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A study on the relationship between spiritual health and quality of life in patients with type 2 diabetes mellitus

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Original Article

Abstract

BACKGROUND: Diabetes mellitus (DM) is one of the most common chronic diseases and one of the major health problems in all countries worldwide. Considering the role of mental health in improving the health and quality of life (QOL) of patients with chronic diseases, this study was carried out aiming to determine the relationship between spiritual health and QOL among patients with type 2 DM.

METHODS: This was a correlation descriptive study in which 330 patients with DM were selected using systematic sampling. Demographic, spirituality (Parsian and Dunning), and World Health Organization Quality of Life Brief Version (WHOQOL-BREF) questionnaires were used for collecting data. Moreover, descriptive statistics, Spearman's correlation coefficient, simple linear regression, and multiple regression tests were exploited to analyze the data.

RESULTS: The mean scores of the patients' spiritual health and QOL were 62.04 ± 14.36 and 67.85 ± 11.79, respectively. Spiritual health and all of its four dimensions had a direct and significant correlation with QOL. Meanwhile, two dimensions of self-awareness (r = 0.542) and spiritual needs (r = 0.511) had the highest correlation with QOL in these patients (P < 0.001). Furthermore, spiritual health and its two aspects, including self-awareness and spiritual needs had a significant effect on the QOL of the patients (P < 0.001).

CONCLUSION: The results showed that spiritual health affected QOL of the patients significantly; moreover, two of its dimensions, self-awareness and spiritual needs, had the greatest effect. Therefore, to improve the QOL of such patients, it is necessary to design and implement appropriate training programs with emphasis on these two dimensions.

KEYWORDS: Type 2 Diabetes, Spiritual Health, Quality of Life, Iran

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Introduction

Diabetes mellitus (DM) is the most prevalent metabolic disorder. In fact, as believed generally, it is the most common endocrine disease with the highest rate of threatening the global health.[1] Today DM is the fifth cause of death in western communities and the fourth prevalent cause for referring to a physician. This complication is responsible for 4 million deaths annually, which includes 9% of all

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kinds of death in the world.[2] During the last decades, DM prevalence has been increased remarkably in most of the Middle East countries.[3] According to the reports published by the International Diabetes Federation (IDF), more than 240 million people are suffering from DM and it is estimated that the population of patients with DM will reach more than 330 million individuals by 2025, 75% of whom living in developing countries.[4] In Iran, DM has the highest incidence rate among the non-contagious diseases and it is estimated that more than 3 million people are suffering from this disease. The rate of 7% for prevalence and 13% for hidden DM among the adults together imply that nearly 20% of Iranians suffer from DM or they are about to be affected by this complication.[5]

The swift economic development, urbanism, and also changes in life style have resulted in a decrease in the level of physical activities, in addition to the increased purified carbohydrate consumption, obesity, and aging, which have subsequently led to the increased incidence of DM in the society.[6] DM affects the patients' physical, psychological, individual, and social functions and it was regarded as a serious public health problem threatening the patients' quality of life (QOL).[7]

In medical sciences, the functional QOL is related to the health of individuals, i.e. ones' mental evaluation of his current health condition, sanitary care, and the activities promoting health and allowing people to follow precious goals.[8,9] The World Health Organization (WHO) has defined QOL as the individuals' perception of their own life status in the context of culture and value systems in which they live.[10] This is associated with the individuals' goals, expectations, and concerns; higher QOL was the concern of all researchers in the present century. In fact, health is the cornerstone of QOL, and since the phenomenon of QOL cannot be covered completely in the health system, studying the concept of health in relation to QOL which is defined as the concept of "QOL associated with health".[11]

Moreover, spiritual health is one of the fundamental concepts in chronic diseases which gives meaning and goal to life[12] and it is considered as an important solution to promote health and QOL, so as during the recent years, spirituality along with its relationship with QOL was increasingly emphasized.[13] Spiritual health is defined as one of the unique forces which is composed of physical, psychological, and social aspects[14] and is referred to as one of the basic aspects of health in the definition given by WHO.[15] Studies illustrated that without spiritual health, the other biological, psychological, and social health dimensions could not function properly and the utmost level of QOL would not be achieved.[16] It is claimed that people with chronic illnesses use spirituality as a tool to get along with their illnesses and to bring about a sense of meaning and goal to their life and tolerate their illnesses.[17] Spiritual health and tolerance are leading parameters in evaluating QOL relating to health, treatment tolerance, treatment outcomes, and reflecting the ability of the patient in confronting the illness in the illness-health path.[18] The result of different studies illustrated that spiritual health had positive influence on the QOL of the patients with chronic diseases.[19,20]

Considering the importance of spiritual health and spiritual status in promoting QOL through decreasing stressful experiences like pain and tolerance in chronic illnesses[20], the current study was accomplished aiming at defining the relationship between spiritual health and QOL of patients with type 2 DM referred to the Diabetes Clinic of Tohid Hospital in Sanandaj City, Iran.

Materials and Methods

This was a correlation descriptive study with the statistical population including patients with type 2 DM who referred to the Diabetes Clinic of Tohid Hospital in Sanandaj in 2017, among whom 330 were selected through

systematic sampling.

The inclusion criteria included having informed consent to participate in the study, literacy, age of above 18 years, and having a history of more than one year of type 2 DM. In addition, the study exclusion criteria were dissatisfaction in continuing the study and not fully completing the questionnaires. The sample size included 385 patients which was calculated based on the probability of type I error (5%), the probability of regular referral of patients to the clinic (it was supposed to be 50% of all patients) (P = 0.500), and using Cochran sample size formula. Finally, to avoid missing data, 400 patients were entered into the study.

A demographic questionnaire consisting questions about age, gender, place of residence, level of education, type of employment, state of health insurances, and marital status as well as the questionnaire by Parsian and Dunning used to measure spirituality and its dimensions, were exploited. The second questionnaire included 29 items and the participants had to specify the extent to which they agreed or disagreed with each of the phrases in a 4-point Likert scale (from strongly agree = 4 to strongly disagree = 1). This questionnaire lacked any reverse questions. The questionnaire consisted of 4 subscales as self-awareness, importance of spiritual beliefs in life, spiritual activities, and spiritual needs with 10, 4, 6, and 9 items, respectively, all of which were designed to examine the spirituality level of individuals, and the range of spirituality score was between 29 and 116, as the level of spiritual health increased with increasing the score. In the study by Pirasteh Motlagh and Nikmanesh, the reliability of this questionnaire was obtained using Cronbach's alpha coefficient (0.93) and it was approved.[17]

The World Health Organization Quality of Life Brief Version (WHOQOL-BREF) questionnaire was also used to measure the dimensions of QOL. The questionnaire was employed to evaluate four areas of physical health, mental health, social relationships, and environmental health with 7, 6, 3, and 8 items, respectively. Using a five-option Likert scale, the range of scores was between 24 and 120. The scoring was straightforward for most of the items, and it was calculated inversely only for items 3, 4, and 26. Moreover, the first two items did not belong to any of the areas and were used to assess the health status and QOL in general; therefore, this questionnaire accounted for 26 items in total. After performing the necessary calculations in each area, a score between 4 and 20 was obtained for each area, with 4 and 20 indicating respectively the worst and the best condition for that area. These scores could be converted into a scale of 0-100 in which, the raw score of each area was deducted from the minimum possible raw score (number 4) and the result was divided into raw material range (number 16) and multiplied by 100.[21] Nejat et al. investigated the validity and reliability of this questionnaire in a study, with the reliability of the questionnaire measured using the Cronbach's alpha coefficient and intra-cluster correlation obtained using a re-test. Moreover, the validity of the questionnaire-its ability to differentiate among the participants-was evaluated in healthy and patient groups using linear regression. Correlation matrix of the questionnaire with domains was used to measure the structural factors of the questionnaire. The results indicated validity, reliability, and acceptability of the structural factors of this tool in healthy and patient groups in Iran.[22]

All relevant ethical principles, including the confidentiality of the questionnaires, the informed consent of the participants to take part in the study, and the discretion of leaving the study were respected. The patients responded fully to the questionnaire items and they were assured that all information requested in the questionnaire would be used confidentially. Furthermore, the study was approved with ethics code IR.MUK.REC.1394.296.

Table 1. Demographic information of the participants

Variable		n (%)
Gender	Women	227 (68.8)
	Men	103 (31.2)
Marital status	Single	2 (0.6)
	Married	328 (99.4)
Place of residence	Living in city	280 (84.8)
	Living in village	50 (15.2)
Level of education	Illiterate	209 (63.3)
	Primary level	85 (25.8)
	High school	30 (9.1)
	Associate or bachelor degree	6 (1.8)
Type of employment	Unemployed or housewife	260 (78.8)
	Worker	17 (5.2)
	Employee	2 (0.6)
	Having a governmental job	33 (10.0)
	Retired	18 (5.5)
Having health insurance	Yes	247 (74.8)
	No	83 (25.2)

The data were analyzed using descriptive statistics, Spearman's correlation coefficient, and simple and multiple linear regression tests in SPSS software (version 16.0, SPSS Inc., Chicago, IL, USA).

Results

In this study, 400 patients with type 2 DM were enrolled and 70 patients were excluded due to lack of answering all items of the questionnaires, as well as their unwillingness to participate in the study (response rate was 82.5%). The mean age of the subjects was 59.70 ± 9.70 with a range of 28 to 89 years. In addition, 227 (68.8%), 328 (99.4%), and 280 (84.8%) of the participants were women, were married, and lived in the city, respectively. Moreover, 209 (63.3%), 260 (78.8%), and 247 (74.8%) of the subjects were illiterate, were unemployed or housewives, and had health insurance, respectively. Table 1 demonstrates other demographic information of the patients.

The results showed that the mean scores of patients in four dimensions of spiritual health, including self-awareness, spiritual beliefs, spiritual activities, and spiritual needs were 20.70 ± 5.78, 7.50 ± 2.71, 16.16 ± 3.68, and 17.92 ± 4.59, respectively. Moreover, the mean score of patients in total spiritual health was 62.04 ± 14.36 out of 116, and the mean total score for the QOL was 67.85 ± 11.79 out of 120 as well.

The results also showed that there was a direct and significant correlation between total spiritual health and QOL ($P < 0.001$). Furthermore, there was a direct and significant correlation between the four dimensions of spiritual health and QOL. Meanwhile, self-awareness ($r = 0.542$) and spiritual needs ($r = 0.511$) had the highest correlation with QOL ($P < 0.001$) (Table 2).

Table 2. Relationship between spiritual health and its four dimensions with the patients' quality of life (QOL)

Spiritual health and its four dimensions	R	P
Spiritual health	0.598	< 0.001
Self-awareness	0.542	< 0.001
Spiritual beliefs	0.404	< 0.001
Spiritual activities	0.466	< 0.001
Spiritual needs	0.511	< 0.001

Table 3 showed that the overall spiritual health was related to QOL, and the QOL increased with an increase in spiritual health ($P < 0.001$).

Table 3. Simple linear regression analysis: relationship between spiritual health and quality of life (QOL)

Variable	Non-standardized coefficients		Standardized coefficients	T	P
	Total B	SD	β		
Fixed value	37.450	2.360	-	16.18	< 0.001
Spiritual health	0.490	0.036	0.597	13.48	< 0.001

SD: Standard deviation

Table 4 indicated that the dimensions of self-awareness and spiritual needs were related to the QOL of the patients, so that the patients' QOL increased with the increase in these variables (P < 0.001). However, the dimensions of spiritual beliefs and spiritual activities did not show a significant relationship with the QOL of the patients (P > 0.050).

Discussion

The study findings revealed that the patients' QOL was moderate, which was consistent with the results of the studies conducted by Panahi et al.,[23] Hosieni et al.,[24] Allahbakhshian et al.,[12] Estaji et al.,[25] Jadidi et al.,[26] and Soltani et al.[27] However, this finding contradicted the results of the study by Farhadi et al.,[28] in which the QOL was reported to be below the average level. The reason for this contradiction might be the differences between the two studies such as the difference in the age range of the patients, their area of residence, and the education level as well as the kind of QOL assessment tool.

Moreover, the results showed that the patients' spiritual health level was moderate, which was in line with the results of studies by Allahbakhshian et al.[12] and Jadidi et al.,[26] which respectively examined the spiritual health among patients with multiple sclerosis (MS) and the elderly residents of Kahrizak Nursing Home, Tehran, Iran.

In addition, there was a direct and significant correlation between total spiritual health and QOL levels. Moreover, there was a direct and significant correlation between all four aspects of spiritual well-being and QOL. Meanwhile, self-awareness and spiritual needs had the highest correlation with QOL. Furthermore, significant correlation between the four dimensions of spiritual well-being and QOL suggested that these dimensions, together, could also provide the components necessary to have a favorable QOL in these patients. These results were consistent with the results of the study by Jadidi et al.[26]

Moreover, the results showed that spiritual well-being and two of its aspects-self-awareness and spiritual needs-affected QOL of the patients, so that their levels increased with the increased QOL and vice versa.

These results were in line with the results of the studies by Jadidi et al.,[26] Büssing et al.,[29] Burkhardt and Nathaniel,[30] Finkelstein et al.,[31] Rippentrop et al.,[32] and Johnson et al.[33] To justify these results, it can be stated that spirituality acted as a buffer against physical and psychological problems of the disease.[12]

Table 4. Multiple linear regression analysis: relationship between the four dimensions of spiritual health and quality of life (QOL)

Variable	Non-standardized coefficients		Standardized coefficients	T	P
	Total B	SD	β		
Fixed value	35.866	2.520	-	14.320	< 0.001
Self-awareness	0.728	0.124	0.350	5.850	< 0.001
Spiritual economy	0.292	0.271	0.067	1.102	0.271
Spiritual activities	0.240	0.212	0.075	1.134	0.258
Spiritual needs	0.605	0.147	0.236	4.113	< 0.001

SD: Standard deviation

On the other hand, spirituality could help relieve pain and anxiety in these patients; therefore, spirituality could support them in difficult conditions and encourage them to be hopeful and optimistic about the future of their disease. In other words, higher spirituality could be associated with better health outcomes.

Considering the fact that this study was conducted only among patients with type II DM referred to the Diabetes Clinic of Tohid Hospital in Sanandaj, the results cannot be generalized to other patients with DM in other parts of the country. Therefore, it is recommended to replicate this study in different populations throughout the country. It is also suggested that qualitative studies be conducted to assess how spirituality affects the QOL in these patients. Moreover, the gathered data was self-report and this was one of the limitations of the present study.

Conclusion

In general, the results indicated that the patients had moderate levels of spiritual health and QOL. Considering the correlation between spiritual health, self-awareness, and spiritual needs with QOL, and also the impact of self-awareness and spiritual needs on improving the QOL of the patients, appropriate educational programs with emphasis on these two dimensions are suggested to be designed and implemented in order to improve the QOL of such patients.

Conflict of Interests

Authors have no conflict of interests.

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