

## The Relationship between Emotional Intelligence and Self-Efficacy in Type II Diabetes Patients

Sheida Jamalnia<sup>1</sup>, Sorur Javanmardifard<sup>2</sup>, Zhaleh Najafi<sup>3\*</sup>

1 MSc Student of Medical Journalism, Medical Journalism Department, Shiraz University of Medical Sciences, Shiraz, Iran.  
2. Nursing Ph.D Student, School of Nursing and Midwifery, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.  
3. MSc of nursing ,Nursing Instructor, Department of Nursing, School of Nursing and Midwifery, Islamic Azad University of Firoozabad, Firoozabad, Iran.

### \*Correspondence:

Zhaleh Najafi, MSc of Nursing ,Nursing Instructor, Department of Nursing, School of Nursing and Midwifery, Islamic Azad University of Firoozabad, Firoozabad, Iran.

**Tel:** (98) 917 312 0791

**Email:** najafizh44@gmail.com

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### Abstract

**Objective:** The theory of self-efficacy is based on the assumption that people's beliefs about their abilities and talents have a favorable effect on their actions. It is the most important determinant of behavior. This study aimed to investigate the relationship between Emotional Intelligence (EI) and self-efficacy in type II diabetes (T2DM) patients.

**Materials and Methods:** In this analytical cross-sectional study, 128 T2DM patients were selected via simple random sampling. At first, the patients' demographic data were recorded. Then, the persian version of Diabetes Management Self-Efficacy Scale (DMSES) and EI questionnaire developed by Petrides and Furnham were completed.

**Results:** The mean ( $\pm$ SD) age of the patients was 53.55 ( $\pm$ 6.2) years. The results showed a significant positive correlation between the total scores of self-efficacy and EI ( $P$ -value: 0.001). Accordingly, increase in the EI score was accompanied with an increase in the score of self-efficacy.

**Conclusion:** EI plays an important role in nurturing self-efficacy beliefs and positive self-concepts in patients and promoting their mental and physical health status. Hence, training courses on EI components can make patients feel highly self-efficacious.

**Keywords:** Emotional intelligence, Self-efficacy, Type II diabetes

### Introduction

Diabetes mellitus has been considered as a costly disease worldwide due to its numerous complications (1). The chronic nature of disease and its associated complications impose heavy economic burdens and reduce the quality of life of patients and their families (2). According to International Diabetes Federation in 2014, the prevalence of diabetes was about 9% in people

older 18 years and around 422 million adults suffered from diabetes worldwide and will be predicted to reach 642 million by 2040 (3). The prevalence of diabetes has increased dramatically in the Eastern Mediterranean Region (EMR) over the past three decades. The prevalence of diabetes in EMR has been projected to rise from 9.7% in 2014 to 11.6% by 2040 (4). In Iran, as one of the countries

located in EMR, the prevalence of diabetes has been doubled over the past three decades (5). A national study estimated that the prevalence of diabetes was 13.8% in 2013, while a subnational study suggested that the incidence of diabetes was about 1% in Iran (6). It has been predicted the rate of diabetes growth in Iran will gain the second rank by 2030 (7).

Lachini et al. (2014) found in their study that self-efficacy training could be effective in controlling blood glucose among type II diabetes mellitus (T2DM) patients. Thus, this type of training was recommended as a part of the comprehensive diabetes care and treatment program (7). In this context, self-confidence has been defined as a reassurance felt by individuals while doing special activities (8). This concept affects individuals' efforts and performances and refers to their judgment about their abilities to perform an activity. It may enable people to adopt health-promoting behaviors and quit harmful behaviors (9). Individuals with high self-efficacy remove barriers by improving their self-management and perseverance skills, resist against problems, and have better control over their affairs (10). Therefore, self-efficacy can help maintain health-promoting behaviors (11). Concerning the effect of self-efficacy, Bandura noted that self-efficacy is in fact an individual's belief and expectation regarding his/her capacity to influence the desired outcome through individual efforts (12). In other words, self-efficacy affects motivation. Therefore, with stronger belief a person will be more active and harder try, and greater continuity of his/her behavior in achieving a particular goal will be (13).

In the recent years, numerous studies have been carried out on management and treatment of T2DM, focusing on health-related issues and coordination of various aspects of physical health with emotional health, social health, personality traits, and psychological factors including emotional intelligence (EI). EI enables individuals to facilitate confrontation with difficult situations before they become uncontrollable. Individuals who use their EI

can better adapt with their surroundings, show higher self-esteem, and are aware of their abilities. EI is positively associated with stress management, optimism, positive mood, healthy behaviors, empathy, and satisfaction with interpersonal relationships, but negatively related to mental turmoil, stress, depression, fatigue, and weakness. A weak EI can cause the person to experience more negative emotions and be at risk of a variety of disorders (15). Poor application of emotions may also lead to behavioral problems. Today, EI has become increasingly important in various aspects of life, including education, occupation, and the social environment (16). EI theorists believe that there is a positive relationship between EI and power of coping with high-risk situations (14). Therefore, the ability to use emotional capacities is highly needed in the present age. In this regard, research findings have proved that individuals with higher EI have a higher mental health status (16,17).

It can be concluded that self-efficacy and EI are very important in T2DM patients and the findings of the studies conducted in this field can be used to improve the delivery of services to the T2DM patients. Self-efficacy and having optimal EI are undoubtedly vital factors in promoting and maintaining mental health status as well as quality of life. The present study aimed to investigate the relationship between self-efficacy and EI in T2DM patients.

## Materials and Methods

In this analytical, cross-sectional study, the participants were selected via simple random sampling and were requested to sign written informed consent forms for taking part in the research. A total of 128 patients were selected. The inclusion criteria of the study were having the ability to understand and respond to questions, suffering from T2DM for at least one year, and no special sedative medication use that affect consciousness.

The study participants included 128 T2DM patients (105 females and 23 males) referred to

the Diabetes Association in Shiraz. They were selected by simple random sampling. Based on the sample size determination formula ( $n = \frac{2.6(Z_{1-\frac{\alpha}{2}} + Z_{1-B})}{(\mu_1 - \mu_2)}$ ) and previous studies in this field, considering the first type error of 0.05 and test power of 0.8, and using the power sample size calculator software.

After recording the patients' demographic information, the Persian version of the Diabetes Management Self-Efficacy Scale (DMSES) was used to assess their self-efficacy. This scale consisted of four subscales as follows: diet, physical activity, drug use, and blood sugar test. These subscales contained 19 questions that could be responded via a Likert scale ranging from 0 (I cannot do it at all) to 10 (I can definitely do it). Thus, the scores of the scale could range from 0 to 190. DMSES was developed by Van der Bill in 1999. The validity of the scale was approved by Haghayegh et al. in Iran. Indeed, its Cronbach's alpha and test-retest coefficients were found to be 0.83 and 0.86, respectively.

EI questionnaire designed by Petrides and Furnham as a self-assessment scale was used to assess the patients' EI. Its original form consisted of 144 items divided into 15 subscales, namely adaptability, assertiveness, emotional expression, impulse control, emotion regulation, emotion perception, empathy, happiness, excitement, optimism, social skills, self-motivation, self-regard, social competence, and stress management. The form used in the present study included 30 items responded based on a seven-point scale ranging from totally agree (1) to totally disagree (5). Thus, the scores of the questionnaire could range from 30 to 210. Accordingly, scores 30-60, 60-90, and above 90 represented weak, moderate, and strong EI, respectively. The construct validity of the questionnaire was verified by its developers and its being single-factored was confirmed using exploratory factor analysis. Besides, its internal consistency was approved by

Cronbach's alpha=86% in a pilot study on 102 participants.

Descriptive data were reported as mean and standard deviation. ANOVA and chi-square test were used to determine the relationship between EI and self-efficacy. All analyses were performed using the SPSS statistical software, version 20 and  $P$ -value < 0.05 was considered to be statistically significant.

### Ethical considerations

This study was approved by Committee of Ethics in Research of Islamic Azad University, Kazerun Branch, Fars, Iran with number of IR.IAU.KAU.REC.1398.001.

### Results

The mean ( $\pm$ SD) age of the patients was 53.55( $\pm$ 6.2) years. In addition, 82% of the patients were female and 93% were married. The patients' demographic information has been presented in Table 1.

The results showed no significant relationships between the mean scores of self-efficacy and EI and age, marital status, diabetes complications, and insulin dependence. However, a significant relationship was found

**Table 1. Demographic characteristics of the participants**

Variable	Frequency	%
<b>Sex</b>		
Male	23	18.0
Female	105	82.0
<b>Marital status</b>		
Single	8	6.3
Married	120	93.7
<b>Insulin dependence</b>	36	28.1
<b>Ischemic heart disease</b>	31	24.2
<b>Nephropathy</b>	24	18.8
<b>Retinopathy</b>	66	51.6
	<b>Mean</b>	<b>(<math>\pm</math>) SD</b>
<b>Age(years)</b>	53.55	6.2
<b>EI-score</b>	89.62	3.3
<b>Optimism</b>	69.7	79.2
<b>Self-awareness</b>	30.33	10.14
<b>Perception</b>	21.26	49.10
<b>Social awareness</b>	18.27	20.11
<b>Self-efficacy scores</b>		
<b>Diet</b>	106.84	2.78
<b>Blood sugar</b>	21.50	01.12
<b>measurement</b>	73.23	94.6
<b>Physical activity</b>	58.17	66.6
<b>Medications</b>	31.15	62.5

**Table 2. The relationship between emotional intelligence and self-efficacy dimensions**

Variable		Optimism	Self-awareness	Perception	Social awareness	S-E score TOTAL
<b>Diet</b>	Pearson Correlation	.377**	.555**	.548**	.475**	.637**
	<i>P</i> -value	.0001	.0001	.0001	.0001	.0001
<b>Blood sugar measurement</b>	Pearson Correlation	.378**	.618**	.581**	.443**	.713**
	<i>P</i> -value	.0001	.0001	.0001	.0001	.0001
<b>Physical activity</b>	Pearson Correlation	.365**	.601**	.617**	.457**	.703**
	<i>P</i> -value	.0001	.0001	.0001	.0001	.0001
<b>Medications</b>	Pearson Correlation	.330**	.607**	.588**	.494**	.632**
	<i>P</i> -value	.0001	.0001	.0001	.0001	.0001
<b>EI-score TOTAL</b>	Pearson Correlation	.411**	.660**	.648**	.525**	.749**
	<i>P</i> -value	.0001	.0001	.0001	.0001	.0001

\*\*Correlation is significant at the 0.01 level

between education level and the mean scores of self- efficacy and EI (*P*-value: 0.01). The results revealed a significant positive correlation between the total scores of self- efficacy and EI (*P*-value: 0.001). Accordingly, a higher EI score was accompanied with a higher self- efficacy score. Moreover, the results presented in table 2 indicated significant positive relationships between all components of EI and self- efficacy (*P*-value: 0.001). In the meantime, self-awareness showed the most positive correlation with self- efficacy.

## Discussion

This study aimed to investigate the relationship between EI and self- efficacy in T2DM patients referred to Shiraz diabetes clinics. The results revealed a significant relationship between the patients' education level and their self- efficacy and EI scores. Accordingly, higher levels of education were accompanied with higher scores of EI and self- efficacy, which is consistent with the findings of other relevant studies. It is obvious that patients with higher education levels were more aware of and paid more attention to the complications of diabetes and, consequently, had a better understanding of the nature of the disease (21). Therefore, emphasis must be on training illiterate and lowly educated people. Reese et al. reported a significant positive correlation between the patients' literacy level and their self-efficacy (19). Schinckus et al. also indicated that EI affected diabetes self-care behaviors and that promoting EI could

reduce the discomfort associated with diabetes management and its complications (20).

The present study findings demonstrated no significant relationships between the patients' EI and self-efficacy scores and their marital status and gender. Considering the fact that the individuals who referred to diabetes centers were mostly married, this relationship seemed to be normal. Similarly, Davari et al. (22) found no significant relationships between gender and self-efficacy dimensions. However, Haratiet al. (23) found a significant relationship between gender and self-efficacy. The findings of the present study showed a significant positive correlation between the mean scores of EI and self- efficacy. Not only these findings confirmed the research hypothesis, but they also conformed to the results of some previous studies conducted on the issue (Nouri Samarin, 2014; Narayan, 2016) (24). This finding can be justified by the fact that individuals with higher EI scores have higher coping abilities while confronting stressful events because they can understand, assess, and control their emotions more accurately. They can also manage their mood states more effectively and prevent undermining of their self- efficacy under difficult circumstances (25). Furthermore, EI consists of a set of interconnected skills for accurate perception, assessment, and expression of emotions, and self- efficacy beliefs affect the way of thinking, how to deal with problems, emotional health status, and decision-making. Hence, both constructs include a set of skills, talents, and abilities that can increase individuals' success in coping

with environmental pressures and constraints (26). Indeed, these two variables are positively correlated to each other and can predict one another (27). EI components can be considered as an important predictor of self-efficacy. Emotional self-awareness, as one of the components of EI, plays a more important role in explaining self-efficacy. Reese et al. also reported in their study that self-awareness predicted 19% of the variance in the patients' self-efficacy (19). Accordingly, individuals with higher levels of awareness about diabetes had higher self-efficacy to perform self-care behaviors (28).

In the present study, some participants suffered from the complications of the disease, which was normal considering the mean age of the participants and the chronic nature of the disease. Moreover, retinopathy comprised the most common complications. This is in agreement with the results of other studies, which indicated a high prevalence of retinopathy complications among T2DM patients (29,30).

Overall, EI plays an important role in enhancing patients' self-efficacy and positive self-concept beliefs and promoting their mental and physical health. Thus, training patients in terms of EI components makes

them feel very self-efficacious and achieve greater success in social and individual situations.

## Conclusions

The results of the present study indicated that higher EI led to better self-efficacy, thereby improving the treatment management, promoting adherence to preventive behaviors for disease complications, and providing the ground for controlling diabetes. Therefore, the effective factors in EI are recommended to be identified so as to carry out appropriate interventions. Further educational programs are also suggested to be implemented in order to increase the level of EI.

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## Conflict of Interest

There is no conflict of interest to declare.

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