



The Relationship Between Self-Care Based on Illness Perception with Social Support, Shared Decision-Making, and Self-Efficacy in Patients with Type 2 Diabetes

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ABSTRACT

Diabetes self-care is significantly influenced by various psychosocial factors. Therefore, the present study aimed to examine the relationship between self-care based on illness perception with social support, shared decision-making, and self-efficacy in patients with type 2 diabetes. The research method was descriptive-correlational. In a cross-sectional survey, 800 patients with type 2 diabetes (331 men and 469 women) were selected through random sampling from hospitals in Qom Province. Data were collected using a demographic and illness perception questionnaire, the Family Social Support Questionnaire, the Self-Efficacy in Diabetic Patients Questionnaire, the Diabetes Self-Care Questionnaire, and the Patient Participation in Treatment Decision-Making Questionnaire. Data analysis was conducted using SPSS 26 software. The results indicated a significant positive relationship between self-care based on illness perception with social support, shared decision-making, and self-efficacy. Considering the findings, it can be concluded that self-efficacy, belief in treatment effectiveness, social support, diabetes severity, and type of treatment are crucial factors in performing self-management behaviors and can explain a substantial proportion of the variability in diabetes self-management.

Keywords: *self-care, illness perception, social support, shared decision-making, self-efficacy*

1. Introduction

Diabetes is now recognized as one of the 21st century's public health concerns and, overall, the fifth leading cause of death. It is estimated that its global prevalence will increase from 2.4% in 2000 to 4.4% in 2030, meaning that 366 million people will be affected (1, 2).

A 2004 report by the Ministry of Health, Treatment, and Medical Education on the epidemiology of diabetes in Iran shows that about 2% of the population has diabetes, and this figure reaches approximately 3.7% in individuals aged 30 and above. According to statistics from the Iranian Diabetes Association in 2016, more than 4 million people had

diabetes, and this is while every 15 years the statistics triple (3, 4).

Diabetes, as a chronic disease, fundamentally contributes to the development of disabilities, mortality, and health costs. Individuals with diabetes are at risk of severe and life-threatening complications, such as retinopathy and blindness, peripheral neuropathy, foot and lower-leg pain, stroke, myocardial infarction, peripheral vascular problems, end-stage renal disease, and amputation (5, 6). This disease lies at the core of behavioral issues, and social and psychological factors play a vital role in its management (7-9).

Self-care and proper blood glucose maintenance are essential for preventing both short-term and long-term complications. In addition to assessing emerging issues and enhancing understanding of psychological factors associated with adapting to diabetes, health psychologists can facilitate the behavioral changes required for an optimal outcome (10, 11).

However, the main issue in this regard is that only about 5% of those who attempt self-care can achieve their desired blood glucose level. Certainly, this does not mean they are unaware of its benefits, nor that they possess unique personality traits different from other patients capable of controlling diabetes. Rather, what makes this task difficult for them is a negative attitude toward diabetes coupled with feelings of hopelessness and low self-efficacy (12, 13). One reason is that when individuals fail to control their blood glucose, they experience a wave of negative thoughts such as, “I will never be able to control my diabetes,” which leads to negative feelings like frustration, anger, and depression—ultimately reducing self-care behaviors (14, 15). Therefore, the first step toward increasing self-care behaviors (the most crucial part of diabetes treatment) is to break and eliminate these types of thoughts by increasing illness perception and boosting social support for patients with diabetes. Hence, the present study seeks to fill the information gap and increase illness perception, thereby paving the way for necessary measures in education and social support aimed at reducing the likelihood of the disease and controlling diabetes. Through these measures, one can take an effective step toward improving mental health (16, 17). Therefore, the present study aimed to examine the relationship between self-care based on illness perception with social support,

shared decision-making, and self-efficacy in patients with type 2 diabetes.

2. Methods and Materials

2.1. Study Design and Participants

This study utilized a cross-sectional correlational survey design to examine the relationship between self-care based on illness perception with social support, shared decision-making, and self-efficacy in patients with type 2 diabetes. The research was conducted at the Qom Diabetes Association, where individual patients served as the unit of analysis. The target population included adult men and women diagnosed with type 2 diabetes who sought medical services at the association during the study period. The sampling method was random selection, ensuring a diverse and representative group of participants. The estimated population of patients with diabetes visiting the clinic during the data collection phase was approximately 800, and the sample size was determined based on structural equation modeling and factor analysis requirements. Given the common recommendations in the literature for sample adequacy in such analyses, a sample size of 800 participants was deemed appropriate.

The inclusion criteria for this study were: (1) a confirmed diagnosis of type 2 diabetes, (2) an age range of 25 to 55 years, (3) having been diagnosed with type 2 diabetes at least one year before the study, (4) the ability to comprehend Persian, (5) willingness and informed consent to participate in the research, and (6) registration with a physician at the Qom Diabetes Association, along with having a medical record. Data collection was carried out by randomly selecting participants from outpatient clinics, conducting preliminary interviews, and obtaining informed consent. The study adhered to ethical research standards, including confidentiality and voluntary participation. Participants were given the freedom to withdraw from the study at any point, and all collected information was analyzed in aggregate form without personal identifiers.

2.2. Measures

2.2.1. Diabetes Self-Efficacy

The Diabetes Self-Efficacy Scale developed by Fapa et al. (2016) was used to measure patients' perceived confidence in managing their diabetes. This instrument consists of 20 items scored on a Likert scale ranging from 0 ("I do not know at all") to 10 ("I am completely able to do this"), with total scores ranging from 0 to 200. The questionnaire assesses four key areas of self-efficacy related to diabetes management: dietary adherence, medication use and foot care, physical activity, and medical care. A higher total score indicates greater self-efficacy in diabetes self-management. The validity of the instrument was established by Fapa et al. (2016), with a Cronbach's alpha reliability coefficient of 0.93. In Iran, this scale was translated and validated by Mohammadinejad et al. (2015), who confirmed its face and content validity. They also reported a Cronbach's alpha of 0.93, indicating strong internal consistency (18, 19).

2.2.2. Illness Perception

The Illness Perception Questionnaire (IPQ) developed by Broadbent et al. (2006) was used to assess participants' cognitive and emotional representations of their illness. This tool consists of nine items measuring perceptions of disease consequences, chronicity, personal control, treatment control, illness identity, concern, illness comprehension, emotional response, and perceived causes of the disease. The first eight items are rated on a scale of 0 to 10, while the ninth item is an open-ended question asking participants to list three primary causes of their condition. The instrument has been widely used in clinical research, demonstrating strong psychometric properties. Broadbent et al. (2006) reported a Cronbach's alpha of 0.80 and test-retest reliability ranging from 0.42 to 0.75 across different subscales. The Persian version of the IPQ was validated by Barghi Irani (2013), who confirmed its content and construct validity, as well as a Cronbach's alpha of 0.87 (20, 21).

2.2.3. Family Social Support

Social support was assessed using the Family Social Support Questionnaire (FSSQ), a 79-item scale designed to

measure perceived support among individuals with chronic illnesses. The questionnaire employs a four-point Likert scale, with responses ranging from "completely disagree" to "completely agree." Each response is assigned a value from 1 to 4, with higher scores reflecting greater perceived social support. The FSSQ assesses four dimensions of social support: emotional support, informational support, seeking support, and instrumental support. Construct and content validity were established using expert evaluations and factor analysis. Reliability testing using Cronbach's alpha indicated strong internal consistency, with reliability coefficients above 0.80 (22).

2.2.4. Diabetes Self-Care

The Diabetes Self-Care Scale developed by Toobert et al. (2000) was used to measure participants' engagement in self-care behaviors over the past seven days. This 15-item self-report questionnaire evaluates various aspects of diabetes management, including general dietary adherence, diabetes-specific dietary practices, physical activity, blood glucose monitoring, insulin or medication use, foot care, and smoking habits. Except for the smoking behavior item, which is scored from 0 to 1, all other items are rated on a scale from 0 to 7. A total adherence score is computed by summing the item scores, yielding a total score between 0 and 99. Higher scores indicate better diabetes self-care practices. Toobert et al. (2000) reported strong psychometric properties for this scale, with a Cronbach's alpha above 0.80. In Iran, Hamdzadeh et al. (2012) confirmed the content validity of the scale, reporting a content validity index (CVI) of 84.9 and a Cronbach's alpha of 0.78 (13).

2.2.5. Shared Decision-Making

The Shared Decision-Making Questionnaire (SDM-Q-9) by Kriston et al. (2010) was used to assess the extent to which patients participate in treatment decisions. This nine-item scale measures patients' perceived involvement in shared decision-making processes with their healthcare providers. Each item is rated on a six-point Likert scale, ranging from 0 ("strongly disagree") to 5 ("strongly agree"), resulting in a total score between 0 and 45. Participation levels are categorized as weak (≤ 25), moderate (22–32), or strong (≥ 32). Kriston et al. (2010) reported high reliability (Cronbach's alpha = 0.82) and strong construct validity. The

Persian version of the questionnaire was translated and validated by Khamarnia et al. (2017), who confirmed its linguistic accuracy and content validity through expert evaluations. The Cronbach's alpha for the Persian version was reported as 0.82, indicating strong internal consistency (23, 24).

2.3. Data Analysis

Data were analyzed using SPSS 26 software. Descriptive statistics, including means, standard deviations, and frequencies, were used to summarize participant characteristics and study variables. Pearson's correlation test was conducted to assess relationships between self-care behaviors based on illness perception and key psychosocial factors, including social support, shared decision-making, and self-efficacy. Structural equation modeling (SEM) was employed to evaluate the hypothesized relationships between the study variables. The statistical significance

threshold was set at $p < 0.05$. Ethical considerations were strictly observed, ensuring participant confidentiality, voluntary participation, and anonymity in data reporting.

3. Findings and Results

According to the descriptive statistics, out of 800 participants, 58.6% were male, and 41.4% were female.

Among the participants, the largest age group (30.1%) was between 31 and 35 years old, while the smallest group (7.4%) was under 30 years old. Regarding educational background, the majority of participants (40.9%) held a bachelor's degree, whereas the lowest percentage (12.3%) had a high school diploma or an associate degree. Additionally, 57.5% of the participants were married, while 42.5% were single.

The descriptive statistics (central tendency and dispersion indices) for the study variables are presented in Table 1.

Table 1

Descriptive Statistics of Study Variables

Variable	Dimensions	N	Mean	Median	Mode	Standard Deviation	Min	Max
Social Support	Emotional Support	800	46.80	47.50	50	10.14	18	72
	Informational Support	800	25.71	26.00	27	5.73	10	40
	Seeking Support	800	15.41	15.00	14	3.72	6	24
	Instrumental Support	800	16.00	16.00	18	3.95	6	24
	Total Social Support	800	103.94	104.00	97	20.42	43	158
Shared Decision-Making	-	800	31.11	31.00	36	6.15	9	45
Diabetes Self-Care	Exercise	800	17.63	18.00	20	3.74	5	28
	Blood Glucose Testing	800	7.13	8.00	8	1.75	2	12
	Insulin Injection	800	7.06	7.00	8	1.80	2	12
	Foot Care	800	3.54	4.00	4	1.09	1	7
	Smoking	800	14.12	14.00	16	3.07	4	20
	Total Diabetes Self-Care	800	50.34	51.00	50	8.80	23	74
Self-Efficacy	Nutrition	800	48.32	47.00	47	10.44	15	72
	Medication	800	21.06	21.00	19	4.94	9	32
	Physical Activity	800	21.40	21.00	22	4.99	8	32
	Medical Care	800	16.40	17.00	18	3.91	6	24
	Total Self-Efficacy	800	107.19	106.00	98	20.63	55	160
Illness Perception	-	800	43.48	44.00	48	9.26	16	64

Based on the results presented in Table 1, the mean social support score was 103.94, which, according to the questionnaire's interpretation, is below 138, indicating weak social support. The mean shared decision-making score was 31.11, suggesting a moderate level of patient participation in decision-making. The mean diabetes self-care score was 50.34, and the mean self-efficacy score was 107.19, both

indicating moderate levels of self-care and self-efficacy among individuals with diabetes. Furthermore, the mean illness perception score was 43.48, reflecting a moderate level of illness perception among participants.

Considering the skewness and kurtosis results, the z-values for all variables were within the range of -2.54 to +2.54, indicating that the assumption of normality for all

research variables was met. Consequently, Pearson's correlation coefficient was used to examine the relationships between the variables.

Table 2

Pearson Correlation Matrix for Study Variables

Variable	1	2	3	4	5
1. Social Support	1				
2. Shared Decision-Making	0.628	1			
3. Diabetes Self-Care	0.822	0.644	1		
4. Self-Efficacy	0.767	0.593	0.685	1	
5. Illness Perception	0.455	0.490	0.453	0.449	1

The Pearson correlation results in Table 2 indicate significant positive correlations between social support, shared decision-making, diabetes self-care, self-efficacy, and illness perception at a 99% confidence level. This suggests that an increase in one of these variables is associated with an increase in the others, whereas a decrease in one variable corresponds with a decrease in the others.

To assess the structural model fit, several fit indices were examined, including the chi-square statistic (χ^2),

comparative fit index (CFI), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). The results indicated that the model had an acceptable fit: $\chi^2(284) = 923.61$, $p < 0.001$, CFI = 0.945, GFI = 0.923, AGFI = 0.901, RMSEA = 0.048, and SRMR = 0.041. The CFI and GFI values were above the recommended threshold of 0.90, while the RMSEA and SRMR values were below 0.05, indicating a good model fit.

Table 3

Path Coefficients and T-Values in the Structural Model

Path	β (Standardized)	t-value	p-value
Social Support → Shared Decision-Making	0.614	11.62	<0.001
Social Support → Diabetes Self-Care	0.731	14.03	<0.001
Social Support → Self-Efficacy	0.689	13.21	<0.001
Social Support → Illness Perception	0.423	7.89	<0.001
Shared Decision-Making → Diabetes Self-Care	0.512	9.85	<0.001
Self-Efficacy → Diabetes Self-Care	0.576	10.47	<0.001
Illness Perception → Diabetes Self-Care	0.301	5.94	<0.001

All direct paths in the model were statistically significant at $p < 0.001$. Social support had a strong positive effect on shared decision-making ($\beta = 0.614$, $p < 0.001$), diabetes self-care ($\beta = 0.731$, $p < 0.001$), self-efficacy ($\beta = 0.689$, $p < 0.001$), and illness perception ($\beta = 0.423$, $p < 0.001$). Shared decision-making was also positively associated with diabetes self-care ($\beta = 0.512$, $p < 0.001$). Additionally, self-efficacy showed a strong positive effect on diabetes self-care ($\beta = 0.576$, $p < 0.001$), while illness perception had a moderate but significant impact on diabetes self-care ($\beta = 0.301$, $p < 0.001$). These findings suggest that increasing social support not only enhances diabetes self-care directly but also improves shared decision-making, self-efficacy, and

illness perception, all of which further contribute to better self-care management in patients with type 2 diabetes.

4. Discussion and Conclusion

The results of the statistical analysis for the second hypothesis indicated that illness perception has a significant positive effect on self-care among patients with type 2 diabetes ($p < 0.01$, $r = 0.07$). This finding suggests that a better understanding of the disease leads to an increase in self-care behaviors among individuals with type 2 diabetes. This result aligns with the prior studies which demonstrated that patients' knowledge and understanding significantly impact diabetes self-care (13, 25-31). The results of the

statistical analysis for the third hypothesis showed that social support has a significant positive effect on self-care among patients with type 2 diabetes ($p < 0.01$, $r = 0.50$). This means that greater social support leads to increased self-care behaviors among individuals with diabetes. This finding is consistent with the prior research (11, 32-38). The results of the statistical analysis for the fourth hypothesis indicated that shared decision-making has a significant positive effect on self-care among patients with type 2 diabetes ($p < 0.01$, $r = 0.22$). This suggests that greater involvement in decision-making enhances diabetes self-care behaviors. Studies demonstrated that participatory behavior and collaboration from significant others in a patient's life predict self-care behaviors related to physical activity, both directly and indirectly, through their influence on patients' self-efficacy judgments (23, 24, 39-41). The results of the statistical analysis for the fifth hypothesis indicated that illness perception has a significant positive effect on self-care among patients with type 2 diabetes, with self-efficacy as a mediating variable ($p < 0.01$, $r = 0.073$). This suggests that self-efficacy plays a crucial mediating role in the relationship between illness perception and self-care behaviors. Moreover, the results of the statistical analysis for the sixth hypothesis revealed that social support has a significant positive effect on self-care among patients with type 2 diabetes, with self-efficacy as a mediating variable ($p < 0.01$, $r = 0.382$). This means that self-efficacy effectively mediates the relationship between social support and diabetes self-care behaviors. Finally, the results of the statistical analysis for the seventh hypothesis demonstrated that shared decision-making has a significant positive effect on self-care among patients with type 2 diabetes, with self-efficacy as a mediating variable ($p < 0.01$, $r = 0.062$). This suggests that self-efficacy plays a crucial role in mediating the impact of shared decision-making on diabetes self-care behaviors.

The findings of this study suggest that the structural model of self-care based on illness perception, social support, and shared decision-making significantly impacts the improvement of self-care behaviors in patients with type 2 diabetes through enhanced self-efficacy. Specifically, a more accurate perception of the illness, adequate social support, and active patient participation in treatment decision-making can strengthen patients' self-efficacy,

thereby improving their self-care behaviors. Therefore, interventions that focus on enhancing these factors can play a crucial role in better diabetes management and improving the quality of life for individuals with type 2 diabetes.

The study sample was exclusively drawn from the Qom Diabetes Association, which may limit the generalizability of the findings. Future research is recommended to include larger and more diverse samples in terms of geographic, cultural, and social backgrounds to enhance the generalizability of the results.

Authors' Contributions

L. M. M. conceptualized the study, designed the research methodology, and conducted the statistical analysis. R. L. contributed to data collection, literature review, and interpretation of the findings. M. S. assisted in drafting the manuscript, reviewing the results, and refining the discussion section. All authors contributed to manuscript revision, approved the final version, and agreed to be accountable for all aspects of the work.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethics Considerations

The study placed a high emphasis on ethical considerations. Informed consent obtained from all participants, ensuring they are fully aware of the nature of the study and their role in it. Confidentiality strictly maintained, with data anonymized to protect individual privacy. The study adhered to the ethical guidelines for research with human subjects as outlined in the Declaration of Helsinki. Ethical considerations included obtaining informed consent, ensuring confidentiality and anonymity, and avoiding any harm to participants.

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