

ORIGINAL ARTICLE

The Impact of Application of Sensitization Care Model on Quality of Life of Diabetic Patients

Ali Pourgharekhan¹, Davood Hekmatpou^{1*}, Amir Javaheri², Mahboube Sajadi¹, Azar Takhti²

¹ Department of Nursing, School of Nursing and Midwifery, Arak University of Medical Sciences, Arak, Iran

² Imam Hossain Hospital, Kurdistan University of Medical Sciences, Bijar, Iran

ABSTRACT

Background: Despite the advancements in diagnosis and treatment of diabetes, some of its associated complications can compromise quality of life. This study aimed to evaluate the effects of sensitization local care model on quality of life among type 2 diabetic patients.

Materials and Methods: This controlled clinical trial was performed on 70 patients (n=35 for the experimental and control groups) diagnosed with Non-insulin dependent diabetes mellitus (NIDDM) referring to Imam Hossein Hospital of Bijar, Iran, 2015, during a 90-day period. Data was gathered using Diabetes Quality of Life (DQOL) questionnaire, which was filled out pre- and post-intervention by the two groups. T-test, Mann-Whitney, and ANOVA tests were run, using SPSS version 21.

Results: There were 17 (48.6%) male and 18 (51.4%) female participants in the test group with the mean age of 50.6±7.8 years, and 18 (51.4%) male and 17 (48.6%) female patients in the control group with the mean age of 50.4±7.3 years. There were no significant differences between the two groups in terms of demographic variables prior to the intervention. In addition, the mean QOL score increased in the intervention group after implementing the training program. The total mean score of quality of life was 51.25±5.3 in the test group, which was significantly different from that of the control group (47.02±4.5; P<0.001).

Conclusion: Use of sensitization care model could enhance QOL among patients with NIDDM. Therefore, application of this model is recommended for these patients.

Key Words: Non-insulin dependent diabetes mellitus, Quality of life, Sensitization

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INTRODUCTION

Diabetes mellitus is one of the most common endocrine diseases, and it is considered one of the most important challenges of the recent years [1]. In 2012, approximately 371 million people were estimated to suffer from this disease across the world [2], almost 70% of whom were from developing countries [3]. More than four million people were diagnosed with diabetes in Iran in 2011. Furthermore, 7.8% of 25-60-year-old population of Iran is diagnosed with diabetes [4]. Currently, diabetes is the fifth leading cause of mortality in western countries, and the fourth most common cause of doctor visit [5]. Non-insulin dependent diabetes mellitus is the most common type of diabetes, which includes 90-95% of the total cases of

diabetes [6].

Lifestyle change, which leads to the reduction of physical activity, increased consumption of refined carbohydrates, obesity, and aging of the population, is one of the main causes of diabetes prevalence [7]. Due to its chronic nature, diabetes affects quality of life [8], and its adverse effects can incur economic costs and impair quality of life [9].

Quality of life (QOL) is described as perception of need satisfaction and reaching wishes and requirements. QOL is an inherent multidimensional factor, which is a mixture of cognitive (contentment) and emotional (happiness) factors [10].

Quality of life in diabetic patients is of great

* Corresponding author: Davood Hekmatpou, Department of Nursing, School of Nursing and Midwifery, Arak University of Medical Sciences, Sardasht, Basij square, Arak. Iran. Email: dr_hekmat@arakmu.ac.ir

importance, as low quality of life might lead to poor self-care and improper glycemic control, which in turn, increase the incidence of diabetes-related complications [11]. Enhancement of quality of life is not only beneficial to well-being of diabetic patients, but also it diminishes the associated healthcare costs [12].

A multitude of studies suggested NIDDM patients to participate in preventive and training programs to promote quality of their lives [13]. The purpose of training is to manage the disease by patients themselves [14]. Mohammad pour et al. reported physical and social dimensions in most of the patients were undesirable, and he suggested that providing support and training programs for diabetic patients are effective steps toward promotion of QOL [15]. Based on beliefs, attitudes, subjective norms, and enabling factors model, the impact of training on quality of life of NIDDM patients was determined [16]. Another study investigated the effects of a training intervention on enhancing quality of life in patients diagnosed with NIDDM based on the Predisposing, Reinforcing, and Enabling Constructs in Educational Diagnosis and Evaluation (PRECEDE) model [17].

A wide range of models was used in previous studies, and the local care model was utilized less than others were. Therefore, in this study, we employed sensitization local care model, for controlling complications of chronic diseases such as cardiovascular failure [18].

Local care model was developed based on the fundamental assumption arguing that the most important factor leading to re-hospitalization and accordingly, impaired QOL in diabetes patients, is lack of sensitivity in family members of the patients and the healthcare team toward re-hospitalization. They consider this matter as a problem, rather than a mechanism or strategy to control the acute complications of the disease. This belief results in patient re-hospitalization and confusion in the vicious hospital-home or society cycle. This model proposes four coherent and progressive strategies to rectify this belief and eliminate this vicious cycle, namely, 1) cognitive restructuring (patient, family, and nurse), 2) comprehensive program for systematic patient discharge, 3) systematic self-medication, and 4) development and maintenance of hope in patients.

This study was conducted to determine the effects of application of sensitization care model on the quality of life of patients with NIDDM.

MATERIALS AND METHODS

This controlled clinical trial was performed on patients diagnosed with NIDDM referring to

Imam Hossein Hospital of Bijar (Kordestan Province), Iran, 2015, during a 90-day period. The inclusion criteria included: 1) definitive diagnosis of NIDDM, 2) aged between 30 and 60 years, 3) diagnosed with diabetes for at least four months, 4) taking medications ever since disease diagnosis, 5) blood glucose level > 200 mg/dl at the beginning of the program, and 6) no history of mental or psychological disorders or incurable diseases.

Firstly, 70 NIDDM patients were systematically chosen. After patients' visit to clinics and emergency rooms, those who met the inclusion criteria were explained about the study. After sampling and obtaining informed consent from the patients, they were divided into two groups of intervention and control. The diabetes quality of life (DQOL) questionnaire was used to assess patients' quality of life.

DQOL questionnaire was developed by Thomas et al. The reliability and validity of this questionnaire were confirmed in Iran [19]. Validity of the questionnaire was approved by five faculty members and its reliability was calculated to be $r=0.72$; also, the Cronbach's alpha coefficient for its items was determined as 0.77 [19]. Then, the questionnaire was filled-out by two groups. In case the patients did not have sufficient reading or writing skills, or the items were not understandable for the participants, two of the researchers helped them with completing the questionnaire.

The first part of the questionnaire was a demographics form and the second part contained 15 items, rated using a 5-point Likert type scale (completely satisfied, satisfied, medium, dissatisfied, very dissatisfied or never, hardly ever, sometimes, usually, always). The lowest and highest possible scores were 15 and 75, respectively, with the higher scores indicating higher quality of life. In this set of questions, six aspects of quality of life, namely satisfaction with treatment, emotions, satisfaction with social-personal relationships, socio-occupational concerns, concerns about diabetes, and limitations, were evaluated [20]. The training program based on the sensitization model was initiated in the test group after completing the questionnaire.

Of the 70 referring patients, seven patients were admitted to the hospital, four of whom were randomly placed in the test group and three were assigned to the control group. The exclusion criteria were migration, lack of desire to continue the cooperation, and patient death.

The administrative procedures of the sensitization model included four stages as follows: 1) cognitive restructuring (patient and family, doctor and nurse), 2) comprehensive

program for systematic discharge of patients, 3) systematic self-medication, and 4) development and maintenance of hope in patients. This model was built upon sensitization of healthcare team, patients, and their families. Interventions were developed and implemented in this model based on the following four stages for the test group as a caring package.

Pre-intervention stage

At first, all the necessary equipment and facilities for implementing the model, such as seminar rooms and offices for follow-up patient visits, were provided through making the necessary arrangements with the respective healthcare authorities.

The intervention stage

1- Cognitive reconstruction

A- Cognitive reconstruction of the healthcare team: First, after individualized discussions and meetings with the healthcare authorities, hospital manager, director of nursing, and internists, the purpose of the study was explained and sensitivity was raised in the authorities. Afterwards, with the help of the educational supervisor, we held a two-hour session (lecture and discussion) on the effective reasons and factors of patient visits due to poor glycemic control. During this session, cost estimates, estimates of repeated hospital admission, and multiple articles and undertaken actions were mentioned with the purpose of sensitizing the healthcare team. The participants were asked to record the common reasons of repeated hospital presentation and pass this information on to physicians to sensitize them to this matter.

B- Cognitive restructuring of patients and their families: This objective was fulfilled through implementing training courses to familiarize patients with the causes of repeated hospitalization and raise their awareness on improper glycemic control and its complications. In this course, which was held for both patients and their families (preferably the main person supporting the family), the participants could learn self-care behaviors in a face-to-face manner (including awareness and education about the importance of repeated hospital admission due to poor glycemic control, its complications, and side effects). In addition, another lecture was held for a small group of patients in the test group (in the form of multi-member group) in the assigned conference hall by our researcher one day after obtaining informed consent and filling-out the questionnaire. Since a small number of the patients were hospitalized, the training course

was held in the ward individually.

2- A comprehensive program for systematic discharge of patients: First, two experienced and interested graduate nurses were chosen to cooperate with the research team. They implemented the program at the healthcare center and followed up the patients at home under the supervision of the researcher. Their responsibilities included providing self-care skills training and complementary education.

In this regard, the patients were reminded on the first session of their appointment for two days later. A comprehensive program of systematic discharge was designed in coordination with the treating physician and was given to the patients. A one-hour session was held for the patients and in addition to reminding the trained items, they were more sensitized through pointing out the following items: a) the method of preparing and following the diabetic nutrition plan, medication compliance, and life style and activity modification, b) the method of reporting after discharge.

In addition to training the abovementioned items, CDs, pamphlets, and booklets were distributed among the patients.

3- Systematic self-medication: For the purpose of systematic self-medication after discharge, each week, one text message was sent to the patients (in total 12 text messages). Illiterate patients received a telephone call once a week in addition to text message, and the necessary terms that the patients had to follow at home were reminded to them.

a) Continuous follow-up: The patients were asked to contact the research team if they had any questions or problems at home after their discharge.

b) Generating motivation: One text message was sent to the patients or they were telephoned once a week in order to enhance motivation and compliance to the treatment regimens. The purpose was to boost hope and remind the self-report checklist.

c) Identifying and coping with high-risk situations: Self-control strategies for life style modification were taught to the patients.

d) Increasing self-efficacy: This is one of the effective strategies that focus on client-therapist cooperation. The top-down relationship between nurses and patients is eliminated in this model, and patients are encouraged to play the role of a co-worker and monitor their own behaviours so that they assume a more active role in maintaining their own well-being.

e) Dispelling misconceptions: Wrong beliefs such as glycemic control with opium and not eating breakfast for blood glucose control were explained to be debilitating.

f) Recurrence management: With this aim in mind, the training sessions were turned into group discussions so that the patients talked about their misconceptions. In so doing, not only the researcher reminded them of the trained materials, but also, he taught them the correct approaches; in addition, the sense of responsibility and usefulness and being a part of the caring system was raised in the patients during these sessions.

4- Raising hope: This objective was fulfilled through a) promising impulses: constant contact through telephone calls and text messaging, especially to the patients, b) encouraging the patients to continue the treatment and participate in lively social occasions, c) introducing psychiatric consultation in case the patients felt desperate and frustrated, d) familiarizing the patients with people who successfully controlled their disease (role models) and making contact with them, and e) training self-management strategies including: 1- self-monitoring regarding moderating demands and objectives, 2- providing stimulus control techniques such as encouraging patients to abandon all wrong habits, 3- teaching methods of tendency management (they need to control these wrong habits), and 4- mental visualization of recurrence paths.

At the end of the study, the researcher appreciated the cooperation of all the patients in the control group, taught them the necessary skills to limit hospital readmission due to poor glycemic control, and gave them the training package.

Statistical analysis

After the intervention, DQOL questionnaire was filled-out by the test and control groups. To analyze the data, Chi-square, Fisher's exact test, independent t-test, and ANOVA tests were run, using SPSS version 21. In all measurements P-value less than 0.05 was considered statistically significant.

Ethical consideration

The acquisition of the code of ethics was obtained from Kurdistan University of Medical Sciences and informed consent of the patients was obtained.

RESULTS

This clinical study was conducted on 70 patients with NIDDM, referred to the specialized clinic and emergency room of Imam Hossein Hospital of Bijar, Iran. The patients were divided into two groups of 35.

The test group included 17 (48.6%) male and 18 (51.4%) female subjects, and the control group comprised of 18 (51.4%) male and 17 (48.6%) female patients. The mean age of the intervention group was 50.6 ± 7.8 years, and mean of body mass index (BMI) was 26.3 ± 7.6 kg/m², while the mean age of the control group was 50.4 ± 7.3 years and mean BMI was 26.8 ± 2.7 kg/m².

Almost 29% of the patients were aged less than 40 years, and about 70% of them were over 40 years. Chi-squared test, Fisher's exact test, and independent t-test indicated no significant differences between the intervention and control groups in terms of individual and demographic characteristics (gender, level of education, occupation, and age).

The QOL score of the patients was moderate before the onset of the intervention. The findings of this study demonstrated that mean quality of life score of the test group increased more than the control group after the intervention, which was statistically significant. The total score of quality of life in the test group increased from 48.31 ± 5.03 to 51.25 ± 5.3 , while in the control group, it increased from 46.48 ± 4.3 to 47.4 ± 0.25 ($P < 0.001$; Table 1).

Six dimensions of quality of life, namely, satisfaction with treatment, emotions, satisfaction with personal-social relationships, socio-occupational worries, diabetes-related worries, and limitations, were evaluated using DQOL questionnaire.

All the six aspects significantly improved in the test group. In addition, the dimensions of limitations and diabetes-related worries were significantly lowered in the test group, which is an indication of recovery in this group. However, the socio-occupational worries were increased in the test group (Table 2).

Even though the difference in score of satisfaction with treatment was significant in the control group before and after training, the level of increase was more significant in the test

Table 1. Total QOL score of patients in the intervention and control groups before and after the intervention

Total quality of life score	Group		P-value (Independent t-test)
	Intervention	Control	
	Mean±SD	Mean±SD	
Before	48.31±5.30	46.48±4.3	0.108
After	51.25±5.3	47.02±4.5	<0.001
P-value (Paired t-test)	<0.001	0.111	

*P-value less than 0.05 is statistically significant, SD: Standard deviation

Table 2. Comparison of different aspects of QOL between the two groups pre- and post-intervention

Different dimensions of quality of life	Group			P-value (t-test)
		Intervention	Control	
		Mean±SD	Mean±SD	
Satisfaction with treatment	Before	21.31±2.9	21.08±2.29	0.718
	After	24.71±2.9	21.97±2.9	<0.001*
P-value (Paired t-test)		<0.001*	0.001*	
Emotions	Before	10.48±1.7	9.2±2.38	0.013*
	After	10.8±1.6	9.17±1.9	<0.001*
P-value (Paired t-test)		0.019*	0.838	
Satisfaction with personal-social relationships	Before	6.28±1.17	6.05±1.4	0.469
	After	6.57±1.26	5.8±1.4	0.039*
P-value (Paired t-test)		0.016*	0.083	
Diabetes-related concerns	Before	6.71±1.38	6.8±1.36	0.795
	After	5.5±1.3	6.8±1.3	<0.001*
P-value (Paired t-test)		<0.001*	0.521	
Socio-occupational concerns	Before	5.9±1.41	5.6±1.2	0.292
	After	6.6±1.13	5.54±1.17	<0.001*
P-value (Paired t-test)		<0.001*	0.487	
Limitations	Before	6.40±0.97	6.82±1.3	0.131
	After	5.57±0.81	6.7±1.06	<0.001*
P-value (Paired t-test)		<0.001*	0.499	

*P-value less than 0.05 is statistically significant, SD: Standard deviation

group. Another result was the effect of training based on sensitization care model on different aspects of quality of life with respect to gender, age, level of education, and occupation.

After the intervention, different aspects of quality of life were compared between the two groups using independent t-test. All the

aspects were improved more significantly in males than in females, except for socio-occupational worries and limitations subscales (Table 3).

This type of training was more effective in the patients who were younger (Table 4), had higher levels of education (Table 5), and were employees or had permanent jobs (Table 6).

Table 3. Comparison of quality of life in both intervention and control groups based on gender

Different dimensions of quality of life	Intervention group				Control group			P-value (Independent t-test)
	Gender	No.	Mean±SD	Independent t-test	Gender	No.	Mean±SD	
Satisfaction with treatment	Female	18	23.833±2.479	0.072	Female	17	21.117±2.546	0.091
	Male	17	25.647±3.258		Male	18	22.777±3.059	
Emotions	Female	18	10.277±1.319	0.046	Female	17	8.822±1.878	0.308
	Male	17	11.352±1.729		Male	18	9.500±1.977	
Satisfaction with personal-social relationships	Female	18	6.277±1.127	0.161	Female	17	5.647±1.411	0.352
	Male	17	6.882±1.363		Male	18	6.111±1.490	
Diabetes-related concerns	Female	18	5.722±0.984	0.276	Female	17	6.411±1.371	0.133
	Male	17	5.294±1.358		Male	18	7.00±0.840	
Socio-occupational concerns	Female	18	6.333±0.840	0.116	Female	17	5.411±1.227	0.528
	Male	17	6.941±1.344		Male	18	5.666±1.137	
Limitations	Female	18	5.555±0.921	0.908	Female	17	6.588±0.870	0.413
	Male	17	5.588±0.712		Male	18	6.888±1.231	
Total quality of life score	Female	18	49.611±4.188	0.059	Female	17	45.411±4.514	0.041
	Male	17	53.00±5.947		Male	18	48.555±4.231	

*P-value less than 0.05 is statistically significant, SD: Standard deviation

Table 4. Comparison of quality of life after the intervention in patients aged over 40 years and less than 40 years

Different aspects of quality of life	Intervention group				Control group			
	Age	No.	Mean±SD	P-value (Independent t-test)	Age	No.	Mean±SD	P-value (Independent t-test)
Satisfaction with treatment	>40	5	27.800±1.788	0.01	>40	6	23.666±2.338	0.118
	<40	30	24.200±2.845		<40	29	21.620±2.920	
Emotions	>40	5	11.800±1.095	0.134	>40	6	9.500±1.378	0.654
	<40	30	10.633±1.629		<40	29	9.103±2.041	
Satisfaction with personal-social relationship	>40	5	7.400±1.341	0.115	>40	6	6.833±0.408	0.078
	<40	30	6.433±1.222		<40	29	5.689±1.514	
Diabetes-related concerns	>40	5	6.000±1.000	0.314	>40	6	6.000±1.095	0.096
	<40	30	5.433±1.165		<40	29	6.862±1.125	
Socio-occupational concerns	>40	5	7.200±0.836	0.231	>40	6	5.666±1.032	0.781
	<40	30	6.533±1.166		<40	29	5.517±1.213	
Limitations	>40	5	6.000±0.000	0.209	>40	6	6.333±0.516	0.309
	<40	30	5.500±0.861		<40	29	6.827±1.360	
Total quality of life score	>40	5	56.400±3.435	0.017	>40	6	49.166±2.926	0.215
	<40	30	50.400±5.130		<40	29	46.586±4.784	

*P-value less than 0.05 is statistically significant, SD: Standard deviation

Table 5. Quality of life score with respect to different occupations

Different dimensions of quality of life	Intervention group				Control group			
	Occupation	No.	Mean±SD	ANOVA test	Occupation	No.	Mean±SD	P-value (ANOVA test)
Total quality of life score	Housewife	15	48.8667±4.1380	0.003	Housewife	14	44.0714±3.2925	0.005
	Self-employed	6	49.6667±3.1411		Self-employed	11	49.8182±4.7920	
	Employee	8	56.8750±5.6930		Employee	5	50.40±3.1305	
	Retired	4	53.00±4.5460		Retired	3	47.00±1.7320	
	Worker	-	-		Worker	1	47.00±0.00	
	Farmer	2	48.00±0.00		Farmer	1	41.00±0.00	
	Total	35	51.2571±5.3266		Total	35	47.0286±5.921	

*P-value less than 0.05 is statistically significant, SD: Standard deviation

Table 6. Quality of life score with respect to different educational levels

Different dimensions of quality of life	Intervention group				Control group			
	Education	No.	Mean±SD	P-value (ANOVA test)	Education	No.	Mean±SD	P-value (ANOVA test)
Total quality of life score	Illiterate	2	44.50±3.5355	<0.001	Illiterate	5	41.20±1.7888	<0.001
	Elementary	13	47.7692±2.6505		Elementary	14	45.6429±3.0282	
	Junior high school	7	51.1429±2.9680		Junior high school	5	48.80±4.7644	
	Diploma	10	55.00±5.2493		Diploma	10	50.50±3.8944	
	Associate degree	1	56.00±0.00		Associate degree	-	-	
	Bachelor's degree and higher	2	60.00±1.4142		Bachelor's degree and higher	1	52.00±0.00	
	Total	35	51.2571±5.3266		Total	35	47.0286±5.921	

*P-value less than 0.05 is statistically significant, SD: Standard deviation

DISCUSSION

Our results in this clinical study demonstrated that the mean QOL score was moderate before the intervention (48.31±5.03 for the intervention group and 46.84±4.3 for the control group), which can be an indicator of disease complications as well as several physical, mental, and social problems, which undermine quality of life [21]. This finding is in

congruence with those of other studies [4, 22] in which the mean quality of life score in diabetic patients was a par. However, this result was not in agreement with those of the study by

Saeedpoor et al. in which the QOL of patients was relatively low [23].

In the present study, quality of life score of the test group increased more than the control group after the intervention, which indicated higher awareness and knowledge of patients

regarding diabetes could enhance their quality of life.

Quality of life score deteriorated with advancing age before the intervention, and the scores in younger participants increased more than the older ones after the intervention. Aging is accompanied with physiological and psychological changes and limited abilities, which might lead to poor self-care behaviors [24], and as a result, impaired quality of life. This finding is not in accordance with those of the study by Saeedpoor et al. in which the quality of life enhanced with advancing age [23]. In the current study, quality of life score of patients increased with higher educational levels. Moreover, after the intervention, quality of life was enhanced in groups with higher educational levels, which can be due to raised level of awareness regarding the importance of compliance with medication and nutrition regimen and controlling side effects of chronic diseases. This finding was consistent with those of the study by Saeedpoor et al. [23].

In addition, increase in quality of life score had a statistically significant relationship with occupation pre- and post-intervention. The patients with permanent employment had higher quality of life scores, which might be since these patients do not depend on others for financial costs caused by the disease (such as medication costs). Therefore, they feel emotionally more stable and less stressed compared to other patients. These results were consistent with those of another study [4], even though the sensitization care model was not employed for diabetic patients; it was used in patients with cardiovascular failure at a cardiovascular center in Tehran, Iran. The sensitization care model had a positive effect on most risk factors for congestive cardiac failure such as the mean duration of readmission, BMI, blood index, and the level of daily physical activity [18].

The distinction between the current study and other interventions was not only the application of the sensitization care model, but also using DQOL questionnaire. Other kinds of questionnaires were used in other studies to determine the effects of various training models on quality of life in diabetes patients.

In an evaluation of the effects of training intervention based on PRECEDE model on the improvement of the quality of life of diabetic patients, Taghdisi et al. used World Health Organization questionnaire, which evaluates four aspects of physical health, mental health, social relationships, and environmental health. There was a significant difference between the mean physical health scores pre- and post-

intervention, but there was not a significant difference between scores of mental health, social relationships, and environmental health before and after the intervention [17].

In another study investigating the effects of training self-care behaviors based on family-centered empowerment model on patients with NIDDM, self-care assessment questionnaire was applied and various aspects such as physical activity and exercise, nutrition regimen, foot care, and side effect management were assessed. The level of self-care behaviors was increased in the intervention group after implementing the training program, compared to the control group [25].

In one study, the impact of cognitive behavioral therapy on the quality of life of NIDDM patients was investigated. In that study, general health score, role limitation because of emotional problems, social performance, vitality and freshness, as well as mental health significantly improved after the intervention. However, the score of physical performance, role limitation due to physical problems, and physical pain were not significantly different [26].

In our study, QOL of patients was evaluated according to DQOL questionnaire from six aspects of satisfaction with treatment, emotions, satisfaction with personal-social relationships, diabetes-related worries, socio-occupational worries, and limitations. Our findings indicated that satisfaction with treatment, emotions, and satisfaction with personal-social relationship aspects were enhanced in the intervention group.

Even though the mean scores of satisfaction with treatment were significantly different in the control group before and after training, the level of increase was more significant in the test group. The enhanced satisfaction with treatment in both groups was probably due to training and promoting sensitivity in the test group. In addition, medication changes and enhanced sensitivity in the healthcare team and patients of the test group were responsible for this increase.

Training courses followed by educating patients could promote attitudes, knowledge, and performance of patients after the intervention. Besides, satisfaction score of patients significantly increased in the test group [27].

Our findings suggested that limitation and diabetes-related worries were diminished in the test group. Enhancement of these aspects might be due to improved knowledge, careful compliance with the medical instructions, and performing non-medicinal actions after promoting sensitivity. These findings are in accordance with the results of another study in which the test group received cognitive therapy

intervention based on mental awareness. In that study, diabetes-related worries attenuated after the intervention [28].

Considering our results, the socio-occupational worries of the test group improved. It seems that by raising knowledge of patients, their fear of disease complications and the associated costs would significantly decrease.

CONCLUSION

The results of the present study indicated that use of sensitization care model could promote QOL in patients with NIDDM. Given the prevalence of diabetes is on a growing trend and the necessity of life style modification in these patients, implementing local training programs can be clinically beneficial and might help physicians with disease management. In addition, this model must be applied based on cultural

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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