

Evaluation of Long-Term Care Based on the Partnership Care Model in Quality-of-Life and Metabolic Control of Diabetic Patients

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Abstract: This study designed and evaluated a long-term care program based on the Partnership Care Model for quality of life and metabolic control of diabetic patients in two hospitals in Iran. The purpose of this study was to evaluate the effect of the Long-Term Care Program based on the Partnership Care Model on quality of life and metabolic control of diabetic patients. Research instruments included the Short Form 36 questionnaire and the two Para clinic tests (F.B.S. and B.S.). The data was analyzed with SPSS 15 statistical software. The results indicated that the mean scores of the quality of life after intervention significantly increased in the intervention group.

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1. Introduction

Diabetes is a major threat to global public health that is rapidly getting worse. The biggest impact is on adults of working age in developed countries. There are at least 171 million people in the world with diabetes (Altman, 1999). Worldwide data currently available indicate that diabetes mellitus has become a monumental problem and a major health concern, illustrating the global burden of diabetes (Alavi & Gophranipour, 2003). Iran is a developing country and according to epidemiological studies, there are 1.5 million people with diabetes in Iran, and 20 percent of the Iranian population aged 30 years and over are at risk of developing diabetes (Amini, 1997).

Diabetic retinopathy, neuropathy, limb amputation, heart disease, and stroke are the predominant causes of disability and death in diabetic patients (Azizi, Gouya, & Dollatshahi, 2008). This growing problem will have a significant impact on national and individual economies as well as on individual health (Azizi & Gouya, 2008). The indirect costs of diabetes (such as lost productivity) are at least as high and increase as more economically productive people are affected. To lessen the impact, the government must implement a diabetes control program. The mission of the diabetes program is to minimize complications and maximize quality of life. The core functions of the diabetes program are to set norms and standards, promote surveillance, encourage prevention, raise awareness, and strengthen prevention and control (Desouza & Nairy, 2003). New therapeutic approaches are being developed that couple durable glycemic control with

improved control of body weight (Franz, 1999). Most interventions to prevent and treat diabetes and its complications have a significant effect on health services utilization. Determining which of these interventions are most cost-effective in developing countries is difficult because of insufficient data. Nonetheless, high-quality efficacy evidence for strategies to prevent diabetes and its complications are available from developed countries and can be used to make useful estimates about the costs and likely benefits of implementing different types of care in developing countries (Gask, Ludman, & Schaefer, 2006). Evaluating the effectiveness of health education is challenging because of the difficulty of separating the effect of education from that of other interventions. A review of literatures manually that were published in the United States suggests that education about self-management of diabetes may be cost-effective (Klonoff & Schwartz, 2000).

A systematic review has also found that intervention such as regular contact and tracking of patients on computerized tracking systems and the use of nurses to educate patients and facilitate treatment and adherence improves care. Yet data on the cost-effectiveness of these approaches is sparse (Mohammadi & Abedi, 2006). Diabetes care specialist nurses employed a range of interventions in addition to problem solving and case management skills, which formed the basis of the intervention for this study. Patients sometimes posed difficulties in being unable to understand the treatment, or were unprepared to engage with a new treatment and unready (or even unable) to acquire new skills. To optimize the interaction between patient and

professionals in the case management of depression and diabetes, training should provide guidance in the use of different models of care (medical and psychological). It should also help case managers identify and negotiate problem scenarios and combine an active model of therapy such as partnership care model or problem-solving treatment for primary care with elements from motivational interviewing, ensuring effective engagement in treatment, and specifically exploring how interaction between depression and diabetes might result in adverse outcomes (Mohammadi & Abedi, 2002). Investigators of this study selected and evaluated a nursing model (Partnership Care Model) for optimizing the interaction among patient, nurse, and physician in the management of diabetes and improving the quality of life and metabolic control of diabetic patients (Grey & Elizabeth, 2003). The general objective of this study was to evaluate a long-term care program based on the partnership care model in quality of life and metabolic control of diabetic patients. Specific objectives were:

- To determine the diabetic patients' quality of life in intervention and control groups (pre-intervention)
- To determine the FBS and BS metabolic indexes of diabetic patients in intervention and control groups. (pre-intervention)
- To design and implement a long-term care program based on the partnership care model for diabetic patients who participate in the intervention group
- To determine the quality of life of the diabetic patients in intervention and control groups (post-intervention)
- To determine the FBS and BS metabolic indexes of diabetic patients in the intervention and control groups (post-intervention)

2. Material and Methods

This study is a randomized clinical trial (RCT) study of the diabetic clients who were referred to the diabetic centers of Shahid Modarres and Imam Husain Hospitals in Tehran. The subjects were selected by using a convenience sampling method of those attending the diabetic clinics at Shahid Modarres and Imam Husain Hospitals in Tehran. The needed sample size was calculated to be 50 patients for each group (25 patients from each of two hospitals for each group) according to the Altman table. [Standardized difference (0.8) =clinical difference (Altman, 1999). The standard error of quality of life in one group, B=80%]. All subjects (100 patients) filled the short-form 36 questionnaire (validity and reliability of this

questionnaire was determined by the researcher in previous studies) and were examined by Fasting Blood Sugar (F.B.S.) and Blood Sugar (B.S.) tests in two days (as a pre-test measurement) and then they were randomly separated into two groups (control group=50 patients, and intervention group =50 patients). Eighty-eight percent and 86 percent of the subjects suffered from non-independent diabetic mellitus (NIDDM) in the control and intervention groups, respectively. Twenty-one percent and 24 percent of the patients used insulin in the control and intervention groups, respectively. Fifty-six percent and 48 percent of the patients had self-injected insulin in the control and intervention groups.

Inclusion criteria:

- Every patient had been suffering from diabetes disease (type 1 or 2) at least for one year.
- Patients were more than 20 years old.

Exclusion criteria:

- Did not possess another acute or chronic disease or illnesses (according to physician's diagnosis).
- Research instruments are a questionnaire (short form 36) and two paraclinic tests: blood sugar and fasting blood sugar. All participants completed the study.

The main goal of the study was to evaluate the long-term care program based on the partnership care model in quality of life and metabolic control of diabetic patients. For the evaluation, the long-term care program is designed based on the partnership care model. This model is a nursing model. According to this model, focus and attention should be paid not only to epidemiological and physiological characteristics of the disease, but also to the characteristics of the patients and the interactions among patients, nurses, and physicians in the process of chronic disease control. In the process of caring, the caring relationship is important. This relationship is established between the patient and the nurse or the patient and the physician to optimize these interactions for management of diabetes and improving quality of life and metabolic control of the diabetic patients in a cost-effective manner. According to this model, humans are social creatures who interact with each other. Partnership increases involvement, motivation, and responsibility of the people in a group. This involvement encourages care assistants to help the group to accept responsibility in group activities to reach the aim of the group. The primary aim of this model is to design and compile a plan for providing continuous and active partnership in the process of care and control of the chronic diseases. There are guidelines for the programming according to a specific approach. To design the

program, all of the subjects of the intervention group filled out the comprehensive health assessment questionnaire, which was designed to determine the patients' caring problems and educational needs. Following this, the program was designed and implemented in the intervention group for six months. Lastly, all of the subjects in the two groups completed the short form (SF 36) questionnaire and were examined by FBS and BS tests again (two times a day, mid-day and evening for two days) as a post-test measurement. The partnership care model is divided into four executive and operative stages:

- Motivation
- Readyng
- Involvement
- Evaluation

2.1 Motivation

Motivation is the first step in this model. Because diabetes is a chronic disease and many patients (based on literature and previous studies) are unaware of side-effects of their disease, they need to be given an impetus to encourage them to become actively involved in the process of controlling the disease. To motivate the patients for this intervention, the investigators disposed and provided the comprehensive health assessment questionnaire based on the model. This questionnaire was provided to determine the patients' caring problems and their educational needs. Subjects completed this questionnaire and obtained data were analyzed for determining the patients' caring problems and educational needs. To motivate the patients, determined caring problems and educational needs were offered to them. The specialist nurse and physician explained the patients' problems and needs and the necessity of long-term care to control the diabetes.

2.2 Readyng

Reading is the second step of the model. After motivation, the patients should be prepared to participate. Based on the partnership care model, reading can be accomplished by planning and implementing of the educational partnership meetings. These meetings were formed by the partnership care team. The members of the team include: five-seven patients who have mutual problems and conditions, the specialist nurse, and physician. These members were fixed members. These meetings were done in three-four sessions for 45-60 minutes. The goals of the meetings included: giving information about the nature and complications of the diabetes and empowerment of the patients in diet and activity adjustment and autonomy in self care. These

meetings were directed by the specialist nurse and physician together.

2.3 Involvement

Involvement means the continuous co-operation of all the meetings by actively participating and patient compliance of the principles of the self care, which can be accomplished during the follow-up partnership meetings. To involving the patients, the partnership follow up meetings and educational meetings were planned and done monthly. These educational monthly meetings were according to patients' educational health care needs and were formed by the partnership care team. The members of the team include: five-seven patients who have mutual problems, specialist nurse, and physician. The educational meetings were discussion-based, and the physician and nurse answered patient questions. At the start of each class, the specialist nurse, as leader of the partnership care team, measured the patients' awareness by asking them some questions about previous meetings and explained the patients' problems more, if necessary. The physician guided and supported the discussion.

2.4 Evaluation

Before implementation of the LTC program, the participants completed the short-form (SF-36) questionnaire and were examined by F.B.S. and B.S. tests (as a pre-test measurement in two study groups). Pre- and post-tests were measured by the principal investigator and a research team member.

Data were analyzed with SPSS 15 statistical software. The independent sample t-test, paired t-test, and chi-square test were calculated to show the significant differences in the demographic distributions of the two groups. The demographic characteristics and confounding variables of the samples were presented in tables 1, 2, and 3 for the control and intervention groups.

The paired t-test was used to verify that before and after means values are significant. The paired t-test results were summarized in table 4 and 5. The t-test was conducted to determine that there is a significant difference between two groups before and after intervention.

2.5 Ethical Considerations

Ethical approval for the study was obtained from the institutional review board to ensure protection of human subjects. All participants signed written informed consent prior to their participation.

With respect to patient confidentiality, numbers were used to identify participants rather than names. The voluntary nature of participation was explained to the participants. Participants were told of their right to

withdraw at any time without needing to give a reason and that their care would not be affected whether or not they took part.

3. Results

The dependent variable quality of life was measured with the short-form 36 questionnaire. The

SF-36 was constructed to satisfy minimum psychometric standards necessary for comparison of the two groups. Eight health concepts were selected from 40 concepts that there are in the medical outcomes study.

Table 1. Demographic characteristics of the patients in the intervention and control groups

Characteristics	Control (n=50)		Intervention(n=50)		Results
	N	%	N	%	
Gender					X=1
Male	22	44	20	40	Df=1
Female	28	56	30	60	P=0.24
Job Status					X=3
Employed	20	40	22	44	Df=2
Unemployed	11	22	10	20	P=0.62
Housekeeper	19	38	18	36	
Marriage					X=2
Married	42	84	44	88	Df=2
Single	1	2	1	2	P=0.56
Widowed	7	14	5	10	
Literate					X=0.57
Illiterate	12	24	10	20	Df=1
Diploma	34	68	34	68	P=0.43
Under Diploma					
High Education	4	8	6	12	
Hospitalization History					X=0.95
Yes	18	36	12	24	Df=1
No	32	64	38	76	P=0.26
Family History					X=0.49
Yes	22	44	12	24	Df=1
No	28	56	38	76	P=0.53
Smoking					X=0.04
Yes	5	10	10	20	Df=1
No	45	90	40	80	P=0.29

These concepts included eight dimensions of the quality of life: 1- general health (GH), 2- vitality (VT), 3- physical function (PF), 4- role function (RF), 5- bodily pain (BP), 6- mental health (MH), 7- role emotion (RE), and 8- social function (SF). Figures 1 and 2 demonstrate the measured scores of the eight dimensions of the quality of life before and after intervention in the control and intervention groups. Those chosen concepts represent the most frequently measured concepts that are widely used in health surveys and are most affected by disease and treatment. SF-36 items also represent health multiple operational indicators, including behavioral function and dysfunction, distress and well-being, objective reports and subjective ratings, and both favorable and

unfavorable self-evaluations of general health status. The eight scales are considered to form two distinct higher ordered clusters. According to the physical and mental health variances, they have commonality in three scales including: physical functioning, role-physical, and bodily pain that correlate most highly with the physical component and contribute most to the scoring of the physical component summary (PCS) measure.

The mental component correlates most highly with the mental health, role-emotional, and social functioning scales, which also contribute most to the scoring of the mental component summary (MCS) measure. Three of the scales (validity, general health, and social functioning) have noteworthy correlations with both components. The primary

object of the study is to determine and compare the diabetic patient's quality of life in intervention and control groups (pre-post intervention).

Table 2. Distribution of Matching Factors in the Intervention and Control Groups

Variables	Control (n=50)		Intervention(n=50)		Results
	N	%	N	%	
Diabetes					X=0.1
IDDM	6	12	7	14	Df=1
NIDDM	44	88	43	86	P=0.49
Surgery History					X=0.05
Yes	4	8	6	12	Df=1
No	46	92	44	88	P=0.6
Diabetes Drugs					X=0.6
Insulin	21	42	24	48	Df=1
Tablet	29	58	26	52	P=0.41
Injection of Insulin					X=1.2
Self	28	56	24	48	Df=2
Family	7	14	5	10	P=0.54
Nurse	15	30	21	42	
Location of Injection					X=8.6
Arms	25	50	32	64	Df=2
Abdomen	10	20	5	10	P=0.27
Femur	15	30	13	26	
Exercise					X=0.14
Yes	26	52	23	46	Df=1
No	24	48	27	54	P=0.48
Type of Exercise walking					X=0.22
Limber	30	60	35	70	Df=1
	20	40	15	30	P=0.5
Type of activity daily living to supply the primary needs					
Housework	15	30	11	22	X=3.36
Abroad work	20	40			Df=3
Occupational work	6	12	12	24	P=0.49
	14	28	12	24	
			15	30	
Appetite					X=2.63
Low	8	16	10	20	Df=2
Usual	27	52	34	68	P=0.44
High	15	30	6	12	

Table 4 shows the measured scores of the quality of life and summary components in two groups. Figures (1, 2) demonstrated the measured scores of eight dimensions of quality of life in two groups. According to Table 4, the results indicated that mean scores of the quality of life were 44.73 before intervention and that it increased to 57.78 after intervention in the intervention group. The paired t-test indicated a significant difference ($p=0.001$) between the before and after mean scores of quality of life. But the results indicated that mean scores of

the quality of life 48.62 before intervention increased to 50.62 after intervention in the control group.

The paired t-test indicated no significance difference ($p=0.21$) between before and after mean scores of quality of life. Also the results indicated that mean scores of the sum mental health quality of life were 45.87 before intervention and that it increased to 53.48 after intervention in the intervention group. Paired t-test indicated a significant difference ($p=0.001$) between before and after mean score sum mental quality of life. But the results indicated that mean score of the sum mental

health quality of life were 49.33 before intervention and that it increased to 50.94 after intervention in the control group. Paired t-test indicated no significant

difference ($p=.33$) before and after mean scores for sum mental quality of life.

Table 3. Distribution of Matching Factors in Intervention and Control Groups

Variables	Group	M	SD	P Value
Age	Intervention	56.04	12.61	0.56
	Control	53.75	13.56	
Duration of Morbidity	Intervention	7.98	6.98	0.86
	Control	7.61	6.63	
Number of Hospitalizations	Intervention	2.75	0.50	0.01
	Control	1.33	0.81	
Hospitalization Days	Intervention	14.50	12.81	0.99
	Control	14.40	10.31	
Surgery due to Disease	Intervention	0.29	0.35	0.6
	Control	0.11	0.33	
Insulin Dose	Intervention	52.00	28.26	0.08
	Control	30.37	13.66	
Tablet Dose	Intervention	1.60	0.44	0.79
	Control	1.70	1.37	
Time of Exercise	Intervention	1.60	2.95	0.52
	Control	0.90	0.56	
Water Intake	Intervention	6.27	4.02	0.88
	Control	6.07	4.73	
Urinate Time	Intervention	6.62	2.27	0.81
	Control	6.45	2.62	
Urine Volume	Intervention	7.73	4.17	0.04
	Control	4.43	2.06	
Body Mass Index	Intervention	27.76	7.97	0.45
	Control	26.20	4.97	
Knowledge of Self Care	Intervention	12.62	2.72	0.96
	Control	12.56	2.79	

Table 4. Measured scores of the quality of life in the two groups

Variable	Group	M	SD	Results
Total Quality of Life	Intervention	44.73	16.6	T=10.12 Df=49 P=0.001
	Before	57.78	17.26	
	After			
Total Quality of Life	Control	48.62	16.6	T=0.62 Df=49 P=0.21
	Before	50.62	13.2	
	After			
Sum Mental Health Quality of Life	Intervention	45.87	15.83	T=9.12 Df=49 P=0.001
	Before	53.48	22.71	
	After			
Sum Mental Health Quality of Life	Control	49.33	16.13	T=0.73 Df=49 P=0.33
	Before	50.94	23.71	
	After			
Sum Physical Function Quality of Life	Intervention	55.87	15.83	T=16.92 Df=49 P=0.001
	Before	61.83	14.09	
	After			
Sum Physical Function Quality of Life	Control	47.87	16	T=0.92 Df=49 P=0.31
	Before	49.83	18	
	After			

Table5. Measured indexes of the metabolic control include FBS and BS

Variable	Group	M	SD	Results
Fasting Blood Sugar (FBS)	Intervention	164.50	33	T=8.85 Df=49 P=0.001
	Before After	155.33	79	
Fasting Blood Sugar (FBS)	Control	158.83	56	T=11.34 Df=49 P=0.1
	Before After	176.69	52	
Blood Sugar (BS)	Intervention	213	74	T=7.49 Df=49 P=0.001
	Before After	203	120	
Blood Sugar (BS)	Control	218.07	116	T=6.84 Df=49 P=0.2
	Before After	226.33	57	

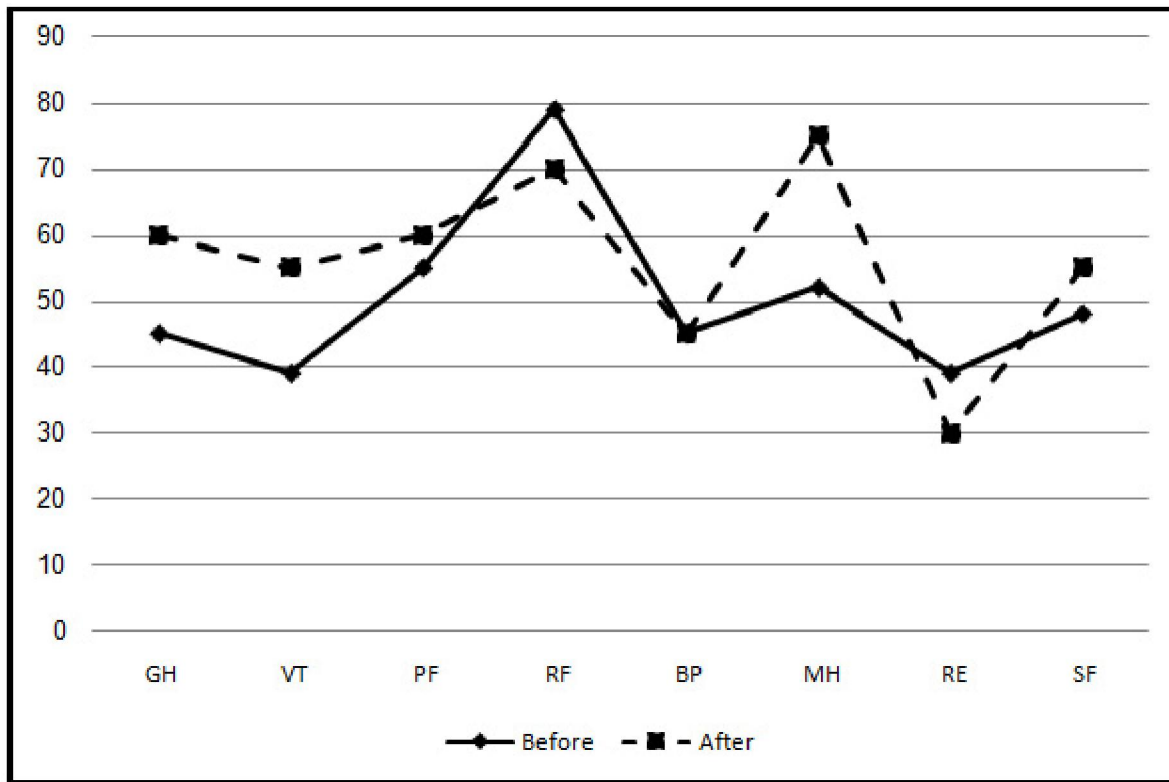


Figure 1. The scores of quality of life dimensions before and after intervention in the intervention group. GH(General Health), VT(Vitality), PF(Physical Function), RF(Role Function), BP(Bodily Pain), MH(Mental Health), RE(Role Emotional), SF(Social Function)

Results indicated that mean scores of the sum physical function of quality of life were 55.87 before intervention and that it increased to 61.83 after intervention in the intervention group. Paired t-test indicated a significant difference ($p=.001$) between before and after mean score sum mental quality of

life. But the results indicated that mean score of the sum physical function of quality of life were 47.87 before intervention and that it increased to 49.83 after intervention in the control group. The paired t-test indicated no significant difference ($p=.31$) between before and after mean score for sum mental quality of life.

The second object of the study was to determine and compare the metabolic control indexes (BS, FBS) in intervention and control groups. Table 5 shows the measured scores of the FBS and BS in two groups. Results indicated that mean scores of the FBS were 164.5 mg/dl before intervention and that it decreased to 155.33 mg/dl after intervention in the intervention group. Paired t-test indicated a

significant difference ($p=.001$) between before and after mean score of FBS. But the results indicated that mean score of the FBS were 158.83 mg/dl before intervention and that it increased to 176.69 mg/dl after intervention in the control group. Paired t-test indicated no significant difference ($p=.1$) between before and after score of FBS.

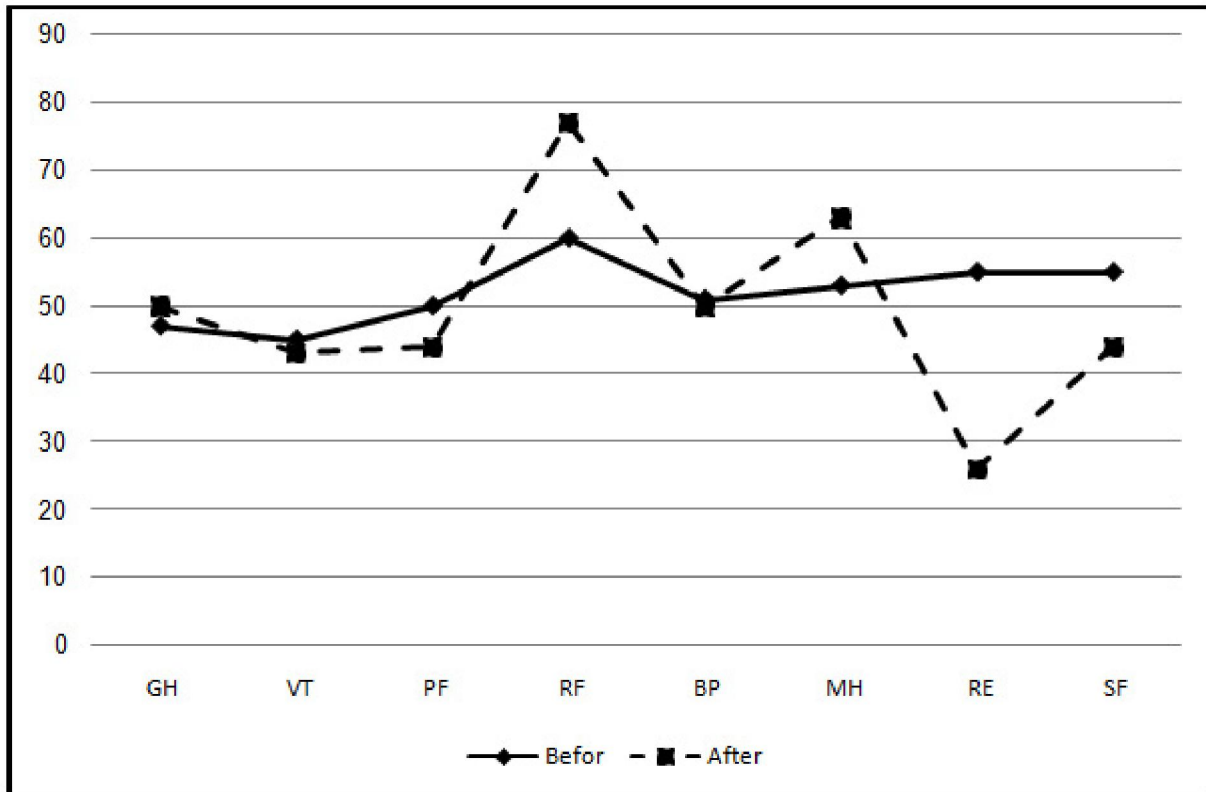


Figure 2. The scores of quality of life dimensions before and after intervention in the control group. GH(General Health), VT(Vitality), PF(Physical Function), RF(Role Function), BP(Bodily Pain), MH(Mental Health), RE(Role Emotional), SF(Social Function)

Also the results indicated that mean scores of the BS were 213 mg/dl before intervention and that it decreased to 203 mg/dl after intervention in the intervention group. Paired t-test indicated a significant difference ($p=.001$) between before and after mean score of BS. But the results indicated that the mean score of the BS were 218.07 mg/dl before intervention and that it increased to 226.33 mg/dl after intervention in the control group. The paired t-test indicated no significant difference ($p=.2$) between before and after mean scores of BS.

Based on the results of this study, we can conclude that the long-term care program on partnership care model as a nursing intervention has a positive effect on the quality of life and metabolic control indexes (FBS and BS) in diabetic patients. Partnership increases involvement, motivation, and responsibility of the partners. This involvement encourages care assistants to help the group to accept responsibility in group activities and to reach the aim of group in recovery and health promotion.

4. Discussions

Since this study is experimental research, the distribution of some confounding variables was matched in the control and intervention groups. Overall, 58 percent of patients were female and 65 percent of them had diabetes type 2. This gender distribution of diabetes is confirmed by the Azizi research (2003) on screening for type 2 diabetes in the Iranian national program (Narayan & Benjamin, 2004; Nigel & Marlin, 2004). The dependent variable of this research was quality of life that was measured by the short-form 36 questionnaire. The mean score of the QOL was under 50 before intervention in the two groups. This result is confirmed by research in the Iranian diabetic population (Venkat & Ping, 2006). Nevertheless, this finding is different from other countries' research results.

The general aim of this study was to evaluate long-term-care program based on partnership care model and its effect on quality of life and metabolic control of diabetic patients. As mentioned, the results indicated that mean scores of the quality of life after intervention increased in the intervention group significantly. Also the results indicated that mean scores of quality of life after intervention compared with before intervention increased in the control group, although this increase was not significant. These results were observed in the components of quality of life namely, the sum mental health component and the sum physical function component. Therefore it can be concluded that the long-term care program on partnership care model has a positive effect on the diabetic patient quality of life (World Health Organization work plan, 2002). The results indicated that mean score of FBS and BS after intervention compared with before intervention decreased in the intervention group significantly. But the results indicated that mean scores of FBS and BS after intervention compared with before intervention increased in the control significantly. Therefore, it can be concluded that the long-term care program on partnership care model has a positive effect on the metabolic control indexes in diabetic patients. The results of the Desouza and Nairy study (2003) showed that nursing intervention improved the diabetic adult's quality of life (WHO activities to prevent and control diabetes, 2009; worldwide prevalence and impact of diabetes, 2003). Franz and et al (1996) showed that diabetes medical nutrition therapy as measured by the SF 36, improved energy/fatigue and mental health factors and resulted in significant improvements in control of eating situations and behaviors, as measured by diet with practice guideline care, resulting in significantly better results than basic care. (Franz, 1996; Christina, et al., 2004) showed that the nutrition intervention

improved QOL and fasting plasma sugar in adults with type 2 diabetes.

Margaret Grey and et al (1999) showed that a behavioral intervention (coping skills training) combined with intensive diabetes management can improve the metabolic control and quality of life in adolescents who are implementing intensive therapy. Since patients' compliance and partnership in the process of control of diabetes is one of the outcomes of the partnership care model, it involves change of life style. Therefore investigators recommend this research to be continued for three-five years. One of the limitations of this study is the small sample size. Therefore future studies should be done with additional participants.

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References

1. Altman, D.G. Practical statistics for medical research. Second edition, London, Chapman Hall, 1999, 78-90
2. Alavi, Negin, & Gophranipour, F. (2003). Quality of life in diabetic patients. Scientific Journal of Kerman Shah Medical Sciences University, 47-56
3. Amini, M. (1997). Prevalence and risk factors of diabetes mellitus in the Isfahan city population. Diabet research and clinical practice, 38:185-90
4. Azizi, F., Gouya, M., Vazirian, P., & Dollatshahi, P. (2008). Screening for type 2 diabetes in the Iranian national program: A primary report. Eastern Mediterranean Health Journal, 9:1122-27
5. Azizi, F.M., & Gouya, P. (2003). Screening for type 2 diabetes in the Iranian national programme: A preliminary report. Eastern Mediterranean Health Journal, 9, 5-6
6. Desouza, M.S. & Nairy, K.S. (2003). Nursing intervention for the quality of life of diabetic adults. Clinical effectiveness in nursing, 7(2), 63-72

7. Franz, M.J.(1999).diabetes medical nutrition therapy. Journal of American Diabetic Association, 96(9), 98.
8. Gask, I.Ludman, E.Schaefer, J. (2006).qualitative study of an intervention for depression among patients with diabetes : how can we optimize patient professional interaction? .Journal of Clinical Nusing, 2(3):231-42
9. Goal of the Diabetes Programme. (2004). Retrived Jun 17, 2006, from <http://www.who.int/diabetes/goal/en/>
10. Klonoff, D.C.Schwartz, D.M.(2000).An economic analysis of interventions for diabetes. Diabetes care J ,23:390-404
11. Kelli, J.(2005).quality of life and Diabetes knowledge of young person with typ1 Diabetes:journal of American Diabetic Association,105:85-91
12. Mohammadi,E.Abedi,H.A. (2006).Partnership caring: a theory of high blood pressure control in Iranian hypertensives.International Journal of Nursing Practice,8(6),324-29
13. Grey,Margaret.Elizabeth, A. (2003).coping skills training for youths with diabetes on intensive therapy.Applied nursing research,12(1):3-12
14. Narayan, K.M,& Benjamin, E.(2004).Diabetes translation research:where are we and where do we want to be? Ann inter med, 140:958-63
15. Nigel, Unwin.& Marlin ,Amanda.(2004).Diabetes Action Now: WHO and IDF working together to raise awareness worldwide.Diabetes Voice,49(2),27-31
16. Venkat,Narayan.Ping,Zhang.(2006).How should developing countries manage diabetes? Canadian Medical Association Journal, 26,175(7).
17. World Health Organization work plan. (2002). Retrived march 7, 2003, from <http://www.who.int/diabetes/work plan/en/>
18. WHO activities to prevent and control diabetes.(2009). Retrived August 20, 2009, from <http://www.who.int/mediacenter/factsheets/fs312/en/html>
19. Worldwide prevalence and impact of diabetes in 2003 and predictions for 2025. Retrived may 17, 2006, from <http://www.cmaj.ca/cgi/content/full/175/7/733/DC1>

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