

## INVESTIGATING THE RELATIONSHIP BETWEEN SPIRITUAL INTELLIGENCE AND EMOTIONAL INTELLIGENCE AND THE LEVEL OF CAREGIVERS' BURDEN OF DIABETIC PATIENTS

Samira Rahimi Naderi<sup>1</sup>, Simin Esmaeilpour Zanjani<sup>2\*</sup>, Soheila Mashouf<sup>3</sup>

1. *Masters of Science Student in Community Health Nursing, Department of Nursing and Midwifery, Tehran Medical Sciences Branch, Islamic Azad University, Tehran, Iran*
2. *Phd of Medical Education, Faculty member in Department of Nursing and Midwifery, Tehran Medical Sciences Branch, Islamic Azad University, Tehran, Iran*
3. *3 Faculty member in Department of Nursing and Midwifery, Tehran Medical Sciences Branch, Islamic Azad University, Tehran, Iran, Phd Candidate for Health Care Systems Management of Science and Research unit, Islamic Azad University*

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### ABSTRACT

**Background and purpose:** A common metabolic disorder which leaves devastating impacts on various body organs is known as Diabetes Mellitus. The effects of the chronic disease not only disrupt the lives of patients, but also those who look after them. The caregivers' ability to handle such a tough situation is subjected to many personality factors itself. Spiritual intelligence and emotional intelligence could be considered as two significant factors here. Spiritual intelligence involves the highest level of growth in different cognitive, ethical, emotional and interpersonal areas. It helps the individual to coordinate with the surrounding phenomena and achieve internal and external integrity. Those individuals who use their emotional intelligence enjoy more compatibility with their surroundings. They could display a higher self-esteem and enjoy self-awareness. The main purpose of this paper is to determine the links between spiritual and emotional intelligence and the scale of tolerance caregivers are ready to offer to a family member who is suffering from the diabetes.

**Method:** In this descriptive correlation study, the statistical population of this study included all family caregivers of diabetic patients referred to diabetes clinics affiliated to Hamedan University of Medical Sciences in the year 2017 who were eligible to enter this study. The sample size was 129 people using the Cochran formula. Information about the theoretical part of this research was collected by the means of a library method and appropriate databases as well as previous studies related to this research. The field information of this study was also obtained through the distribution of the King's Caregiver Burden Inventory (CBI), Petrides and Furnham Emotional Intelligence Questionnaire, and the Guest and Novak Caregiver burden Inventory. The type of variables was qualitative and quantitative. Descriptive statistics and inferential statistics were used to analyze the data. Statistical software SPSS version 20 was used.

**Findings:** The score of caregivers' burden indicated a significant relationship with spiritual intelligence and emotional intelligence scores so that by increasing one unit in the burden score of caregivers, spiritual intelligence score and emotional intelligence score will increase up to 0.236 and 0.182, respectively. The calculations showed that there is no correlation between physical burden and emotional burden components of caregivers with none of the components of spiritual intelligence. Also, there is no correlation between physical burden and emotional burden of the component of caregivers' burden with none of the components of spiritual intelligence.

**Conclusion:** The findings of this study showed the relationship between spiritual intelligence and emotional intelligence with the degree of tolerance of carers of family members of diabetic patients.

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### Introduction

Diabetes mellitus is a common metabolic disorder that has devastating effects on various organs of the body [1]. According to the World Health Organization report, the prevalence of diabetes in Iran is more than 8%. Like other chronic illnesses,

**Corresponding Author:** Simin Esmaeilpour Zanjani, 2Phd of Medical Education, Faculty member in Department of Nursing and Midwifery, Tehran Medical Sciences Branch, Islamic Azad University, Tehran, Iran. Email: [s.esmaeilpour@iautmu.ac.ir](mailto:s.esmaeilpour@iautmu.ac.ir)

diabetes faces the patient and his family with many challenges, such as treatment plans, complicated and costly care, the need for frequent visits to the doctor, and numerous tests that raise concerns about the future of the disease. Among the factors influencing the control of the disease, in addition to the use of pharmaceutical methods and observance of regimens, the role of other variables such as age, gender, economic status, educational level and family factors cannot be ignored [2, 3]. Patients with family support have the ability to adapt more to the illness and have more survival rate than patients without family support. Caregivers are people who, during a period of illness or disability, have the most conflict in the care and support of the client in order to adapt and manage chronic disease [4]. Chronic illnesses disrupt not only patients' lives, but also involve caregivers [5, 6], so that the quality of life of caregivers is disturbed by patients with chronic illness[7]. Caregivers of these patients often take a lot of time to take care of these patients and tolerate many fatigue and caregivers [8]. The caregivers' ability to bear the heavy burden of patient care depends on many personality factors such as emotional intelligence and spiritual intelligence. Gollman considers emotional intelligence to include the individual capacity to accept facts, flexibility, ability to solve problems, ability to deal with stress and impulses [9]. The concept of emotional intelligence may provide a better understanding of diabetes patient support resources to facilitate diabetes management challenges[10]. People who use their emotional intelligence are more compatible with their surroundings and show higher self-confidence and self-awareness[11].

Anderson sees spiritual intelligence as an experienced ability that enables people to gain more knowledge and understanding, and provides the context for advancement in life[12]. The construct of spiritual intelligence is one of the concepts that has been raised and developed in the light of the universal interest of psychologists in the field of religion and spirituality. Spirituality and spiritual growth in humans and its role in different parts of his life have increasingly attracted the attention of psychologists and mental health professionals in recent decades[13]. It seems that in order to provide better care and meeting the spiritual needs of patients, caregivers should have a high level of spiritual intelligence[14-16]. Although many studies have already been conducted to investigate spiritual intelligence and emotional intelligence and their relationship with many chronic diseases, including multiple sclerosis, coronary artery disease, heart failure, and Diabetes, but the level of attention to caregivers in these patients is low in studies and so far, we have not investigated the coexistence of these two types of intelligence on the degree of tolerance of caregivers in diabetic patients. Therefore, the aim of this study was to determine the relationship between spiritual intelligence and emotional intelligence with the level of tolerance of carers of family members of diabetic patients.

### Materials and methods

In this descriptive correlation study all patients with diabetes who were referred to health centers of Hamedan University of Medical Sciences were identified and codes were assigned to their caregivers. The criteria for selecting the sample were: caregiver solely should care the patient because of diabetes or its symptoms, caregivers should not have any mental illness and no psychotherapy history, and caregiver should not have a limiting physical condition to provide the patient with care. 129 caregivers of diabetic patients were selected randomly and entered the study. All of these individuals completed the Cares of Death Assessment (CBI) questionnaire (for measuring objective and mental caring with an emphasis on mental health pressure), King Spiritual Intelligence Questionnaire (with four subscales of critical existential thinking, production of personal meaning, transcendental consciousness, and Expansion mode of consciousness) and the Petrids and Farnham Emotional Intelligence Questionnaire.

Validity and reliability tolerance caregivers has been confirmed in other studies[17, 18]. In this study, Cronbach's alpha coefficient of 0.89 indicated a desirable reliability. Also the reliability of spiritual intelligence questionnaire was confirmed by researchers with Cronbach's alpha coefficient of 0.92, 0.88 and 0.88 [19, 20]. The Cronbach's alpha of 0.84 is indicative of the reliability of this questionnaire in the research.

The Petrides and Furnham Emotional Intelligence Questionnaire is a self-assessment scale. The main and the first form has 144 items and 15 subscales of adaptability assertiveness, emotion perception (self and others), emotion expression, emotion management (others), emotion regulation, impulsiveness (low), self-esteem, self-motivation, social awareness, management stress, trait empathy, trait happiness and trait optimism. A 30-article form was used in this study, the Persian version of which was developed by a researcher [21]. A researcher has reported the coefficient of internal consistency for the whole scale to be 0.89 obtained by Cronbach's alpha procedure in this paper [22]. In this study Cronbach's alpha coefficient 0.85 indicative of a desirable reliability. To analyze the data, descriptive statistics (frequency of sample information) and inferential statistics (analysis of the results of the research) were used. In this study, data were analyzed using the SPSS 20 statistical. The statistical tests used are Chi-Square and Pearson Correlation Test.

### Findings

Most of the subjects were female in terms of gender (78.3%). The age range of the subjects was (39.07 ± 12.07) and most of the subjects were married (77.5%) and housewife (57.4%). The highest proportion of caregiver was the daughter of the family with the average of (31.8%) and education level of most of the caregivers was undergraduate (31.8%). 86.8% of these caregivers did not have the previous history of the disease. On average, the score of the caregivers' in CBI is (25.78 ± 19.47) that has distance with the maximum score (96) of this questionnaire. The Pearson Correlation test was used to determine the

relationship between caregivers' burden score and its subscales. According to Table 1, the relationship between all five subscales of caregivers' support questionnaire was significant.

**Table 1.** Relationship between caregiver's burden score and its sub-scales

		Time Dependence Burden	Developmental Burden	Physical Burden	Social Burden	Emotional Burden
Caregiver's burden	Pearson Correlation	0.650	0.886	0.892	0.829*	0.678
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000
	N	129	129	129	129	129
Time-dependent burden	Pearson Correlation	1	0.478	0.493	0.240	0.191
	Sig. (2-tailed)		0.000	0.000	0.006	0.31
	N	129	129	129	129	129
Developmental Burden	Pearson Correlation	0.478	1	0.765	0.718	0.510
	Sig. (2-tailed)	0.000		0.000	0.000	0.000
	N	129	129	129	129	129
Physical burden	Pearson Correlation	0.493	0.765*	1	0.714	0.499
	Sig. (2-tailed)	0.000	0.000		0.000	0.000
	N	129	129	129	129	129
Social burden	Pearson Correlation	0.240	0.718*	0.714	1	0.676
	Sig. (2-tailed)	.006	0.000	0.000		0.000
	N	129	129	129	129	129
Emotional burden	Pearson Correlation	.191*	0.510	0.499	0.676	1
	Sig. (2-tailed)	0.031	0.000	0.000	0.000	
	N	129	129	129	129	129
**. Correlation is significant at the 0.01 level (2-tailed).						
*. Correlation is significant at the 0.05 level (2-tailed).						

On average, the score obtained from the spiritual intelligence questionnaire was  $(52.87 \pm 17.08)$  that has the mean distance to the maximum score of the questionnaire (96). Spiritual intelligence score was in 4 categories, the category (49-64) has the highest percentage (35.7%) and those with a high spiritual intelligence score are in this category. On average, a score of the Emotional Intelligence Questionnaire was  $(129.49 \pm 23.53)$  that has the mean distance from the highest score of this questionnaire (210). Ninety six points one percent of subjects have an intelligence score of more than 90 that indicates a strong emotional intelligence.

According to the results of Table 2, there was a significant correlation with positive and correlation between caring with intellectual intelligence and emotional intelligence.

**Table 2.** Relationship of caregivers' burden score with spiritual intelligence and emotional intelligence score

Caregivers' burden	r	P-Value
spiritual intelligence	0.236	0.008
emotional intelligence	0.182	0.040

According to the results presented in table 3, there was a significant relationship between emotional intelligence and spiritual intelligence.

**Table 3.** Relationship between Spiritual Intelligence and Emotional Intelligence Score

		Spiritual Intelligence	Emotional Intelligence
Spiritual Intelligence	Pearson Correlation	1	0.480
	Sig. (2-tailed)		0.000
	N	129	129
Emotional Intelligence	Pearson Correlation	0.480	1
	Sig. (2-tailed)	0.000	
	N	129	129
**. Correlation is significant at the 0.01 level (2-tailed).			

There was a relationship between some elements of caregivers’ burden with spiritual intelligence components but there was no relationship between physical burden and emotional burden of the caregivers’ burden component with none of the components of spiritual intelligence. There was a meaningful relationship between the components of emotional burden of the caregivers’ burden component of tolerance with transcendental consciousness (0.006). (Table 4)

**Table 4.** Relationship between caregivers’ burden components and spiritual intelligence score and emotional intelligence score

Care givers’ burden components		Time-dependent burden		Developmental Burden		Physical burden		Social burden		Emotional burden	
		r	P-Value	r	P-Value	r	P-Value	r	P-Value	r	P-Value
Spiritual intelligence components	Critical Existential Thinking	0.237	0.007	0.042	0.635	0.105	0.235	0.087	0.326	0.106	0.323
	personal meaning production	0.184	0.036	0.004	0.968	0.547	0.053	0.696	0.035	0.158	0.073
	Transcendental Awareness	0.001	0.287	0.122	0.170	0.160	0.070	0.102	0.252	0.242	0.006
	conscious state expansion	0.309	0.000	0.038	0.668	0.073	0.410	0.060	0.499	0.150	0.019
Emotional Intelligence Components	Optimism	0.074	0.402	0.050	0.0576	0.010	0.909	0.092	0.299	0.044	0.062
	Self-awareness	0.168	0.058	0.213	0.016	0.236	0.007	0.222	0.012	0.157	0.077
	Understanding, evaluating and controlling emotions	0.089	0.314	0.074	0.404	0.100	0.262	0.100	0.260	0.070	0.433
	Social skills	0.215	0.014	0.236	0.007	0.184	0.038	0.236	0.007	0.215	0.014

According to Table 5, there was a significant relationship between all sub-scales of spiritual intelligence with emotional intelligence sub-scales.

**Table 5.** The relationship between spiritual intelligence with emotional intelligence sub-scales

		Critical Existential Thinking	Personal Meaning	Transcendental Awareness	Transcendental consciousness expansion	Optimism	Self-awareness	Perception	social skills
Critical Existential Thinking	Pearson Correlation	1	0.769	0.774	0.723	0.261	0.401	0.448	0.276
	Sig. (2-tailed)		0.000	0.000	0.000	0.003	0.000	0.000	0.002
	N	129	129	129	129	129	129	129	129
Personal Meaning	Pearson Correlation	0.769	1	0.729	0.654	0.287	0.359	0.436	0.255
	Sig. (2-tailed)	0.000		0.000	0.000	0.001	0.000	0.000	0.004
	N	129	129	129	129	129	129	129	129
Transcendental Awareness	Pearson Correlation	0.774	0.792	1	0.778	0.328	0.306	0.371	0.231
	Sig. (2-tailed)	0.000	0.000		0.000	0.007	0.000	0.000	0.008
	N	129	129	129	129	129	129	129	129
Transcendental consciousness expansion	Pearson Correlation	0.723	0.654	0.778	1	0.283	0.319	0.387	0.276
	Sig. (2-tailed)	0.000	0.000	0.000		0.001	0.000	0.000	0.002
	N	129	129	129	129	129	129	129	129
Optimism	Pearson Correlation	0.261	0.287	0.238	0.283	1	0.412	0.515	0.478
	Sig. (2-tailed)	0.003	0.001	0.007	0.001		0.000	0.000	0.000
	N	129	129	129	129	129	129	129	129
Self-awareness	Pearson Correlation	0.401	0.359	0.306	0.319	0.412	1	0.659	0.479
	Sig. (2-tailed)	0.000	.000	0.000	0.000	0.000		0.000	0.000
	N	129	129	129	129	129	129	129	129
Perception	Pearson Correlation	0.448	0.436	0.371	0.387	0.515	0.659	1	0.352
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000		0.000
	N	129	129	129	129	129	129	129	129
social skills	Pearson Correlation	0.276	0.255	0.231	0.276	0.478	0.479	0.352	1
	Sig. (2-tailed)	0.002	0.004	0.008	0.002	0.000	0.000	0.000	
	N	129	129	129	129	129	129	129	129

Table 6 shows that there is a significant relationship between spiritual intelligence score and emotional intelligence sub-scales.

**Table 6.** Relationship of spiritual intelligence score with emotional intelligence sub-scales

		<b>Spiritual Intelligence</b>	<b>Optimism</b>	<b>Self-awareness</b>	<b>Perception</b>	<b>social skills</b>
<b>Spiritual Intelligence</b>	Pearson Correlation	1	0.294	0.358	0.455*	0.287
	Sig. (2-tailed)		0.001	0.000	0.000	0.001
	N	129	129	129	129	129
<b>Optimism</b>	Pearson Correlation	0.294	1	0.412	0.515	0.478
	Sig. (2-tailed)	0.001		0.000	0.000	0.000
	N	129	129	129	129	129
<b>Self-awareness</b>	Pearson Correlation	0.358.	0.412	1	0.659	0.479
	Sig. (2-tailed)	0.000	0.000		0.000	0.000
	N	129	129	129	129	129
<b>Perception</b>	Pearson Correlation	0.455	0.515	0.659	1	0.352
	Sig. (2-tailed)	0.000	0.000	0.000		0.000
	N	129	129	129	129	129
<b>social skills</b>	Pearson Correlation	0.287	0.478	0.479	0.352	1
	Sig. (2-tailed)	0.001	0.000	0.000	0.000	
	N	129	129	129	129	129
**. Correlation is significant at the 0.01 level (2-tailed).						

In examining the relationship between demographic characteristics and spiritual intelligence, emotional intelligence and caring tolerance, results showed that there was a meaningful and positive relationship between caregivers' age and burden. Also, there was a positive and significant relationship between emotional intelligence variable with age. But there was no significant relationship between spiritual intelligence and age. Gender, marital status, and history of the disease were not significantly correlated with caregivers' burden and emotional intelligence and spiritual intelligence. Also, there was a positive and significant relationship between education and caregivers' burden, but there is no significant relationship between spiritual intelligence and emotional intelligence with education. (Table 7)

**Table 7.** Relationship between demographic variables with spiritual intelligence, emotional intelligence, and caregivers' burden

	Age		Gender		marital status		Education		History of the disease	
	r	P-Value	r	P-Value	r	P-Value	r	P-Value	r	P-Value
Caregivers' Burden	0.292	0.001	0.035	0.696	0.151	0.088	0.378	0.000	0.163	0.066
Emotional Intelligence	0.206	0.020	0.009	0.919	0.064	0.474	0.168	0.123	0.025	0.870
Spiritual Intelligence	0.018	0.824	0.008	0.926	0.057	0.520	0.089	0.318	0.201	0.023

### Discussion

The age range of the subjects was  $(39.07 \pm 12.07)$ , and this number indicates a young caregiver group in this study. The mean score of the caregivers' in questionnaire was  $(25.78 \pm 19.47)$ , and it can be said that the burden of the caregivers is moderate which was consistent with the level of caregivers burden in a study with the aim of examining the caregivers' burden and related factors in nursing students[23]. The time-dependent burden of the sub-scales of this questionnaire has the highest score  $(9.03 \pm 5.7)$ . The mean and standard deviation of developmental burden were  $5.35 \pm 5.07$ , the physical burden was  $5.36 \pm 5.46$ , the social burden was  $4.82 \pm 3.66$  and the emotional burden was  $2.34 \pm 3.55$ . The above results can be compared with the results of other studies[23].

In the present study, the mean score of the spiritual intelligence questionnaire is  $(52.87 \pm 17.08)$  that is between the average and the maximum score of the questionnaire (96). Also, in categorizing this intelligence, it was found that 6.2% of the subjects had the lowest spiritual intelligence score and 25.6% had the highest score of spiritual intelligence. In a research with the aim of evaluating the self-efficacy and spiritual intelligence of caregivers of the elderly family member with Alzheimer's disease, the average scores of spiritual intelligence was 63.22[24]. In a study was found that the average score of spiritual intelligence among students was 68.5[25]. The mean score of emotional intelligence obtained from the emotional intelligence questionnaire was  $(129.49 \pm 23.53)$ , which has a mean distance with the maximum score of this questionnaire (210). Also in categorizing this intelligence, it was found that 96.1% of people have strong emotional intelligence and only 8.8% had a weak emotional intelligence. The score of caregivers' burden with spiritual intelligence score and emotional intelligence score indicated a significant relationship, and it can be said that the decrease or increase of either of the two variables causes a decrease or increase in other variables, so that by increasing one unit in the score of the caregivers' burden score, spiritual intelligence score and emotional intelligence score will increase up to 0.236 and 0.182, respectively. In this study, there was a significant correlation between emotional and spiritual intelligence at the level of  $\alpha = 0.05$  (000). It is consistent with other findings from studies[5, 7]. In this study, there was a relationship between some components of caregivers' burden with spiritual intelligence components at the level of  $\alpha = 0.05$ , such as the relationship between time-dependant burden of caregivers' burden component with critical existential thinking (0.007), personal meaning (0.036), and transcendental consciousness development (0.000).

Also, there was a strong correlation between the caregivers' burden score and the component of transcendental awareness (0.309) compared to other components. Statistical tests showed that there was no correlation between the components of caregivers' burden and none of the components of spiritual intelligence. Also, there is no correlation between physical burden and emotional burden of the component of caregivers' burden with none of the components of spiritual intelligence. In the other study the low level of emotional intelligence components in the caregivers of patients with dementia was associated with anxiety and depression and low levels of physical activity[16].

In this study, there was a significant and positive correlation between the age and caregiver's burden so that by increasing one unit of age, caregivers' burden will increase up to 0.292 units. In this regard in a other study showed that there is a direct correlation between the mean caregivers' burden and all subscales other than the social subscale with age, and the lower the caregivers' age, the lower the caregivers' burden[26]. There was also a significant positive correlation between emotional intelligence and age, but there was no significant relationship between spiritual intelligence and age. According to the results of a study conducted in the students of nursing faculty, there is a significant relationship between spiritual intelligence and emotional intelligence with some demographic variables between emotional intelligence with age. The statistical relationship is that with increasing age, emotional intelligence increases[25, 27, 28]. However, in some studies, there was no significant relationship between emotional intelligence and age variables[29].

In the present study, as in some studies[30], there was no significant relationship between sex with carers and emotional intelligence and spiritual intelligence however, the results of some other studies have shown that the overall level of caring for women is significantly higher than that of men[29, 31]. In addition, there was no significant correlation between marital status with caring and emotional intelligence and spiritual intelligence. Also, there was a positive and significant correlation between education and carers' tolerance, but there was no significant relationship between spiritual intelligence and emotional intelligence with education. Studies have shown some consistent studies[32] and some non-cognitive[29] studies in this area. Also, there was no significant relationship between the history of the disease with caregivers and emotional intelligence and spiritual intelligence. It seems to me that the need to provide family care is important to them, and factors such as marital status and the history of illness have not been effective.

The findings of the current study which has been carried out to determine the link between spiritual and emotional intelligence with the degree of tolerance of caregivers of diabetic patients' family members represent the impact of the relationship between spiritual and emotional intelligence with the rate of endurance of caregivers who are the diabetic patients' family members. The findings of the study can be considered as the main basis for more extensive surveys. These findings can also be used while planning to improve services being delivered to diabetics and their caregivers. Undoubtedly, the caregivers' support and cooperation could be highly valuable to control the disease and to prevent its complications. The physical and mental health of the diabetic patients' caregivers plays an important role in better control of the disease, thereby helping to provide a better quality of life for the diabetics, as well as reducing unnecessary expenses and medical problems caused by the overlapping of these disorders with internal diseases and surgery. This study also shows that the diabetic patients will enjoy the benefits of caregivers' mental health.

The large number of questions in the questionnaires has prolonged the time of the research and it did affect the accuracy of the responses of the participants. The results of this study can be generalized to caregivers of patients with diabetes. And if necessary, it should be done cautiously with sufficient knowledge to other patients. In addition, this study was conducted on first degree caregivers to the diabetic patients, therefore it cannot be generalized to the entire community. Since scoring the main questionnaire and un-summarized scoring of emotional intelligence provide more accurate results, it is suggested that the Emotional Intelligence Uncertainty Questionnaire be used for future research. It is also suggested that the subject of the

research be examined with the comparative approach in various diseases. It is suggested that the caregivers' degree of tolerance be surveyed for the severity of diabetes' complications too.

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