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COMPARISON OF FAMILY FUNCTIONING AND DIMENSIONS OF LIFE QUALITY IN WOMEN WITH TYPE 2 DIABETES AND NORMAL DIABETES

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ABSTRACT

The main purpose of this study was to identify the difference between normal people and patients with type 2 diabetes in terms of the dimensions of family functioning and quality of life. Based on the available sampling method, a sample of 200 individuals which was collected in 1395 (100 normal women and 100 patients with type 2 diabetes), the research hypotheses were tested and the questionnaires were: Family functioning Scale and Quality of Life. Multivariate analysis of variance (MANOVA) was used to test the hypotheses and the results showed that there is a meaningful difference between normal people and patients with type 2 diabetes in terms of family functioning and quality of life. More precisely, people with type 2 diabetes have a weaker functioning than normal people, and their quality of life, as compared to normal people, shows an unpleasant situation.

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Introduction

Diabetes is one of the most common diseases in human societies which, not only its prevalence hasn't diminished, but is increasing day to day, unfortunately, despite the advances in medical science. Type 2 diabetes, noninsulin-dependent diabetes, is most commonly seen in adults over the age of 30 [1]. Type 2 diabetes includes approximately 85% to 90% of diabetic people. Over the world, 347 million people are now living with diabetes which 90% of whom are type 2 diabetes.

The prevalence of this disease was estimated at 4% in 1995 and is predicted to increase to 4.5% in 2025. In Iran, the number of people with diabetes has been estimated at more than 2% of the population, which is about 7.4% in people over 30 years old.

In this type of diabetes, the insulin produced by the pancreas does not work well. In fact, either the pancreas does not release the true amount of insulin, or the released insulin doesn't have the proper functioning for the body [2]. In 1977, a psychiatrist named Engel introduced the biopsychosocial model (mellitus diabetes) for the first time. In this view, it was emphasized that the biological, psychological and social factors in people's lives affect their status of being healthy or ill. Since then, the study of chronic diseases, such as diabetes, has begun with a biopsychosocial approach [3]. One of the biopsychosocial factors associated with type 2 diabetes is family functioning and quality of life. In the definition of family functioning, it is said that family functioning is a common effort to establish and maintain a balance in the family [4]. Family functioning is the ability to adapt to changes, resolve contradictions and conflicts, solidarity between members and success in applying disciplinary patterns, observance of the boundaries between individuals, enforcement of the rules and principles governing this entity with the aim of protecting the whole family system [5]. The quantitative and qualitative changes in this process lead to the formation of different personalities in the family, and in most cases, although it may provide support for people's behavioral health, it

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creates certain behavioral problems that depend on several factors. The performance of the whole family can be studied in different dimensions such as problem solving, communication, roles, emotional responsiveness, emotional involvement and behavioral control [6]. The model of family functioning from Mc Master's view defines the structural, professional (occupational) and interactional characteristics of the family and includes six dimensions called problem solving, communication, roles, affective responsiveness, affective involvement and behavior control. The problem solving dimension is that the family solves most of the daily problems, act upon their decisions about the problem, and talks after trying to solve the problem about being successful or not. In the dimension of communication, members of the family talk directly and without intermediaries, they are honest, and if they do not like the behavior of one of the members, they will tell him. In the dimension of roles, each family member carries out certain duties and responsibilities and act upon them; and in the dimension of affective responsiveness, the family members show sympathy and affection, and show feelings of sorrow, joy, anger and so on, easily. In affective involvement dimension, family members talk about their subtle feelings and their fears and concerns, and they are very thoughtful about each other; and ultimately, in the dimension of behavior control, family members obey some rules and standards, and each knows its duty in emergency circumstances [4]. Lower scores in these dimensions show a healthier functioning, and higher scores represent a perturbation to that dimension. Research evidence suggests that family functioning has strong association with metabolic control; also, familial conflict related to type 2 diabetes and negative relationships in family has a meaningful relationship with lower quality of life, as the involvement of both parents in taking care of diabetic children has a significant relationship with higher quality of life. Also, In this regard, the results of research done by Beigi (2015), Sobhi et al. (2011), Hiroki et al. (2013), Labsen (2013) and Adomi et al. (2015) suggest that the performance of families with diabetic patients in comparison to ordinary families are undesirable.

Regarding quality of life, it should also be noted that over the past two decades, the quality of life has been one of the most important subjects of clinical research and has been emphasized as one of the effective aspects in patient care; and its examination has been used in order to recognize the differences between patients and to predict patients' outcomes and to evaluate therapeutic interventions. Quality of Life is a multi-dimensional concept that the World Health Organization defines it as "One's understanding of the state of his/her life according to the culture and systems of value and its relation to the goals, expectations, interests, standards, and experiences of life". This concept has a broad definition that affects the physical health, Psychological state, independence, social communication and personal beliefs [7]. Quality of Life, as a hygienic concept, is defined by many characteristics, including multidimensionality, dynamism and subjectivity, which includes various dimensions such as physical, psychological, social and so on. Each of these dimensions is divided into sub-categories. For example, the physical dimension refers to the patient's ability to perform daily activities and tasks that require energy; or psychological dimension includes psychological aspects of a sense of health such as depression, fear, anger, happiness and tranquility; also, social dimension is related to one's ability to communicate with family members, neighbors and colleagues [8]. It should be noted that the side-effects of diabetes have an influence on different aspects of the patient's quality of life, including mental, physical, social, economic, family life and sexual functioning. The primary goal of treatment, specially in chronic diseases, is to improve the quality of life by reducing the effects of the illness, and patients with severe and chronic conditions should not necessarily have a poor quality of life. Health staff can positively influence the patients' quality of life by examining and providing their health status. Furthurmore, by measuring people's quality of life, they can determine the negative impact of illness or the treatment influences on the patient's quality of life. The results of research findings of Tabe'ei [9], Mishra et al. [10], Alshahri [11], Chiha et al. [12] and Jain et al [13] also suggest that people with diabetes have lower quality of life.

Finally, it should be noted that according to the above mentioned and considering the importance and impact of psychological and social causes such as family functioning and quality of life in type 2 diabetes, this study has studied these factors in normal women and patients with type 2 diabetes in a comparative way and aims to answer the basic question: What is the difference between normal women and patients with type 2 diabetes in terms of family functioning and quality of life? Based on this, the research hypotheses are as follows:

•Differences exist between normal people and women with type 2 diabetes in terms of family functioning.

• Differences exist between normal people and women with type 2 diabetes in terms of dimensions of life quality.

Methodology

Society, sample and sampling method

The statistical population of this study was ordinary people in Rasht and all women with type 2 diabetes (1000 people) who went to Alzahra and Poursina educational hospitals in the fall, 2015. In this research, two sample groups of 100 normal and patient women who were matched based on age (35-45, marital status (all married), and gender) were examined through available sampling method.

Research tool

Family functioning Questionnaire: In this research, family functioning questionnaire has been used to measure family functioning dimension. The tool used in this research is the family Famigy Assessment Device, which was provided by N.B.Epestin, L.M.Baldoein and D.S.Bishop and aims to assess family functioning based on the Mc Master's model. This model defines the structural, occupational and interactional characteristics of the family, and determines six dimensions of family functioning: problem solving, communication, roles, affective responsiveness, affective involvement, behavior control,

and overall family functioning. Furthermore, the ability of family to compromise with the scope of family duties is determined on a four-option Likert scale as: I fully agree (1), I agree (2), disagree (3), and completely disagree (4); and all responses are coded from 1 to 4 for family functioning scoring; higher score indicates a poor functioning. In Yousefi's research (2012), the coefficients of Cronbach's alpha under the components of family functioning have been reported: problem solving, 0.86; communication, 0.87; roles, 0.87; affective responsiveness, 0.81; affective involvement, 0.89; behavior control, 0.87 And overall functioning, 0.82%.

Short form Questionnaire of Quality of Life (Questionnaire) (QOL): this questionnaire is used to measure the one's quality of life in the last two weeks; it is made by the World Health Organization in collaboration with 15 International Centers in 1989; the number of questions are 24 in 4 domains, the first two questions do not belong to any of these domains and assess the health status and quality of life in general; so the questionnaire totally has 26 questions, with 4 subscales of Physical Health Domain; Psychological Domain; Social relationship Domain and Environmental Domain. The score for each item in the range of 1 to 5, respectively, is: not at all, slightly, moderately, highly and quite; or very dissatisfied, not satisfied, fairly dissatisfied, satisfied, fully satisfied, and the range of scores for each Domain is between 4 To 20. 4 indicates the worst and 20 shows the best status of the desired domain. In other words, a higher score indicates a higher quality of life. The results reported by the World Health Organization's Quality-of-life scale developing group, conducted in 15 international centers of the organization, show that the Cronbach's alpha coefficient is between 0.73 to 0.89 for the four subscales and for the whole scale.

Research findings

Results of Analysis of variance of normal people and patients with type 2 diabetes in terms of family functioning

Table 1. Results of multivariate analysis of variance of family functioning

	Family functioning dimensions	Mean scores normal wome	Mean scores of diabetic patients	Mean Squares	Test coefficient	Significance level	Eta Squared
Normal and diabetic women group	Problem solving	9.79	13.12	554.445	96.710	.000	.328
	Communication	10.02	13.86	737.280	56.626	.000	.222
	Roles	17.72	22.26	1030.580	71.613	.000	.266
	Affective responsiveness	10.23	13.36	489.845	42.977	.000	.178
	Affective involvement	13.05	14.73	141.120	8.554	.004	.041
	Behavior control	19.31	21.60	262.205	12.853	.000	.061
	Overall functioning	20.24	23.01	383.645	15.968	.000	.075

Mbox test: 35.037; Significance level: 0.210; Wilks' Lambda : 0.437; Coefficient F: 35.36; significance level: 0.000

Based on the results of the Mbox table, the assumption of the homogeneity of the variance errors of both groups was confirmed for the family functioning dimensions and the multivariate analysis of variance was used. In other words, the results of the MBox test showed that the significance level of the test was 0.289 and the Mbox test coefficient was 0.437. In another dimension, based on the results of multivariate analysis of variance, the difference between the normal women and diabetic patients in the family functioning components was significant at 0.000 (Wilke's Lambda: 0.437, significance level: 0.000). Therefore, it can be said that there is a significant difference between the normal women and diabetic patients, at least in one of these components of family functioning. As it is shown by the multivariate analysis of variance, there was a significant difference in the problem solving dimension between ordinary women (9.79) and diabetic patients (13.12) (Significance level: 0.000; test coefficient: 96.71), indicating that diabetic patients, compared to normal people, had a weaker functioning in solving family problems. There was a significant difference in the relationship between normal women (10.02) and diabetic patients (13.86) in terms of communication dimension (significance level: 0.000; test coefficient: 56.62), indicating that diabetic patients compared to normal people had a weaker functioning in family communication. In the dimension of roles, there was a significant difference between normal women (17.72) and diabetic patients (22.26) (sifnificance level: 0.000; test coefficient: 71.61), indicating that diabetic patients have experienced a weaker functioning in playing role in family than normal people. There was a significant difference in affective reponsiveness between normal women (10.23) and diabetic patients (13.36) (significance level: 0.000; test coefficient: 42.97), indicating that diabetic patients, compared to normal people, had weaker functioning in affective responsiveness dimension. There was a significant difference in the affective involvement dimension between normal women (13.05) and diabetic patients (14.73) (significance level: 0.000; test coefficient: 5.55), indicating that diabetic patients, compared to normal people, had weaker functioning in their affective involvement dimension. There was a significant difference in behavioral control between normal women (19.31) and diabetic patients (21.60) (significance level: 0.000; test coefficient: 12.85), indicating that diabetic patients, compared to normal people, had a weaker functioning in behavior control dimension. There was a significant difference in overall functioning between normal women (20.24) and diabetic patients

(23.01) (significance level: 0.000; test coefficient: 15.96), indicating that diabetic patients had a weaker functioning in overall functioning dimension, in comparison to normal people.

Results of Analysis of variance of normal people and patients with type 2 diabetes in terms of Life Quality

Table 2. Results of multivariate analysis of variance of life quality components in two groups of normal women and diabetic patients

	Family functioning dimensions	Mean scores of normal women	Mean scores of diabetic patients	Mean Squares	Test coefficient	Significance level	Eta Squared
Normal and diabetic women group	Psychological health	17.94	16.32	131.220	4.530	.035	.022
	Physical health	28.91	25.12	718.205	52.771	.000	.210
	Social relations	9.64	8.32	87.120	6.689	.010	.033
	environment	27.79	29.10	85.805	1.909	.169	.010

Mbox test: 19.37; Significance level: 0.96; Wilks' lambda: 0.785; F coefficient: 13.371; Significance level: 0.000

Based on the results of the MBox table, the assumption of the homogeneity of the variance errors of both groups was confirmed for the quality of life dimensions and the multivariate analysis of variance was used. In other words, the results of the MBox test showed that the significance level of the test was 0.096 and the test coefficient of the MBox was reported as 19.37. In another dimension, based on the results of multivariate analysis of variance, the difference between the normal women and diabetic patients was significant in Life Quality components in the level of 0.000 (Wilks' Lambda: 0.785; significance level: 0.000). As shown by the multivariate analysis of variance of Life Quality, there was a significant difference in the psychological health dimension between normal women (17.94) and diabetic patients (16.32) (significance level: 0.035; test coefficient: 4.53), indicating that diabetic patients had a lower status than normal people in the terms of psychological health. There was a significant difference in physical health dimension between normal women (28.91) and diabetic patients (25.12) (significance level: 0.000; test coefficient: 52.77), indicating that diabetic patients compared to normal people in the terms of physical health had a lower status. There was a significant difference in the social relationships between normal women (9.64) and diabetic patients (8.32) (significance level: 0.010; test coefficient: 6.68), indicating that diabetic patients compared to normal people in terms of social relationships had a lower status. There was no significant difference in the dimension of environment between normal women (27.79) and diabetic patients (29.10) (significance level: 0.169; test coefficient: 1.90), indicating that there was no significant difference between diabetic patients and normal women in the environment dimension.

Conclusion

Having a chronic illness burdens a lot of expenses on patients and their families, one of the common chronic diseases is diabetes that has attracted doctors' and psychologists' attention and has been introduced as the sixth or seventh factor of mortality. Diabetes has a negative effect on physical activity, mental status, relationships among individuals and family members, social communication and, generally, on common health and psychological well-being of patients. In addition to physical and physical complications, it can create multiple psychiatric symptoms in the patient and may even increase the risk of mental disorders. In this regard, this study has attempted to do a comparative examination between women with type 2 diabetes and normal women in terms of family functioning and quality of life. As the multivariate analysis of variance has shown, the family functioning of patients with type 2 diabetes is weaker than family functioning in normal people. In other words, the dimensions of family problem solving, family intra-relationships, role playing, affective responsiveness, affective involvement, behavior control, and overall family functioning in women with diabetic patients have shown a weaker functioning than normal people. The finding is consistent with the results of Beygi (2015), Sobhi et al. (2011), Hiroki et al. (2013), Labsen (2013) and Adomi et al. (2015). In explaining such finding, it should be noted that by the problem solving dimension we mean that the family solves most of the daily problems, acts upon its decisions about the problem, and negotiates about its success after trying to solve the problem; such functioning in diabetic families is weaker than normal ones, and the family of diabetic patients can not solve the problems of everyday life in a right way. In the dimension of communication, family members negotiate and talk directly without any intermediaries, they are honest, and if they do not like the behavior of one of the members, they will say to him/her; such functioning in the family of diabetic patients is weaker than normal people and the family of diabetic patients does not have the desirable communication patterns. In the dimension of roles, each member of the family has duties and responsibilities, and this functioning is poor in diabetic patients and the family members do not perform their duties correctly; and in the dimension of affective involvement dimension, family members of diabetic patients are not able to show affection in comparison to normal people and they show feelings such as sorrow, joy and anger, very easily; moreover, family members of patients with type 2 diabetes are not able to control their behavior and have a weak enforcement towards the rules and standards for rational behaviors. In this regard, Lobson (2013) claims that family function has a direct effect on the incidence of diabetes. In the following, as shown by the multivariate analysis of variance of life quality in different aspects, namely, psychological health, physical health and social relationships, diabetics patients, compared to normal people, have lower status.

The findings are consistent with the results of studies by Tabe'ei [9], Sa'adatkhah et al. (2012), Mishra et al. [10], Alshahri [11], Chiha et al. [12], and Jain et al [13]. In this regard, for example, Mishra et al. [10] concluded that the dimensions of quality of life - psychological health, physical health, social relationships and living environment - are in an unfavorable status in diabetic patients. Mishra et al. [10] and Alshahri [11] also found that 54% and 78% of patients with type 2 diabetes suffered from poor quality of life, respectively. So, as shown in this scenario, Type 2 diabetes affects all aspects of a person's life as a result of being chronic and because it burdens high pressure and tension, both physically and mentally, on the patient's family members. In the first place, this disease reduces the physical and mental health level of the patient itself and the extent of this unfavorable condition is such that one is no longer able to manage and control his social relationships with family members, friends and relatives. As the previous findings of this study showed, one of the most important outcomes of type 2 diabetes for the patient is rumination and the use of non-aligned emotional ordering strategies, such a long-term strategy can affect on the patient's mental and even physical health in faulty cycle; And by the worsening of person's mental and physical health and continuous presence of the illness and its side-effects, his/her social life would be affected [14].

Based on the findings of present study, it is suggested that families with diabetic patients increase the family functioning by taking family-based structured training courses; also by organizing counseling sessions for family members of the target group, while emphasizing the role of the family entity in controlling diabetes, true communicative and behavioral patterns can be trained to family members; and proper and rational patterns of roles may be institutionalized in families, as well as appropriate and practical strategies for Each member of the family by distributing educational booklets among family members of diabetic patients.

In the end, it is suggested that by providing acceptance and commitment courses for diabetes patients, help them to accept their living conditions and improve the quality of their lives through re-planning, and to reinforce their belief by conducting positive-thinking courses to improve some psychological components such as optimism, hope and optimism.

Considering the limitations of this research and since this research has been carried out at a cross-sectional stage and has been limited to the repetition of the research results, it is suggested that several other studies be conducted upon the statistical population of the research; One of the main limitations of the present research was the low sample size (200 subjects), it is suggested that by implementing the research on a larger scale with a larger sample size, this limitation be resolved. Another limitation of research is the lack of comparisons between different groups-men and women, age groups, education and marital status; for example, since this study was conducted only among women, married, 35 to 45 years old, there is no possibility of comparison among different groups; therefore, it is suggested that, by re-launching the research in a wider range, it become possible to compare the results; also, considering the use of self-report questionnaires on the quality of life and the functioning of the family had some bias, and the subjects try to provide a positive image of themselves, therefore It is suggested that using qualitative methods such as in-depth interviews and group interviews, try to increase the strength and reliability of research.

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