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# The Impact of Orem's Self-care Model on the Quality of Life in Patients with Type II Diabetes

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**ABSTRACT**

Diabetes mellitus is a chronic disease that reduces the quality of life(QOL) in patients. Therefore, this research aimed to the effect of Orem's self-care model on the quality of life(QOL) in patients with type II diabetes at Ilam, Iran. A quasi-experimental study was performed on 80 patients with type II diabetes in Ilam in the year 2015. The research tools used in this study were a demographic questionnaire and the SF-36 survey. The patients were divided randomly into control and experimental groups. Orem's self-care programme was performed in six 60-90 minute sessions for six weeks in the experimental group. The data were analysed using SPSS software and descriptive and inferential statistics. The findings showed that the mean and standard deviation of the quality of life in the experimental group before and after the intervention were 47.1 ± 9.21 and 67.91 ± 12.87 respectively, which was statistically significant (P<0.001). However, in the control group it was 47.66 ± 8.4 and 47.41 ± 8.6 respectively, indicating that there was no statistically significant difference (P>0.05). Regarding the effectiveness of self-care programmes based on Orem's theory on the quality of life (QOL) in patients with diabetes, it is suggested that in nursing care this self-care programme can be used for patients with diabetes to improve their (QOL).

**Keywords:** Orem's self-care model, Diabetes, quality of life.

## INTRODUCTION

Diabetes is one of the most common chronic diseases in the world. The number of suffering cases is on a dramatic rise due to lifestyle changes, reduced mobility and obesity. In 2011, 366 million people had diabetes. The number is estimated to reach 552 million by 2030[1,2]. It is expected that the Middle East will have the highest increase in diabetes in the next few decades. In contrast to the developed countries where diabetes occurs in people over 65 years of age, in the ME the increase is mostly in the age group of 45 to 64 years. In Iran, about 7.7 percent of the adult population of 25 to 64 years of age, i.e. the equivalent of ~2 million people has diabetes; half of whom are undiagnosed. In addition, 16.8 percent or ~4.4 million people have impaired fasting glucose[2,3]. Diabetic patients struggle with physical & psychological problems such as depression, anxiety, helplessness, lack of mobility and obesity, which ultimately lead to reduced QOL. As a result, QOL is of particular importance in patients with diabetes[4]. The QOL has been described as a multidimensional concept that includes the areas of health and physical function, mental health,

social functioning, satisfaction with treatment, worry about the future and a sense of well-being[5]. An obvious relationship exists between the QOL and physical disorders, and symptoms of chronic diseases and physical disorders have a direct impact on all aspects of quality of life[6].

Since the main goal of treatment of all diseases is to increase patients' performance and improving the quality of their life and help them to achieve a satisfactory quality of life, it would only become possible by providing self-care programs and finding appropriate solutions in order to help these patients[7]. Previous studies suggests lack of awareness and proper functioning of patients with diabetes about their disease and as a result non-compliance with their treatment;so in order to control these self-care diseases it is important to identify the educational needs of patients, even more than the proper treatment[8].

self-care is the effective, learned, informed and objective activities and behaviors of a person to that are done in concrete situations of life, by the person himself or his relatives. The aim of self-care is to regulate the effective factors on growth and patient's performance in relation to life, health, and well being. Self-care behavior is affected by the total skills and knowledge that a person has and uses for his practical efforts[9]. Self-care is considered as an important and valuable principle because it emphasizes the active role of people in their own healthcare, not the passive. Many health organizations and health care providers considered promoting self-care as a strategy to reduce the high costs of medical services[10].

Orem's Self Care Model is one of the most complete self-care theories that provide a good clinical guide for planning and implementing the principles of good self care[11]. Orem believes that human beings have the ability to take care of themselves and whenever thisability is distorted in a person, nurses help individuals to regain this ability by providing direct care, and compensatory educational support[12]. According to Orem, nurse's role has been introduced as a facilitator and agent of change[13].

Due to the chronicity of the diabetes, a person with diabetes should cooperate in all phases of the control and treatment of diabetes and be able to do self-care activities. Self-care is crucial for the control of diabetes and includes self-monitoring of blood glucose, diet, and setting insulin dosage, an doing regular physical activity[14-16]. Since an important part of daily care in patients with diabeters is provided by the person or a family member,so teaching self-care skills is necessary in patients with diabetes[17].

One of the main elements of self-care is patient education and self care also requires the ability to self-medicate. Nurses have to teach the patient how to solve problems and make decisions[18]. Given the role of support and nursing care and its impact on QOL in chronic disease[19] and also considering that the results of various studies have shown the use of education and care models helps the condition of patients[20-23], the present study was done to aim the effect of Orem's self-care on QOL in Diabetes II in Ilam, Iran.

## MATERIALS AND METHODS

In this quasi-experimental study, the experimental and control groups was designed pre-test and post-test following the previous studies [4, 24, 25] 80 patients with type II diabetes previously referred to the clinics of Ilam in 2015 were enrolled in the study. The subjects were randomly divided into control and experiment groups. Inclusion criteria included diabetes type II, passing at least one year of diagnosis, 18 <age< 65 years, and literacy of reading and writing. Exclusion criteria included diabetes type I, more than two sessions absence from training interventions, hospitalization during the intervention, the risk of DKA or non-ketone hyperglycemic hyperosmolar syndrome, hypertension, severe cardiovascular disease, uncontrolled hypertension and well-known mental disorders.

The instruments used in this study were a demographic questionnaire and QOL survey (SF-36). SF-36 questionnaire has 36 questions that measure eight dimensions related to health

including physical function, role limitations due to physical health, role limitations related to emotional health, energy, emotional health, social functioning, bodily pain, and general health. All questions have at least two and a maximum of six options and the maximum score obtained for each subscale is 100 and the minimum is zero. The higher score indicates better QOL. The QOL was considered desirable (71-100), somewhat desirable (31-70) and undesirable (0-30)[19].

In Orem's self-care model, the ability and defects in the patient are examined and nursing interventions are designed for self-care by the patient according to the identified needs of the help-seeker. The process of application of Orem's model in this study was as follows: first, using the Orem's assessment form, some information on the demographic characteristics of the patient, patient's specific need to self care in deviation from the health (such as medical information, previous medical history, diagnoses, medications, allergies, patient expectations) and their general care needs (such as body systems, health usual patterns of daily life, the perception of their social interactions) were collected Patient's needs about diseases, health and diagnostic tests and other requirements for registration were determined. The patient's ability to meet these needs was assessed. Finally, the appropriate plan was designed and developed to fit patient's needs. It should be noted that the program was implemented only in the experimental group. In the intervention group the program was performed over 6 group sessions (each group contained 5 people) for 60 to 90 minutes. The content of classes included a variety of educational material such as the etiology, types, clinical signs and symptoms, diagnostic tool and treatment of diabetes complications, risk factors, eye care, foot care, blood glucose self-measurement, observe the recommendations, appropriate diet, how to comply with prescribed drug regimen, setting the time of

**Table 1: The demographic features and disease characteristics of the patients in experimental and control groups**

| | **Demographic features** | **Experimental** | **Control** |
|---|---|---|---|
| | | N(%) | N(%) |
| Gender | Male | 21(45) | 23(57.5) |
| | Female | 19(55) | 17(42.5) |
| marital status | Single | 37(92.5) | 37(92.5) |
| | Married | 3(7.5) | 3(7.5) |
| | illiterate | 20(50) | 21(52.5) |
| education | Diploma and low literate | 13(32.5) | 12(30) |
| | Collegiate | 7(7.5) | 7(7.5) |
| job | Practitioner | 20(50) | 19(47.5) |
| | Housekeeper | 17(42.5) | 15(37.5) |
| | Unemployed | 3(7.5) | 6(15) |
| | Less than 500 thousand Rials | 17(42.5) | 17(42.5) |
| income | 500 to 1 million | 7(17.5) | 7(17.5) |
| | More than 1 million | 16(50) | 16(50) |
| Family history of diabetes | Yes | 17(42.5) | 19(47.5) |
| | No | 23(57.5) | 21(52.5) |
| Diabetic retinopathy | Yes | 15(37.5) | 14(35) |
| | No | 26(62.5) | 26(65) |
| Diabetic neuropathy | Yes | 18(45) | 17(42.5) |
| | No | 22(55) | 23(57.5) |
| Regular examination by doctor | Yes | 9(22.5) | 9(22.5) |
| | No | 31(77.5) | 31(77.5) |

using drugs, importance of physical activity and how to perform self-care. After the training sessions, a pamphlet of the taught material was given to the patients of experimental group. In this study, patients were followed for 12 weeks and at the end of the twelfth week, data collection instruments were completed again by the patients.

Ethical considerations include permission by Research Ethics Committee of the University Of Medical Sciences of Ilam, Iran; also no cost was incurred to the patient; participants were justified about the training sessions; informed consent was obtained from participants, and subjects were assured of the confidentiality of data and withdrawal from the study at any time of the study. Data were analyzed using SPSS version 20 and descriptive statistics (mean, percentage, absolute and relative frequency) for individual variables, chi-square test (for comparison of individual groups). Paired t-test was used to compare the QOL before and after the intervention.

**Findings**

The mean age of subjects in the experimental and control groups was 43.80 ± 11.93 and 44.30± 9.80years, respectively; and mean years of diabetes was 7.28± 3.15 and 6.41 ± 2.25 years, respectively. Chi-square and t-test results showed that patients at experimental and control groups were not statistically significant in terms of demographic characteristics (age, sex, marital status, education, occupation and income). Also, no significant difference was found regarding disease-related characteristics (duration of disease, family history of diabetes, complications of diabetes such as diabetic retinopathy and diabetic nephropathy, medications for diabetes,medical examination, and other chronic diseases other than diabetes) and the overall average score of quality of life between experimental and control groups (table 1).

The results of table 2 shows that implementation of Orem self care model helped to improve the QOL of patients in experimental group in all aspects of quality of life questionnaire except for the general health and emotional role.

The results of show that the QOL of patients in the control group had no significant difference before and after the intervention; but, Orem's Self Care model enhanced the quality of life of patients in the experimental group.

## DISCUSSION

The findings of this study showed that before the intervention the QOL for the majority of studied patients was moderate. 60% of diabetic patients in the study of Ghanbari and Kazemnejad had a poor quality of life[26]. Due to its chronic nature, undesirable prognosis, all aspects of the health and QOL are affected in diabetics. In the present study, the implementation of Orem's self care model on the QOL for people with diabetes was effective

**Table 2: Comparing the mean and standard deviation scores of quality of life survey before and after the intervention in experimental and control groups**

| Dimension | Before the intervention M±SD | | P | After the intervention M±SD | | |
|---|---|---|---|---|---|---|
| Quality of life | Experimental | Control | | Experimental | Control | p |
| Physical Function | 36.25±5.59 | 35.97±5.44 | 0.35 | 54.12±13.30 | 36.32±4.98 | .000 |
| Physical role | 36.95±6.06 | 36.97±5.45 | 0.37 | 43.47±8.3 | 36.37±5.9 | 0.02 |
| Bodily pain | 61.17±12.6 | 61.65±12.17 | 0.62 | 64.87±16.1 | 61.27±12.3 | 0.001 |
| general health | 54.37±13.08 | 56.67±10.17 | 0.53 | 55.80±11.55 | 55.5±10.85 | 0.74 |
| Vitality | 37.55±6.84 | 38.02±6.78 | 0.83 | 69.37±9.79 | 37.75±6.91 | 0.04 |
| Social function | 56.62±9.89 | 57.5±8.53 | 0.19 | 62.47±16.52 | 56.95±8.80 | .000 |
| Emotional role | 60.75±12.39 | 61.3±12.04 | 0.59 | 61.67±10.549 | 61.35±11.95 | 0.36 |
| mental health | 32.4±7.24 | 33.27±6.66 | 0.45 | 72.22±16.54 | 33.77±7.11 | .000 |
| Quality of life | 47.01±9.21 | 47.66±8.40 | 0.84 | 61.97±12.81 | 47.41±8.60 | 0.001 |

except for the general health and emotional role. Orem's self-assessment form for the assessment of these patients was more focused on the physical aspects. It can be said based on this form that self-care needs of patients in the four dimensions of health as a whole cannot be fully determined. Another factor is patients' emphasis on improving the health condition of the patients admitted to the hospital rather than other aspects of health, psychological, social or spiritual matters and they less express their needs in these respects. Most studies confirmed the effect of Orem's Self Care on improving their physical condition. In this regard,Ghafourifardet al. demonstrated that the implementation of Orem's self care model resulted in a significant increase in self-care score in five aspects of diet, physical activity, blood glucose monitoring, medicine diet, drug, diabetic foot care[27]. Shahbaz *et al* showed that the implementation of Orem's self care model promotes self-care behaviors in diabetic foot ulcers[28]. Shahbodaghi *et al* in a study showed that with the implementation of self-care program for diabetes and its complications according to the regulatory protocol, diastolic blood pressure between the two groups in the first, second and third months after intervention were statistically significant[29].

Other studies that investigate the effect of applying Orem's self-care model on the QOL of patients with diabetes have shown mixed results about the effect of this model in the eight dimensions of QOL. Among the causes of discrepancies in the results of these studies and the present study, we see the difference in sample size, the number of people in each group, type, number and variety of teaching methods to the patients, the duration of training sessions, post-test interval after the last session. Obviously, the design and development of self-care educational program varies based on hospital facilities, conditions and available time. In the study of Shams et al. up to 15 people attended each training session, but the present study was conducted in small groups of 5 people[4]. In the study of Saieedpour *et al*., the implementation of three one-hour sessions over three weeks of self care led to increased QOL of patients with diabetes in all aspects of life questionnaire. Although the duration of treatment in that study is less than the present study but it was effective on all aspects even general health and emotional role that showed no statistically significant improvement in our study[30]. In a study by Ganjloo et al., Self Care Model on QOL was conducted in patients with Type II diabetes. Results showed that the experimental group in all aspects of QOL improved significantly (31). In the studies by Saieedpouret al. as well as Ganjlooet al., training was performed through presentations, questions and answers, group discussion, videos and pamphlets[31,32]. In the present study, there were no hospital facilitiesto use these five teaching methods and only group education method in small groups of 5 people was used and pamphlets were given at the end of training sessions. Other causes of inconsistency of our results with these two studies could be related to differences in demographic characteristics of subjects in these studies.

Other studies have also shown the influence of the use of Self Care Model on QOL in patients with other diseases. Among them are studies on the QOL of cancer patients undergoing chemotherapy by Karbaschi et al., the physical and mental aspects of QOL of patients with MS by Masoudi et al., all aspects of QOL for hemodialysis patients by Narouiet al., physical and mental quality of life for patients with migraine byOmatreza et al., and the QOL in patients with hypothyroid goiter point by Rahimi et al[33-38].

One of the goals raised in clinical nursing is helping to improve the QOL of patients.According to the results of the present study that showed the improved QOL of diabetic patients, nurses in clinical care can use this model and provide patients with the necessarycare training to increase the QOL of these patients. Also, due to the effectiveness of this model of care, nursing teachers can emphasize on this self-care model in the education of nursing students provide the grounds to improve the QOL of patients with diabetes.

It is suggested that further research is done on the impact of different models such as continuous care model and partnership care model on QOL to find a care model suitable to Iranian culture andprovide the necessary conditions for increasing the QOL.

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