermine both self-care and quality of life. These findings underscore the importance of interventions that simultaneously target emotional regulation and self-care behaviors. Programs integrating mindfulness-based approaches, emotional awareness training, and behavioral self-regulation, supported by recent empirical research (9, 14), may offer significant therapeutic benefit for patients with diabulimia.

Limitations and Future Directions

The present study has several limitations that should be acknowledged. First, the cross-sectional design precludes causal inferences regarding the relationships among cognitive emotion regulation strategies, self-care behaviors, and quality of life. Although structural equation modeling provided valuable insights into patterns of association, longitudinal and experimental studies are required to clarify the directionality of these correlations.

Second, the use of convenience and volunteer sampling may have introduced selection bias. Individuals who choose to participate may systematically differ from non-participants in terms of motivation, psychological characteristics, or engagement with diabetes care. Although participant recruitment from multiple clinics and the application of strict inclusion and exclusion criteria helped to mitigate this concern, caution should be exercised when generalizing the findings.

Third, despite the acceptable reliability and validity of the measurement instruments used (CERQ, DSQ, and WHO-QOL-BREF), the study relied entirely on self-reported data. Such measures are susceptible to response bias, including social desirability and recall inaccuracies, which may affect the accuracy of reported emotional regulation strategies, self-care behaviors, and perceived quality of life. Future research would benefit from incorporating objective clinical measures or multi-informant reports to reduce these potential biases.

To advance this field, future studies should use larger, more diverse samples to improve the generalizability of the findings. Conducting longitudinal research could also further clarify causal correlations between cognitive emotion regulation, self-care, and quality of life. Additionally, intervention studies designed to improve cognitive emotion regulation and self-care practices may further enhance the quality of life for patients with diabulimia. Finally, examining cultural factors that shape emotional regulation patterns and self-care behaviors will be crucial for future research.

Conclusion

This study underscores the significant correlations between cognitive emotion regulation and quality of life in patients with diabulimia, highlighting the mediating role of self-care behaviors. Effective self-care practices can enhance emotional regulation, ultimately improving the overall quality of life for these patients. Addressing the identified limitations and the proposed research directions will be essential for advancing knowledge in this area and developing tailored interventions for individuals with diabulimia.

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Competing Interests

The authors declare no competing interests.

Ethical Approval

Ethical approval was obtained from the Research Ethics Committees of Bushehr Province University of Medical Sciences, Iran (Ethical Code: IR.BPUMS.REC.1404.310).

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