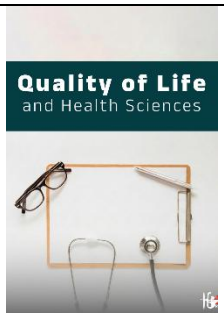
KMAN PUBLISHING INSTITUTE

Article history:
Received 23 April 2025
Revised 14 June 2025
Accepted 24 June 2025
Published online 01 July 2025

Quality of Life and Health Sciences

Volume 1, Issue 1, pp 1-14



Illness Perception and Health-Related Quality of Life Among Patients With Type 2 Diabetes: The Mediating Role of Self-Care Behaviors

Seyed Amir. Saadati[1], Nadereh. Saadati[2*]

[1] Student Doctor of Physical Therapy (DPT), Department of Family Medicine and Community Health, Faculty of Physical Therapy, University of Minnesota Twin Cities Medical School, Minnesota, USA
[2] Department of Psychology and Counseling, KMAN Research Institute, Richmond Hill, Ontario, Canada

*** Corresponding author email address**: nsaadati@kmanresce.ca

A r t i c l e I n f o

Article type:
Original Research

How to cite this article:
Saadati, S. A. & Saadati, N. (2025). Illness Perception and Health-Related Quality of Life Among Patients With Type 2 Diabetes: The Mediating Role of Self-Care Behaviors. *Quality of Life and Health Sciences, 1*(1), 1-14.
http://dx.doi.org/10.61838/kman.qlhs.5754

A B S T R A C T

Objective: This study aimed to examine the relationship between illness perception and health-related quality of life among patients with type 2 diabetes and to determine the mediating role of self-care behaviors in this relationship.

Methods and Materials: This descriptive-correlational cross-sectional study was conducted among 412 patients with type 2 diabetes receiving outpatient diabetes care in Canada. Participants were selected through convenience sampling based on inclusion and exclusion criteria. Data were collected using a demographic and clinical information form, the Brief Illness Perception Questionnaire, the Summary of Diabetes Self-Care Activities measure, and the Diabetes Quality of Life Brief Clinical Inventory. Data analysis was performed using SPSS and AMOS. Pearson correlation coefficients were used to examine associations among the main variables, and structural equation modeling was applied to test the proposed mediation model. The indirect effect was examined using the bootstrapping method with 5,000 resamples and 95% confidence intervals.

Findings: The results showed that illness perception was significantly and negatively correlated with self-care behaviors and health-related quality of life. Self-care behaviors were significantly and positively correlated with health-related quality of life. The structural model showed acceptable fit indices, including $\chi^2/df = 1.79$, CFI = 0.982, TLI = 0.973, GFI = 0.976, RMSEA = 0.044, and SRMR = 0.036. Illness perception had a significant negative direct effect on self-care behaviors and health-related quality of life, while self-care behaviors had a significant positive direct effect on health-related quality of life. The indirect effect of illness perception on health-related quality of life through self-care behaviors was also significant, confirming partial mediation.

Conclusion: The findings indicate that negative illness perception is associated with poorer health-related quality of life both directly and indirectly through reduced self-care behaviors. Interventions that improve illness perception and strengthen diabetes self-care may enhance quality of life among patients with type 2 diabetes.

Keywords: *Illness perception; health-related quality of life; self-care behaviors; type 2 diabetes; mediation; structural equation modeling.*

1. Introduction

Type 2 diabetes mellitus is a chronic metabolic condition that affects patients not only through biological and clinical complications but also through continuous psychological, behavioral, and social demands. Unlike acute diseases, type 2 diabetes requires long-term adjustment to treatment, dietary regulation, physical activity, medication adherence, blood glucose monitoring, and regular interaction with healthcare systems. For many patients, living with diabetes becomes an ongoing process of interpreting symptoms, evaluating personal control, managing emotional responses, and maintaining daily self-care behaviors. Therefore, clinical outcomes in type 2 diabetes cannot be understood only through biomedical indicators such as glycemic control; they must also be examined through patient-centered constructs such as illness perception, self-care behaviors, and health-related quality of life. Recent literature increasingly emphasizes that patients' cognitive and emotional representations of chronic illness shape their coping responses, treatment engagement, and adaptation to the disease experience (Stanton & Hoch, 2025). In this framework, illness perception is considered a key psychological determinant of how individuals understand diabetes, how seriously they evaluate its consequences, how much control they believe they have over it, and how willing they are to engage in behaviors necessary for long-term management.

Illness perception refers to the beliefs and emotional meanings that patients attach to their illness. These perceptions typically include beliefs about the identity of the disease, its causes, timeline, consequences, controllability, treatment effectiveness, and emotional impact. In type 2 diabetes, illness perception is especially important because the disease is often lifelong, may remain asymptomatic in its early stages, and requires self-management even when patients do not feel acutely ill. If patients perceive diabetes as uncontrollable, unpredictable, highly threatening, or emotionally overwhelming, they may experience reduced motivation and lower confidence in their ability to manage the disease. Conversely, patients who understand diabetes as a controllable condition and perceive treatment and lifestyle modification as effective may be more likely to engage in adaptive self-care. Empirical studies have supported the importance of illness perception among patients with diabetes. For example, illness perception has been associated with self-efficacy and resilience in patients with type 2 diabetes, suggesting that patients' interpretations of illness are related to their psychological capacity to adapt to the demands of disease management (Mohammadi et al., 2022). Similarly, studies conducted among patients with diabetes have shown that illness perception is a meaningful construct for understanding how patients appraise their condition and respond to its daily challenges (Nwabudike & Ogbeide, 2022).

Self-care behaviors are central to the management of type 2 diabetes. These behaviors include adherence to dietary recommendations, regular physical activity, medication use, blood glucose testing, foot care, and attendance at clinical follow-ups. Because patients make daily decisions outside clinical settings, diabetes outcomes depend heavily on the consistency and quality of self-management behaviors. The relationship between illness perception and self-care is therefore theoretically and clinically important. When patients believe that diabetes has serious consequences but also believe that personal actions and treatment can reduce risk, they may be more inclined to perform self-care behaviors. However, when illness is perceived as threatening but uncontrollable, patients may become distressed, avoidant, or passive. Research has shown that illness perceptions are associated with self-care practices and glycemic control among patients with type 2 diabetes, demonstrating that cognitive representations of illness are related to practical disease-management behaviors (Ngetich et al., 2022). Further evidence has indicated that illness perception, self-management, and quality of life are interrelated among adults with type 2 diabetes, highlighting the need to examine these variables within an integrated explanatory model rather than as isolated outcomes (Sofiani et al., 2022).

The importance of self-care has also been demonstrated in studies focusing on self-regulation and self-management capacity. Self-regulation models explain diabetes care as an active process in which patients monitor their condition, interpret health-related information, evaluate goals, and adjust behavior accordingly. From this perspective, patients' beliefs about diabetes may influence their self-care capability by shaping motivation, perceived control, and behavioral planning. Studies using self-regulation approaches have shown that strengthening self-care capability in patients with type 2 diabetes is linked with more adaptive disease management (Fadli et al., 2023). A more recent systematic review of individual and family-based interventions has also emphasized the integrative role of self-regulation in type 2 diabetes self-management, suggesting that behavioral change is supported when

patients and families develop structured strategies for monitoring, coping, and sustaining self-care behaviors (Fadli et al., 2025). These findings indicate that self-care behaviors are not merely routine health practices but represent the behavioral expression of patients' beliefs, emotional responses, family context, and perceived ability to control disease progression.

Health-related quality of life is one of the most important patient-reported outcomes in type 2 diabetes. It reflects the extent to which illness affects physical functioning, emotional well-being, social participation, daily activities, treatment satisfaction, and overall life evaluation. Patients with diabetes may experience reduced quality of life because of dietary restrictions, fear of complications, medication burden, fatigue, comorbid conditions, stigma, and psychological distress. Studies have emphasized that quality of life among patients with diabetes is influenced by self-care, glycemic control, psychological adaptation, and disease-related beliefs. For instance, structural equation modeling research among patients with type 2 diabetes has demonstrated relationships among self-care, glycemic control, and quality of life, supporting the idea that self-management behaviors contribute to broader quality-of-life outcomes (Malini et al., 2025). Moreover, review-based evidence has shown that counseling and educational approaches can improve quality of life in patients with type 2 diabetes, partly by helping patients understand the disease and apply effective self-management strategies (Puspatari & Saidah, 2023). Educational interventions focused on self-care management have also been shown to support patients with diabetes-related complications, such as retinopathy, indicating that behavioral education remains important even when complications have already emerged (Safaan et al., 2023).

The psychological burden of type 2 diabetes further strengthens the need to examine illness perception and self-care as determinants of quality of life. Depression, distress, and negative emotional states can interfere with self-management and may worsen diabetes-related outcomes. A scoping review on the mechanisms linking depression and type 2 diabetes outcomes emphasized that psychological pathways are deeply involved in disease progression and management (Derese et al., 2025). Similarly, studies have shown that mental health plays an important role in diabetes self-care, especially in culturally specific and community-based contexts (Thomas et al., 2025). Psychological distress has also been examined as a mediator in causal models of self-care behaviors among patients with type 2 diabetes, indicating that stressful life events, perceived support, and distress may influence patients' capacity to maintain self-care routines (Eshraghi et al., 2023). These findings suggest that illness perception may affect quality of life not only directly, through emotional burden and perceived consequences, but also indirectly, through behavioral pathways such as self-care.

In addition to distress, other psychological constructs such as experiential avoidance, cognitive flexibility, mindfulness, acceptance, and help-seeking attitudes may influence how patients interpret and manage chronic illness. Research has shown that illness appraisal can predict adherence among individuals with diabetes, while experiential avoidance may influence whether patients confront or avoid disease-related responsibilities (Fayyaz & Yusuf, 2023). Cognitive flexibility and mindfulness have also been studied among patients with type 2 diabetes, suggesting that adaptive cognitive processes may help patients regulate emotions and respond more effectively to the demands of chronic illness (Salahshor & Motevali, 2023). Although some of these constructs are not identical to illness perception, they are conceptually related because they reflect how patients interpret, tolerate, and respond to illness-related stressors. In other chronic disease contexts, illness perception and help-seeking attitudes have also been associated with psychological well-being and quality of life, supporting the broader relevance of illness representations for adaptation to long-term health conditions (Liu et al., 2025). Likewise, illness perceptions and fear-related outcomes in myocardial infarction survivors have been linked through psychological flexibility, indicating that cognitive and emotional interpretations of illness may shape adjustment across chronic disease groups (Wang et al., 2025).

Social and cultural contexts also influence diabetes-related beliefs and behaviors. Patients' understanding of diabetes may be shaped by family beliefs, cultural meanings of illness, previous experiences with healthcare systems, language barriers, stigma, and access to diabetes education. A longitudinal qualitative analysis of culturally sensitive type 2 diabetes education among Arabic-speaking migrants demonstrated that health literacy is acquired, applied, and distributed within social and cultural contexts, showing that diabetes knowledge and behavior are not only individual processes but also relational and community-based experiences (Andersen et al., 2023). Stigma and intergenerational experiences may further shape illness perception, particularly among older adults who have

observed diabetes across family histories and social networks (Scollan-Koliopoulos et al., 2024). These findings are highly relevant for multicultural healthcare settings, including Canada, where diabetes care must address patients with diverse linguistic, cultural, and socioeconomic backgrounds. Understanding illness perception in such contexts can help identify patients who may require more tailored education, counseling, and behavioral support.

Recent evidence also supports the mediating role of self-care or related behavioral constructs in the relationship between psychosocial factors and diabetes outcomes. A study presenting a health-related quality-of-life model in patients with type 2 diabetes found that illness perception and demographic characteristics were related to quality of life through the mediating role of self-care behaviors (Pourrostami et al., 2023). Similarly, research has shown that diabetes self-stigma may affect diabetes-related quality of life through acceptance action and self-care, further suggesting that self-care can serve as a behavioral pathway linking psychological experiences to quality-of-life outcomes (Seo, 2023). In another study, hope level was related to self-management behaviors among Chinese patients with type 2 diabetes through the chain-mediating role of social support and disease perception, indicating that patients' beliefs about illness are embedded within broader psychosocial mechanisms that influence self-management (Zhang et al., 2024). Evidence from gestational diabetes has also shown that illness perception is associated with self-management behaviors and that depression may play a mediating role in this relationship, confirming the relevance of illness-related beliefs and emotional states in diabetes management across different patient populations (Wang et al., 2024).

The role of acceptance and coping also deserves attention when examining quality of life in diabetes. In pregnant women with diabetes, illness acceptance has been identified as a mediator in the relationship between influencing factors and quality of life, suggesting that the way patients psychologically integrate illness into their lives can affect their well-being (Fathnezhad-Kazemi et al., 2024). In other health conditions, social support has been linked to quality of life through illness perception and coping style, supporting the idea that illness perception may function as part of a broader cognitive-behavioral pathway connecting social resources to well-being (Pan et al., 2024). Although these studies were conducted in different disease groups or populations, they provide theoretical support for mediation models in which illness-related beliefs influence quality of life through psychological and behavioral mechanisms. Path-analysis research in coronary artery disease has also demonstrated relationships among illness perception, self-efficacy, and medication adherence, indicating that illness beliefs can be linked to adherence-related outcomes across chronic cardiovascular and metabolic conditions (Mobini et al., 2023). Such findings strengthen the rationale for examining whether self-care behaviors mediate the relationship between illness perception and health-related quality of life among patients with type 2 diabetes.

Intervention studies further suggest that illness perception and self-care are modifiable. A randomized controlled trial showed that self-care behavior training can improve illness perception, indicating that patients' beliefs about illness may change when they receive structured education and behavioral support (Saadati & Saadati, 2024). This has important implications because if negative illness perception contributes to poor quality of life partly by weakening self-care, then interventions should not focus only on information delivery but also on reshaping maladaptive beliefs, enhancing perceived control, and supporting practical self-management behaviors. The literature increasingly suggests that education, counseling, emotional support, and self-regulation strategies may improve diabetes-related outcomes by acting simultaneously on cognition, emotion, and behavior. Therefore, identifying the mediating role of self-care behaviors can clarify how illness perception is translated into quality-of-life outcomes and can help healthcare providers design more effective psychosocial and behavioral interventions for patients with type 2 diabetes.

Despite growing attention to illness perception, self-care behaviors, and quality of life in type 2 diabetes, further empirical clarification is still needed. Many studies have examined pairwise associations between illness perception and self-care, self-care and quality of life, or psychological factors and diabetes outcomes. However, fewer studies have tested integrated mediation models that explain how illness perception may influence health-related quality of life through self-care behaviors. This gap is important because direct associations alone do not fully explain the mechanisms through which patients' beliefs about diabetes affect their everyday functioning and well-being. A mediation-based model can provide a more precise explanation by determining whether self-care behaviors operate as a behavioral pathway linking negative illness perception to poorer health-related quality of life. Such evidence is especially relevant for outpatient diabetes care, where improving quality of life requires attention not only to

medical management but also to patients' perceptions, emotional responses, and self-management behaviors.

The aim of this study was to examine the relationship between illness perception and health-related quality of life among patients with type 2 diabetes in Canada and to determine the mediating role of self-care behaviors in this relationship.

2. Methods and Materials

2.1. Study Design and Participants

This study was conducted using a descriptive-correlational, cross-sectional design with a mediation-based analytical approach. The main purpose of the study was to examine the relationship between illness perception and health-related quality of life among patients with type 2 diabetes and to determine whether self-care behaviors mediated this relationship. The study population consisted of adults diagnosed with type 2 diabetes who were receiving outpatient diabetes care in Canada. Participants were recruited from diabetes clinics, endocrinology outpatient centers, and primary care settings affiliated with health services in Ontario, Canada. A total of 412 patients with type 2 diabetes participated in the study. Eligibility criteria included being at least 18 years of age, having a confirmed medical diagnosis of type 2 diabetes for at least one year, being able to read and understand English, and having sufficient cognitive capacity to complete the questionnaires independently. Patients with type 1 diabetes, gestational diabetes, severe psychiatric disorders, advanced cognitive impairment, severe diabetes-related complications requiring hospitalization at the time of data collection, or incomplete questionnaire responses were excluded from the study. Participants were selected through convenience sampling. Before participation, the objectives and procedures of the study were explained to all eligible individuals, and written informed consent was obtained. Participation was voluntary, and respondents were assured that their information would remain confidential and would be analyzed only in aggregated form.

2.2. Measures

Data were collected using a demographic and clinical information form together with three standardized questionnaires assessing illness perception, self-care behaviors, and health-related quality of life. The demographic and clinical information form was developed by the researchers and included questions on age, gender, marital status, educational level, employment status, duration of diabetes, type of treatment, presence of diabetes-related complications, body mass index, and history of comorbid chronic diseases. This form was used to describe the sample and to identify relevant background variables that could be considered in the statistical analysis.

Illness perception was measured using the Brief Illness Perception Questionnaire developed by Broadbent and colleagues in 2006. This instrument is widely used to assess patients' cognitive and emotional representations of illness. The questionnaire includes items related to perceived consequences, timeline, personal control, treatment control, identity, concern, understanding of illness, emotional response, and perceived causes of illness. Most items are scored on a scale from 0 to 10, with higher scores generally indicating a more threatening or negative perception of illness. In the present study, the total illness perception score was calculated so that higher scores reflected a more negative perception of type 2 diabetes. The Brief Illness Perception Questionnaire has demonstrated acceptable validity and reliability in previous studies involving patients with chronic diseases, including diabetes, and was considered appropriate for evaluating patients' subjective interpretation of their illness experience.

Self-care behaviors were assessed using the Summary of Diabetes Self-Care Activities measure developed by Toobert, Hampson, and Glasgow in 2000. This instrument evaluates the frequency of diabetes-related self-management behaviors during the previous seven days. The questionnaire covers several domains of diabetes self-care, including general diet, specific diet, physical activity, blood glucose testing, foot care, and medication adherence. Items are scored according to the number of days in the past week on which the participant performed each behavior, ranging from 0 to 7 days. Higher scores indicate more frequent and desirable self-care behaviors. In this study, the overall self-care score was calculated by averaging the relevant items, with higher scores representing better diabetes self-management. The Summary of Diabetes Self-Care Activities measure has been extensively used in diabetes research and has shown acceptable psychometric properties in clinical and community samples.

Health-related quality of life was measured using the Diabetes Quality of Life Brief Clinical Inventory developed by Burroughs and colleagues in 2004. This questionnaire is a brief diabetes-specific instrument designed to assess perceived quality of life among individuals living with

diabetes. It includes items related to satisfaction with treatment, perceived impact of diabetes on daily life, worries about diabetes, and emotional and social aspects of living with the disease. Items are rated on a Likert-type scale, and the total score reflects the individual's diabetes-related quality of life. In this study, higher scores were interpreted as indicating better health-related quality of life after appropriate scoring procedures were applied. The instrument has been used in previous studies with patients with diabetes and has demonstrated satisfactory validity and reliability for assessing quality of life in this population.

2.3. Data Analysis

Data were analyzed using SPSS and AMOS statistical software. Before conducting the main analyses, the dataset was examined for missing values, outliers, and normality of distribution. Descriptive statistics, including mean, standard deviation, frequency, and percentage, were used to summarize demographic and clinical characteristics of the participants and the main study variables. The internal consistency of the questionnaires was evaluated using Cronbach's alpha coefficient. Pearson correlation coefficients were calculated to examine the bivariate relationships among illness perception, self-care behaviors, and health-related quality of life.

To test the proposed mediation model, structural equation modeling was conducted. In the hypothesized model, illness perception was entered as the independent variable, health-related quality of life as the dependent variable, and self-care behaviors as the mediating variable. The direct effect of illness perception on health-related quality of life, the direct effect of illness perception on self-care behaviors, and the direct effect of self-care behaviors on health-related quality of life were estimated. The indirect effect of illness perception on health-related quality of life through self-care behaviors was examined using the bootstrapping method with 5,000 resamples and 95% confidence intervals. The mediation effect was considered statistically significant when the confidence interval did not include zero. Model fit was evaluated using standard fit indices, including the chi-square to degrees of freedom ratio, comparative fit index, Tucker–Lewis index, root mean square error of approximation, and standardized root mean square residual. A significance level of 0.05 was considered for all statistical tests.

3. Findings and Results

The study was conducted on 412 patients with type 2 diabetes who were receiving outpatient diabetes care in Canada. The mean age of the participants was 56.84 years with a standard deviation of 9.47 years, and the age range was between 35 and 76 years. Of the total sample, 221 participants were women, representing 53.6% of the sample, and 191 participants were men, representing 46.4%. Regarding marital status, 276 participants were married or living with a partner, 39 were single, 61 were divorced or separated, and 36 were widowed. In terms of educational level, 139 participants had a high school education or lower, 167 had completed college or a professional diploma, and 106 had university-level education. Concerning occupational status, 168 participants were employed, 149 were retired, and 95 were unemployed or not currently working.

The clinical characteristics of the participants showed that the average duration of type 2 diabetes was 8.72 years with a standard deviation of 5.64 years. A total of 126 participants had been diagnosed with diabetes for 1 to 5 years, 151 had lived with diabetes for 6 to 10 years, and 135 had a diabetes duration of more than 10 years. Regarding treatment type, 211 participants used oral antidiabetic medications, 51 used insulin therapy alone, 104 used a combination of oral medication and insulin, and 46 managed their condition through lifestyle modification with regular clinical monitoring. Diabetes-related complications were reported by 152 participants, while 260 participants reported no diagnosed diabetes-related complications. Among the most frequently reported comorbidities, 198 participants reported hypertension, 165 reported dyslipidemia, and 56 reported cardiovascular disease. The mean body mass index of the participants was 29.64 kg/m² with a standard deviation of 4.81, indicating that the sample was generally within the overweight range. The mean glycated hemoglobin level was 7.64% with a standard deviation of 1.28%, suggesting that many participants had glycemic control levels above the commonly recommended clinical target.

Table 1

Descriptive Statistics, Normality Indices, and Reliability Coefficients of the Main Study Variables

Variable	Possible score range	Mean	Standard deviation	Minimum	Maximum	Skewness	Kurtosis	Cronbach's alpha
Illness perception	0–80	49.21	13.46	14	78	-0.18	-0.42	0.86
Self-care behaviors	0–7	4.38	1.21	1.20	6.90	-0.31	-0.27	0.82
Health-related quality of life	0–100	61.73	14.28	24	92	-0.26	-0.36	0.88

The descriptive findings presented in Table 1 indicate that the participants reported a moderate-to-high level of negative illness perception, with a mean score of 49.21 out of a possible range of 0 to 80. This finding suggests that many patients perceived type 2 diabetes as a relatively serious, persistent, and emotionally concerning health condition. The mean score for self-care behaviors was 4.38 out of 7, indicating that diabetes-related self-care behaviors were performed on average slightly more than four days per week. This result shows that although participants engaged in self-care behaviors to a moderate extent, their adherence was not optimal across the full week. The mean score for health-related quality of life was 61.73 out of 100, suggesting a moderate level of perceived quality of life among the participants. The skewness and kurtosis values for all three variables were within the acceptable range of -2 to +2, supporting the assumption of approximate normality and allowing the use of parametric statistical analyses. Cronbach's alpha coefficients ranged from 0.82 to 0.88, indicating acceptable to good internal consistency for all measurement instruments used in the study.

Table 2

Pearson Correlation Matrix Among Illness Perception, Self-Care Behaviors, and Health-Related Quality of Life

Variable	1	2	3
1. Illness perception	1		
2. Self-care behaviors	-0.47**	1	
3. Health-related quality of life	-0.56**	0.52**	1

As shown in Table 2, illness perception had a statistically significant negative correlation with self-care behaviors. This means that patients who perceived their diabetes as more threatening, uncontrollable, emotionally distressing, or disruptive tended to report lower levels of diabetes self-care. Illness perception was also significantly and negatively correlated with health-related quality of life, indicating that more negative perceptions of diabetes were associated with poorer perceived quality of life. In contrast, self-care behaviors had a statistically significant positive correlation with health-related quality of life. This finding suggests that patients who reported more frequent engagement in diabetes self-management behaviors, such as dietary control, physical activity, blood glucose monitoring, medication adherence, and foot care, also reported better health-related quality of life. Overall, the correlation pattern supported the theoretical assumption of the study and provided an appropriate basis for testing the mediation model.

Table 3

Goodness-of-Fit Indices for the Mediation Model

Fit index	Obtained value	Recommended criterion	Interpretation
Chi-square	42.86	Lower values indicate better fit	Acceptable
Degrees of freedom	24	—	—
Chi-square/df	1.79	Less than 3	Good fit
Comparative Fit Index	0.982	0.90 or higher	Excellent fit
Tucker–Lewis Index	0.973	0.90 or higher	Excellent fit
Goodness-of-Fit Index	0.976	0.90 or higher	Excellent fit
Root Mean Square Error of Approximation	0.044	Less than 0.08	Good fit
Standardized Root Mean Square Residual	0.036	Less than 0.08	Good fit

The results of the structural equation modeling analysis indicated that the proposed mediation model had a satisfactory fit with the observed data. The chi-square to degrees of freedom ratio was 1.79, which is below the recommended threshold of 3 and indicates an acceptable model fit. The comparative fit index was 0.982, the Tucker–Lewis index was 0.973, and the goodness-of-fit index was 0.976, all of which were above the recommended value of 0.90 and demonstrated excellent model fit. In addition, the root mean square error of approximation was 0.044 and the standardized root mean square residual was 0.036, both of which were below the acceptable threshold of 0.08. These findings show that the hypothesized model, in which self-care behaviors mediate the relationship between illness perception and health-related quality of life, was empirically supported by the data. Therefore, the model was considered appropriate for interpreting the direct and indirect relationships among the study variables.

Table 4

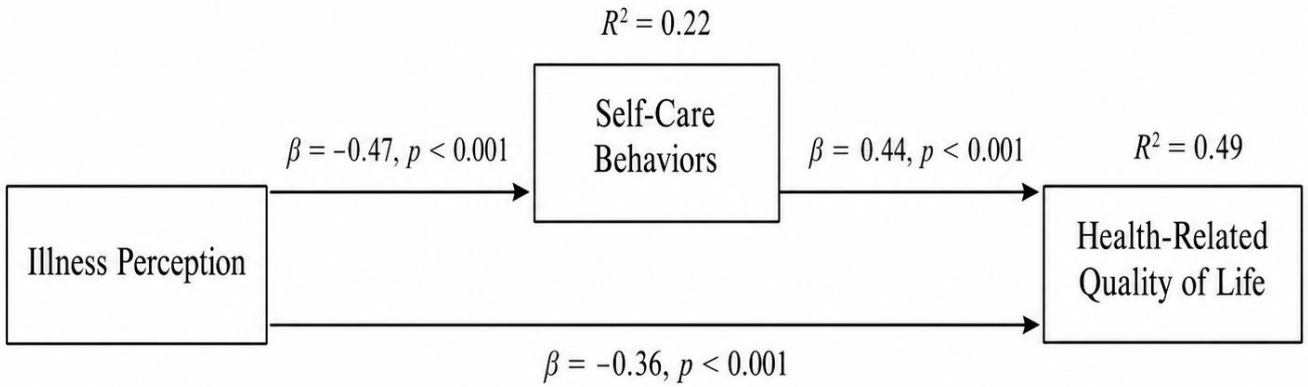
Direct, Indirect, and Total Effects in the Mediation Model

Path	Standardized coefficient	Standard error	Critical ratio	p-value	95% bootstrap confidence interval	Result
Illness perception → Self-care behaviors	-0.47	0.041	-9.86	<0.001	-0.55 to -0.38	Significant
Self-care behaviors → Health-related quality of life	0.44	0.052	8.74	<0.001	0.34 to 0.53	Significant
Illness perception → Health-related quality of life	-0.36	0.048	-7.31	<0.001	-0.45 to -0.26	Significant
Illness perception → Self-care behaviors → Health-related quality of life	-0.21	0.034	—	<0.001	-0.28 to -0.15	Significant
Total effect of illness perception on health-related quality of life	-0.57	0.045	-12.44	<0.001	-0.65 to -0.48	Significant

The path coefficients presented in Table 4 show that illness perception had a significant negative direct effect on self-care behaviors. This finding indicates that patients with a more negative perception of diabetes were less likely to engage consistently in diabetes self-management behaviors. Self-care behaviors had a significant positive direct effect on health-related quality of life, showing that better diabetes self-care was associated with higher quality of life. Illness perception also had a significant negative direct effect on health-related quality of life, even after the mediating role of self-care behaviors was included in the model. This means that negative illness perception was directly associated with poorer quality of life among patients with type 2 diabetes. The indirect effect of illness perception on health-related quality of life through self-care behaviors was also significant, as the 95% bootstrap confidence interval did not include zero. The standardized indirect effect was -0.21, indicating that part of the negative effect of illness perception on quality of life occurred through reduced self-care behaviors. The total effect of illness perception on health-related quality of life was -0.57, suggesting a strong overall negative association. Since both the direct and indirect effects were statistically significant, self-care behaviors played a partial mediating role in the relationship between illness perception and health-related quality of life.

Figure 1

Standardized Mediation Model of the Relationship Between Illness Perception and Health-Related Quality of Life Through Self-Care Behaviors



The standardized mediation model showed that illness perception explained 22% of the variance in self-care behaviors. This means that patients' beliefs, emotional responses, and cognitive representations of diabetes accounted for a meaningful proportion of differences in diabetes self-management behaviors. The model also showed that illness perception and self-care behaviors together explained 49% of the variance in health-related quality of life. In the model, the path from illness perception to self-care behaviors was negative, the path from self-care behaviors to health-related quality of life was positive, and the direct path from illness perception to health-related quality of life remained negative. These results indicate that patients who viewed diabetes as more threatening and less controllable were more likely to report weaker self-care behaviors, and this reduction in self-care was associated with poorer quality of life. At the same time, illness perception continued to have a direct negative association with quality of life, showing that the psychological meaning patients attach to diabetes affects their quality of life both directly and indirectly through daily self-care practices.

Overall, the findings supported the proposed mediation model. More negative illness perception was associated with poorer health-related quality of life among patients with type 2 diabetes, and self-care behaviors partially mediated this relationship. The results suggest that patients' perceptions of diabetes are not only psychological responses to the disease but are also related to practical disease-management behaviors and broader quality-of-life outcomes. Therefore, improving illness perception and strengthening self-care behaviors may be important targets for interventions designed to enhance health-related quality of life in patients living with type 2 diabetes.

4. Discussion

The present study examined the relationship between illness perception and health-related quality of life among patients with type 2 diabetes and tested the mediating role of self-care behaviors in this relationship. The findings showed that illness perception had a significant negative relationship with self-care behaviors and health-related quality of life, while self-care behaviors had a significant positive relationship with health-related quality of life. The structural equation model demonstrated good fit indices and confirmed that self-care behaviors partially mediated the association between illness perception and health-related quality of life. More specifically, patients who perceived type 2 diabetes as more threatening, uncontrollable, persistent, emotionally distressing, and disruptive reported weaker self-care behaviors and poorer health-related quality of life. At the same time, better self-care behaviors were associated with higher health-related quality of life. These findings support the assumption that illness perception is not only a cognitive or emotional response to diabetes but also a clinically meaningful psychological factor that can influence daily disease-management behaviors and broader quality-of-life outcomes.

The first important finding of this study was the significant negative association between illness perception and self-care behaviors. This result indicates that patients with a more negative perception of diabetes were less likely to engage consistently in dietary regulation, physical

activity, medication adherence, blood glucose monitoring, and other self-management behaviors. This finding is consistent with the theoretical view that patients' beliefs about illness guide their coping and behavioral responses. When diabetes is perceived as overwhelming, uncontrollable, or emotionally threatening, patients may experience helplessness, avoidance, reduced motivation, or difficulty sustaining daily health behaviors. This interpretation aligns with evidence showing that illness perceptions are associated with self-care practices and glycemic control among patients with type 2 diabetes (Ngetich et al., 2022). It is also consistent with findings that illness perception is related to self-efficacy and resilience in patients with type 2 diabetes, suggesting that more adaptive illness beliefs may support patients' confidence and capacity to manage the disease (Mohammadi et al., 2022). Similarly, previous research has shown that illness perception among patients with diabetes is a central determinant of how individuals understand their condition and respond to it behaviorally (Nwabudike & Ogbeide, 2022).

This finding can also be explained through self-regulation models of chronic illness. In these models, patients interpret illness-related information, form beliefs about disease consequences and controllability, select coping strategies, and evaluate the outcomes of their actions. Therefore, self-care behaviors can be viewed as the behavioral expression of patients' illness representations. The present result is consistent with studies indicating that self-regulation is essential for improving self-care capability in patients with type 2 diabetes (Fadli et al., 2023). It also supports systematic review evidence showing that individual and family-based self-regulation interventions can strengthen self-management by improving patients' ability to monitor symptoms, plan behaviors, respond to barriers, and sustain health-related routines (Fadli et al., 2025). In this regard, negative illness perception may interfere with self-regulation by weakening perceived control and increasing emotional burden, whereas more constructive illness beliefs may enable patients to translate knowledge into stable self-care practices.

The second major finding was the significant negative direct effect of illness perception on health-related quality of life. This means that patients who perceived diabetes more negatively reported lower quality of life, even after self-care behaviors were included in the model. This finding is in line with previous research showing that illness perception is linked to quality of life in adults with type 2 diabetes (Sofiani et al., 2022). It is also consistent with a model of health-related quality of life among patients with type 2 diabetes in which disease perception was identified as an important predictor of quality-of-life outcomes (Pourrostami et al., 2023). The persistence of a direct effect in the present model suggests that illness perception may influence quality of life through mechanisms beyond behavioral self-care. For example, perceiving diabetes as severe, unpredictable, or emotionally distressing may reduce emotional well-being, increase fear of complications, intensify treatment burden, and limit social or occupational functioning. Thus, illness perception may affect quality of life both through concrete behavioral pathways and through direct psychological and emotional pathways.

This result is also supported by broader chronic disease literature. Research has shown that illness perception and help-seeking attitudes are associated with psychological well-being and quality of life in people with chronic wounds (Liu et al., 2025). Similarly, illness perceptions have been linked to fear-related outcomes among myocardial infarction survivors, with psychological flexibility playing a mediating role (Wang et al., 2025). These findings suggest that across chronic conditions, patients' interpretation of illness affects not only adherence or symptom management but also their emotional adjustment and life satisfaction. The present study extends this reasoning to type 2 diabetes by showing that negative diabetes-related perceptions are associated with poorer health-related quality of life. The finding is also consistent with the broader psychological literature emphasizing the role of cognition, coping, and adjustment in chronic disease outcomes (Stanton & Hoch, 2025). In chronic illness, quality of life is shaped by how patients appraise their condition, how they cope with ongoing demands, and how they integrate illness into their daily identity and future expectations.

The third finding was the significant positive effect of self-care behaviors on health-related quality of life. Patients who reported more frequent diabetes self-care behaviors had better health-related quality of life. This result is consistent with the clinical understanding that self-care behaviors improve patients' sense of control, reduce symptoms and complications, support glycemic stability, and enhance functional well-being. It also aligns with structural equation modeling research showing that self-care is associated with glycemic control and quality of life among patients with type 2 diabetes (Malini et al., 2025). Moreover, review evidence indicates that counseling can improve quality of life in patients with type 2 diabetes, likely by enhancing patients' understanding of disease management and their ability to

practice effective self-care (Puspatari & Saidah, 2023). Educational interventions for patients with diabetes-related complications have also shown positive effects on self-care management, supporting the importance of behavioral education in improving patient outcomes (Safaan et al., 2023). Therefore, self-care should be understood not only as a clinical responsibility but also as a pathway through which patients maintain autonomy, reduce uncertainty, and improve daily life functioning.

The mediating role of self-care behaviors was the central finding of this study. The indirect effect showed that illness perception affected health-related quality of life partly through self-care behaviors. In other words, negative illness perception was associated with poorer self-care, which in turn was associated with lower quality of life. This finding supports the assumption that patients' beliefs about diabetes can influence quality of life through behavioral mechanisms. It is consistent with previous evidence that self-care behaviors mediate the relationship between disease perception and health-related quality of life in patients with type 2 diabetes (Pourrostami et al., 2023). It also aligns with research showing that self-care and acceptance-related processes mediate the effect of diabetes self-stigma on type 2 diabetes quality of life (Seo, 2023). Together, these findings show that quality of life in diabetes is not determined solely by illness severity or demographic characteristics but also by the way patients perceive, accept, regulate, and manage their condition in daily life.

The partial mediation observed in this study is especially important. Since the direct effect of illness perception on health-related quality of life remained significant after self-care behaviors were included, self-care explained part, but not all, of the relationship. This suggests that interventions designed to improve quality of life should address both illness beliefs and self-care behaviors. If healthcare providers focus only on self-care instructions without addressing patients' fears, misconceptions, perceived lack of control, or emotional distress, behavioral change may remain limited. Conversely, improving illness perception without providing practical behavioral skills may not be sufficient to improve quality of life. This interpretation is supported by evidence from a randomized controlled trial showing that self-care behavior training can improve illness perception, suggesting a reciprocal and modifiable relationship between beliefs and behaviors (Saadati & Saadati, 2024). It is also consistent with research showing that hope, social support, and disease perception operate together in shaping self-management behaviors in patients with type 2 diabetes (Zhang et al., 2024).

The findings should also be interpreted in light of psychological distress and mental health. Type 2 diabetes is often accompanied by emotional burden, worry about complications, treatment fatigue, and depressive symptoms. These psychological states may intensify negative illness perception and weaken self-care. A scoping review has shown that depression and type 2 diabetes outcomes are connected through multiple mechanisms and pathways, including behavioral, emotional, and biological processes (Derese et al., 2025). Research on diabetes self-care in community contexts has also emphasized the role of mental health in shaping self-care behaviors (Thomas et al., 2025). Similarly, psychological distress has been identified as a mediator in models explaining self-care behaviors based on life events and perceived social support among patients with type 2 diabetes (Eshraghi et al., 2023). Therefore, the negative association between illness perception and self-care in the present study may partly reflect the emotional burden of living with diabetes. Patients who perceive diabetes as highly threatening may become distressed, and this distress may reduce their ability to perform consistent self-management behaviors.

The role of cognitive and emotional flexibility may also help explain the findings. Patients who can cognitively reframe diabetes, tolerate illness-related discomfort, and remain psychologically flexible may be better able to engage in self-care despite stress or limitations. Previous studies have shown that illness appraisal predicts adherence in individuals with diabetes and that experiential avoidance may influence this relationship (Fayyaz & Yusuf, 2023). Research has also shown that cognitive flexibility, emotion regulation, and mindfulness are relevant psychological variables among patients with type 2 diabetes (Salahshor & Motevali, 2023). These findings suggest that negative illness perception may reduce quality of life when patients respond to diabetes with avoidance, rigidity, or emotional reactivity. In contrast, flexible and accepting responses may help patients maintain self-care behaviors and preserve quality of life. Evidence from pregnant women with diabetes also supports the importance of illness acceptance in quality-of-life outcomes (Fathnezhad-Kazemi et al., 2024). Therefore, self-care behaviors may be strengthened when patients develop not only knowledge but also acceptance, flexibility, and emotional regulation.

The present findings also have sociocultural relevance. In multicultural healthcare systems such as Canada, patients'

illness perceptions may be shaped by culture, language, family beliefs, health literacy, stigma, and previous experiences with healthcare. Research among Arabic-speaking migrants with type 2 diabetes has shown that health literacy is acquired and applied within culturally sensitive and socially distributed contexts (Andersen et al., 2023). Stigma and multigenerational experiences of diabetes may also influence illness perception, particularly among older adults who have witnessed diabetes-related suffering in family or community settings (Scollan-Koliopoulos et al., 2024). These findings suggest that negative illness perception may sometimes arise from lived experiences, cultural narratives, or limited access to understandable diabetes education. Therefore, improving illness perception requires more than standardized education; it requires culturally responsive communication that addresses patients' meanings, fears, and lived realities.

5. Conclusion

Finally, the findings are consistent with studies outside type 2 diabetes that show the importance of illness perception and coping pathways in quality-of-life outcomes. For example, social support has been shown to influence vision-related quality of life through illness perception and coping style in older adults with dry eye disease (Pan et al., 2024). Research in gestational diabetes has also shown that illness perception is related to self-management behaviors, with depression playing a mediating role (Wang et al., 2024). Path-analysis research among patients with coronary artery disease has demonstrated that illness perception is associated with self-efficacy and medication adherence (Mobini et al., 2023). Although these studies differ in population and disease context, they collectively support the broader conclusion that illness perception is a key psychological determinant of adjustment, adherence, coping, and quality of life in chronic illness. The present study contributes to this literature by confirming a mediation model in which self-care behaviors partially explain the link between illness perception and health-related quality of life among patients with type 2 diabetes.

6. Limitations & Suggestions

This study had several limitations that should be considered when interpreting the findings. First, the cross-sectional design limits the ability to draw causal conclusions about the relationships among illness perception, self-care behaviors, and health-related quality of life. Although the mediation model was theoretically supported and statistically significant, longitudinal or experimental designs are needed to confirm the temporal order of the variables. Second, data were collected through self-report questionnaires, which may be affected by recall bias, social desirability bias, or participants' subjective interpretation of items. Third, the sample was recruited from outpatient diabetes care settings in Canada, and although the sample size was adequate for structural equation modeling, the findings may not be generalizable to all patients with type 2 diabetes, especially those in rural areas, hospitalized patients, individuals with severe complications, or patients from different healthcare systems. Fourth, some clinical indicators such as glycemic control, comorbidity burden, medication complexity, and diabetes complications were considered descriptively but were not modeled as central variables in the mediation analysis.

Future studies should use longitudinal designs to examine how illness perception, self-care behaviors, and health-related quality of life change over time and whether changes in illness perception predict subsequent changes in self-care and quality of life. Experimental and intervention studies are also recommended to determine whether modifying negative illness perceptions and improving self-care behaviors can lead to clinically meaningful improvements in quality of life. Future research should also examine additional mediators and moderators, such as depression, diabetes distress, self-efficacy, health literacy, family support, treatment burden, cultural beliefs, and socioeconomic status. Including objective clinical indicators such as HbA1c, blood pressure, lipid profile, body mass index, and documented complications would provide a more comprehensive understanding of the relationship between psychological, behavioral, and biomedical aspects of diabetes management. Comparative studies across cultural groups and healthcare settings may also help clarify how social and cultural factors shape illness perception and self-care.

The findings of this study suggest that healthcare professionals should assess patients' illness perceptions as part of routine diabetes care. Patients who perceive diabetes as highly threatening, uncontrollable, or emotionally overwhelming may need targeted psychological and educational support in addition to standard medical treatment. Diabetes education programs should not be limited to information about diet, medication, and blood glucose monitoring; they should also address patients' beliefs, fears, misconceptions, emotional responses, and perceived barriers to self-care. Nurses, physicians, diabetes

educators, psychologists, and other healthcare providers should work collaboratively to strengthen patients' sense of control, improve self-care planning, and support sustainable behavior change. Culturally sensitive communication is particularly important in diverse healthcare settings, as patients' illness beliefs may be shaped by family experiences, cultural meanings, stigma, and health literacy. Interventions that combine illness-perception modification with practical self-care training may be especially useful for improving health-related quality of life among patients with type 2 diabetes.

Acknowledgments

We would like to express our appreciation and gratitude to all those who cooperated in carrying out this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

Authors' Contributions

All authors equally contributed to this article.

References

Andersen, A. M. J., Jervelund, S. S., Maindal, H. T., & Hempler, N. F. (2023). Acquisition, Application, and Distribution of Health Literacy From Culturally Sensitive Type 2 Diabetes Education Among <scp>Arabic-Speaking</Scp> Migrants in Denmark: A Longitudinal Qualitative Analysis. *Scandinavian Journal of Caring Sciences*, *38*(2), 523-535. https://doi.org/10.1111/scs.13228

Derese, A., Sirgu, S., Gebreegziabhere, Y., & Hanlon, C. (2025). Mechanisms and Pathways Linking Depression and Type 2 Diabetes Outcomes: A Scoping Review. *Journal of Diabetes Research*, *2025*(1). https://doi.org/10.1155/jdr/5590413

Eshraghi, Z., Baghdasarians, A., Golshani, F., & Emamipour, S. (2023). Compilation of the Causal Model of Self-Care Behaviors Based on Life Events and Perceived Social Support With the Mediation of Psychological Distress in Women and ,En With Type 2 Diabetes. *Jarac*, *5*(5), 1-14. https://doi.org/10.61838/kman.jarac.5.5.1

Fadli, F., Nursalam, N., Sjattar, E. L., & Uly, N. (2025). An Integrative Model of Self-Regulation in Type 2 Diabetes Self-Management: A Systematic Review of Individual and Family-Based Interventions. *Healthcare*, *13*(24), 3230. https://doi.org/10.3390/healthcare13243230

Fadli, F., Uly, N., Safruddin, S., Darmawan, S., & Batupadang, M. (2023). Analysis of Self-Regulation Model to Improvement of Self-Care Capability in Type 2 Diabetes Mellitus Patients. *Multidisciplinary Science Journal*, *6*(6), 2024082. https://doi.org/10.31893/multiscience.2024082

Fathnezhad-Kazemi, A., Seifinadergoli, Z., & Ahmadi, M. (2024). Factors Affecting the Quality of Life in Pregnant Women With Diabetes: The Mediating Effect of Illnesses Acceptance. *BMC Pregnancy and Childbirth*, *24*(1). https://doi.org/10.1186/s12884-024-06690-x

Fayyaz, A., & Yusuf, S. (2023). Prediction of Adherence Through Illness Appraisal of Individuals With Diabetes: Role of Experiential Avoidance. *Journal of Professional & Applied Psychology*, *4*(2), 140-151. https://doi.org/10.52053/jpap.v4i2.179

Liu, Y., Wu, B., Yu, J., Su, R., Shi, Q., Chen, P., & Zhang, J. (2025). The Role of Illness Perception and Help-Seeking Attitudes on Positive Psychological Well-Being and Quality of Life in People With Chronic Wounds. *Nursing and Health Sciences*, *27*(1). https://doi.org/10.1111/nhs.70067

Malini, H., Kardila, I. Y., & Alhofaian, A. (2025). The Relationship Among Self-Care, Glycemic Control, and Quality of Life in Indonesian Patients With Type 2 Diabetes Mellitus: An Exploratory Structural Equation Modeling Study. *Belitung Nursing Journal*, *11*(5), 612-618. https://doi.org/10.33546/bnj.3882

Mobini, S., Allahbakhshian, A., Shabanloei, R., & Sarbakhsh, P. (2023). Illness Perception, Self-Efficacy, and Medication Adherence in Patients With Coronary Artery Disease: A Path Analysis of Conceptual Model. *Sage Open Nursing*, *9*. https://doi.org/10.1177/23779608231171772

Mohammadi, F., Tehranineshat, B., Farjam, M., Rahnavard, S., & Bijani, M. (2022). The Correlation Between Resilience, Self-Efficacy and Illness Perception in Patients With Type 2 Diabetes: A Cross-Sectional Study. *Clinical Diabetology*, *11*(3), 175-182. https://doi.org/10.5603/dk.a2022.0024

Ngetich, E., Pateekhum, C., Hashmi, A., Nadal, I. P., Pinyopornpanish, K., English, M., Quansri, O., Wichit, N., Kinra, S., & Angkurawaranon, C. (2022). Illness Perceptions, Self-Care Practices, and Glycemic Control Among Type 2 Diabetes Patients in Chiang Mai, Thailand. *Archives of Public Health*, *80*(1). https://doi.org/10.1186/s13690-022-00888-1

Nwabudike, E., & Ogbeide, O. T. (2022). Illness-Perception Among Diabetes Mellitus Patients in Selected Hospitals, Benin-City, Edo State, Nigeria. *International Journal of Dentistry Diabetes Endocrinology and Oral Hygiene*, *4*(2), 16-27. https://doi.org/10.37745/ijddeoh.18/vol4n21627

Pan, H., Pan, X., Gu, D., & Wang, X. (2024). Effects of Social Support on Vision-Related Quality of Life in Older Adults With Dry Eye Disease: The Chain Mediating Role of Illness Perception and Coping Style. *Frontiers in psychology*, *15*. https://doi.org/10.3389/fpsyg.2024.1411661

Pourrostami, A., Bahri, M. Z., & Bahrami, S. (2023). Presenting the Quality of Life Model Related to the Health of Patients With Type 2 Diabetes Based on Disease Perception and Demographic Characteristics With the Mediating Role of Self-Care Behaviors. *Jayps*, *4*(9), 59-69. https://doi.org/10.61838/kman.jayps.4.9.7

Puspatari, D., & Saidah, S. (2023). Article Review: Effect of Counseling on Quality of Life in Type-2 Diabetes Mellitus Patients. *Medical Sains Jurnal Ilmiah Kefarmasian*, *8*(3), 1053-1066. https://doi.org/10.37874/ms.v8i3.831

Saadati, S. A., & Saadati, S. M. (2024). Improving Illness Perception Through Self-Care Behavior Training: A Randomized Controlled Trial. *KMAN Counsel and Psych Nexus*, *2*(1), 94-100. https://doi.org/10.61838/kman.psychnexus.1.2.15

Safaan, N., Ahmed, N., Kottb, A., & Abo-Elenien, H. (2023). Effect of an Educational Intervention on Self Care Management of Patients With Retinopathy. *Menoufia Nursing Journal*, *8*(2), 197-214. https://doi.org/10.21608/menj.2023.312597

Salahshor, H. M. B., & Motevali, S. (2023). The Mediating Role of Cognitive Flexibility in the Relationship Between Cognitive Emotion Regulation Strategies and Mindfulness in Patients With Type 2 Diabetes. *International Journal of Education and Cognitive Sciences*, *4*(1) 1-14. https://doi.org/10.61838/kman.ijecs.4.1.1

Scollan-Koliopoulos, M., Naturale, D., Mahurter, B., Curren, S., & Koliopoulos, R. J. (2024). The Multigenerational Legacy of Diabetes and Illness Perception: Influence on Older Adult's Stigma. *Obm Geriatrics*, *08*(02), 1-16. https://doi.org/10.21926/obm.geriatr.2402280

Seo, K. (2023). The Mediating Role of Acceptance Action and Self-Care in Diabetes Self-Stigma's Impact on Type 2 Diabetes Quality of Life: A Cross-Sectional Study. *Behavioral Sciences*, *13*(12), 993. https://doi.org/10.3390/bs13120993

Sofiani, Y., Kamil, A. R., & Rayasari, F. (2022). Relationship Between Illness Perceptions, Self-Management, and Quality of Life in Adult With Type 2 Diabetes Mellitus. *Jurnal Keperawatan Padjadjaran*, *10*(3), 187-195. https://doi.org/10.24198/jkp.v10i3.2135

Stanton, A. L., & Hoch, M. M. (2025). Cognition, Coping, and Adjustment in Chronic Disease. 529-549. https://doi.org/10.1037/0000394-024

Thomas, J. J., Sosa, A. V. Y., & Fuentes, S. P. S. (2025). Type 2 Diabetes Self-Care in Oxcutzcab, Yucatan, Mexico: The Role of Mental Health. *Journal of Transcultural Nursing*, *36*(4), 438-446. https://doi.org/10.1177/10436596251323579

Wang, J., Zhu, L., An, R., Chen, Y., Pan, X., Zhang, W., Chen, X., Zou, Z., & Zhang, Y. (2024). Relationship Between Illness Perception and Self-management Behaviors Among Women With Gestational Diabetes Mellitus in China During the <scp>COVID</Scp>-19 Pandemic: A Mediating Role of Depression. *Journal of Obstetrics and Gynaecology Research*, *50*(11), 2057-2065. https://doi.org/10.1111/jog.16104

Wang, Y., Tian, Q., Yan, J., Chen, X., Xiong, F., Huang, Z., Wen, H., Guo, B., & Tang, P. (2025). Illness Perceptions and Fear of Recurrence Among Myocardial Infarction Survivors: The Mediating Role of Psychological Flexibility. *Alpha Psychiatry*, *26*(3). https://doi.org/10.31083/ap44019

Zhang, Q., Sun, J., Bian, H., Wang, X., Zhang, C., Dong, K., Shen, C., & Liu, T. (2024). The Relationship Between Hope Level and Self-Management Behaviors in Chinese Patients With Type 2 Diabetes Mellitus: A Chain-Mediated Role of Social Support and Disease Perception. *BMC psychology*, *12*(1). https://doi.org/10.1186/s40359-024-01939-8