The Effect of Empowerment Program Education on Self Efficacy in Diabetic Patients in Tabriz University of Medical Science Diabetes Education Center

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Abstract: In 1990 s, empowerment was introduced as an approach in patient education. This program correlated with improved psychosocial self-efficacy. The concept and practice of self-care/self-efficacy will likely be approached differently by people from different cultures. With regards to these point that empowerment program affected by culture, what results would be by performing this program in Eastern and Asian countries. This present study was intended to determining effect of empowerment program education on Self efficacy in Tabriz university of medical science diabetes education center. In this research after a pilot study for 3 month, the necessary sample size was to be used for 22 patients, but the researchers increase it to 30 patients. Randomized sampling method have been used. The research instrument was selected for this research is the Diabetes Empowerment Scale. The intervention consisted of 6 weekly 1 h group sessions. All the participants was stimulated to exploring, sharing experiences with others and choosing personal solutions. In control group, after giving them the questionnaire, we asked the patients to accomplish it then after 1.5 month, we asked them to accomplish it again. This study show that there is no valuable differences between control and intervention group before educating But after educating empowerment program during 6 weeks, intervention group showed positive changes about all psychosocial self-efficacy scales (p = 0.003) and their subscales.

Key words: Diabetes mellitus, empowerment program, self efficacy, patient education

INTRODUCTION

Diabetes has profile as antiquity of human civilization as disease (Dehgani *et al.*, 1371). The prevalence of diabetes for all age-group worldwide was estimated to be 2.8 in 2000 and 4.4% in 2030. The total number of people with diabetes is projected to rise from 171 m in 2000 to 366 m in 2030 (Wihd *et al.*, 2004). In other words it would be duplicated in 2030. Based on statistics of the year 2006 there are up to 4 m diabetes patients in Iran (Ragab, 2007) that majority of them are older than 50 years (Khosravi, 1997).

This chronic diseases although isn't deadly but could be result in permanent disabilities (Ganbari, 2001). It also cause to acute effects as blindness, amputation of inferior organs, cardiac and renal disease (McDowell *et al.*, 2005). Because our health care system is designed to deliver acute, symptom-driven care, it is poorly configured to effectively treat chronic diseases such as diabetes (Funnel and Anderson, 2004).

The most of current and traditional training ways for diabetes patients aren't accountable for their needs. In spite of the great strides that have been made in the treatment of diabetes in recent years, many patient do not achieve optimal outcomes and still experience devastating complications that result in a decreased length and quality of life (Funnel and Anderson, 2004). Incidentally these effects cause to significant expenses, for example, in Iran, 9 billion toman expand to diabetes patients annually, that major part of it related to effects expenses as optic, vascular renal and neural effects, where as most of these effects are preventable by precise considerations about its control (Ragab, 2007).

In traditional education, providers acted as expert who gave advice and recommendations that patients required in their self management. A change in the providers role was needed from being controllers to becoming helpers or enablers (Adolfson *et al.*, 2004).

In 1990s, empowerment was introduced as an approach in patient education (Adolfson *et al.*, 2004). Empowerment is not a technique or strategy, but rather a

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vision that guides each encounter with our patients and requires that both professionals and patients adopt new roles. The role of patients is to be well-informed active partners or collaborators in their own care. The role of health professional is to help patients make informed decisions to achieve their goals and overcome barriers through education, appropriate care recommendations, expert advice and support (Funnel and Anderson, 2004).

Researchers have found an empowerment model of diabetes education correlated with improved psychosocial self efficacy (Anderson *et al.*, 1995). Perceived self efficacy is defined as people s beliefs about their capabilities to produce designated levels of performance (Bandura, 1994). Self-efficacy beliefs influence on the choices individuals make (Pajares, 1996). Anderson *et al.* (1995) while investigating the application of empowerment with diabetic patients, stated that its purpose was to ensure that patients make informed decisions about their diabetes self-management. According to Anderson *et al.* (2005), studies in traditional education programs, self-efficacy has been defined primarily as the perceived ability to engage in various situation specific self-management tasks such as blood glucose monitoring and ordering meals in a restaurant or the studies have focused on the needs of particular group of patients (e.g., adolescents) (Anderson *et al.*, 2000) but in addition to the knowledge and skills provided by a traditional education program, patients require training in psychosocial skills (Shiu *et al.*, 2003).

Despite of few studies about theses proposed program in European and American countries, but all of them indicate that these training program, progresses patients self efficacy (Anderson *et al.*, 2000; 1995; Forlani *et al.*, 2006).

The concept and practice of self-care/self-efficacy will likely be approached differently by people from different cultures (www.nccconline.org/products /M28099). For example the physician-patient relationship will be different. In American culture the physician-patient relationship is based on a contractual agreement between equal parties who value autonomy. There is an implied agreement that both parties will negotiate and participate. In contrast, the Asian physician-patient relationship will be hierarchical, with an emotional connectedness between the superior (physician) and the subordinate (patient), while Americans consider illness and death a disruption in a normal life, Asian consider these events part of the normal life cycle (www.nccconline.org/products/M28099).

With regards to these point that empowerment program affected by culture, what results would be by performing this program in Eastern and Asian countries especially in Iran?

This present study was intended to: determining and comparing psychosocial self-efficacy with patients that they have not received empowerment program and determining and comparing psychosocial self efficacy with patients that they have received empowerment program.

MATERIALS AND METHODS

In this research after a pilot study for 3 month, the necessary sample size was to be used for 22 patients, but the researchers increase it to 30 patients.

The participation in this study, subjects had to meet the following criteria:

- Be an adult between 18 and 70 years of age with any type of diabetes.
- Had already taken part in self care education programs in Tabriz diabetes educational center.
- Did not have any obvious psychosocial disorder.
- Had not received any other empowerment program from other centers. Exclusion criteria included patients had a obviously psychosocial disorder and at the time when patients did not have any tendency to continuation of sessions.

The names of patients were obtained from the center and the qualified samples have been chosen through randomized sampling method. Thus, the full name and the telephone numbers of all the individuals referring to diabetic educational center have been recorded at this center, then coding of the names of all the individual have been fulfilled.

The research instrument was selected for this research is the Diabetes Empowerment Scale-Short form that it had developed by Michigan Diabetes Research and Training Center (Anderson *et al.*, 2000). This scale is a 28-item self report measure of diabetes related psychosocial self efficacy (alpha = 0.96). It has 3 subscale that measure diabetes related psychosocial self-efficacy and how they effect the individuals: management of psychosocial aspects of diabetes with 9 items, α = 0.93) assessing dissatisfaction and readiness to change with 9 items α = 0.81) setting and achieving goals with 10 items, α = 0.91 (Anderson *et al.*, 2000).

DES instrument was translated to Farsi. Considerable evidence was found for the reliability of DES Farsi version (spearman rho coefficient greater than 0.95 for all scales and sub scales) and its validity was assessed by 10 university faculty members.

In control group, after giving them the questionnaire, we asked the patients to accomplish it then after 1.5 month, we asked them to accomplish it again.

In intervention group, after introducing the researchers, we began to define our purposes and while attracting patients satisfactions, asked them to complete the researching tools.

The intervention consisted of 6 weekly 1 h group sessions. Patients assigned to the 6-week intervention group participated in the 6 weekly sessions, with topic referring to:

Step1: Explore the problem (past).

Step 2: Clarify feelings and meaning (present).

Step 3: Develop a plan (Future).

Step 4: Commit to Action (Future).

Step5: Experience and Evaluate the plan (Future).

The program was designed by Funell *et al.* (2004). The structure of this program based on 5 step behavior-change protocol. This protocol (Funnel and Anderson, 2004) have shown in Table1.

Table 1: Behaviour-change protocol adaptation of (Funnel and Anderson, 2004)

Step 1:	Explore the Problem or Issue (Past)
	What is the hardest thing about caring for your diabetes?
	Please tell me more about that.
	Are there some specific examples you can give me?
Step 2:	Clarify Feelings and Meaning (Present)
	What are your thoughts about this?
	Are you feeling (insert feeling) because (insert meaning)?
Step 3:	Develop a Plan (Future)
	What do you want?
	How would this situation have to change for you to feel better about it?
	Where would you like to be regarding this situation in (specific time,
	e.g., 1 and 3 months, 1 year)?
	What are your options?
	What are barriers for you?
	Who could help you?
	What are the costs and benefits for each of your choices?
	What would happen if you do not do anything about it?
	How important is it, on a scale of 1-10, for you to do something about this?
	Let's develop a plan.
Step 4:	Commit to Action (Future)
	Are you willing to do what you need to do to solve this problem?
	What are some steps you could take?
	What are you going to do?
	When are you going to do it?
	How will you know if you have succeeded?
	What is one thing you will do when you leave here today?
Step 5:	Experience and Evaluate the Plan (Future)
	How did it go?
	What did you learn?
	What barriers did you encounter?
	What, if anything, would you do differently next time?
	What will you do when you leave here today?

In this research regarding the cultural role in eastern society, some changes have been done in the field of performance process. As mentionable before the group arrangement was done, so there might have been compounds of men and women samples. As it seemed that the group discussion might not well accomplished in such a group, we explained this point to the individuals and mentioned that if they were inclined, we might have some changes in the arrangement. But during the following meetings, we finally considered that there was no need for any changes in group arrangement. Thus the subject of groups was nicely performed.

Regarding some terms such as: »Assigning aims for solving problems « were not fully known to the most individuals. In other words, the individuals apparently showed that they could understand the meaning of these terms but in fact their understanding was incorrect. With this in mind, during the first meeting and during the problem assigning, the terms were explained to the individuals in clear examples.

Sessions consisted of short introduction explanation highlighting the topic, group discussions and planning activities for a period to the next session. All the participants was stimulated to exploring, sharing experiences with others and choosing personal solutions.

RESULTS

- Patients characteristics in the intervention and the control group:
- Table 2 presents demographic, disease-related characteristics of the 2 groups.
- Determining and comparing psychosocial self efficacy of patients before empowerment program in control and intervention group:
- Comparative scales for the control group (CG) compared to the intervention group (IG) were:
- Psychosocial aspects of diabetes (p= 0.65) for Dissatisfaction and ready to change (p= 0.59), for Setting and achieving diabetes goals (p= 0.06), for all psychosocial self efficacy scales (p= 0.16)
- The result show that there is no significant differences between control and intervention group before educating program
- Determining and comparing psychosocial self efficacy of patients after empowerment program in control and intervention group were:
- Psychosocial aspects of diabetes (p= 0.001) for Dissatisfaction and ready to change (p= 0.002), for Setting and achieving diabetes goals (p= 0.002), for all psychosocial self efficacy scales (p= 0.003) (Table 3).

Table 2: Patients characteristics

Demographic		Control		Intervention	
		n	(%)	n	(%)
Gender	Male	6	40	5	33.3
	Female	9	60	10	66.7
Length of education	Non education	4	26.7	5	33.3
	Primary school	4	26.7	4	26.7
	High school	4	26.7	2	13.7
	University	3	20	4	26.7
		M±SD		M±SD	
Weight		74.60±15.3		79.27±14.11	
Height		164.40±9.42		163.5±9.42	
Length of diagnosis (years)		7.47±6.25		9.45±8.8	
Age		48.73±11.26		50.0±10.67	

Table 3:Determining and comparing psychosocial self efficacy of patients in control and intervention group before and after implementing empowerment program

Scale		Control group		Intervention group		
		M	SD	M	SD	p-value
Before	Over all Diabetes empowerment scale	2.27	0.1	2.48	0.68	0.16
	Diabetes empowerment sub scale:					
	Psychosocial aspects of diabetes	2.27	0.9	2.35	0.59	0.65
	Dissatisfaction and ready to change	2.38	0.9	2.40	0.77	0.59
	Setting and achieving diabetes goals	2.18	1.26	2.68	0.86	0.06
After	Over all Diabetes empowerment scale	2.28	0.98	3.64	0.38	0.003
	Diabetes empowerment sub scale:					
	Psychosocial aspects of diabetes	2.28	0.89	3.46	0.28	0.001
	Dissatisfaction and ready to change	2.39	0.93	3.54	0.59	0.002
	Setting and achieving diabetes goals	2.18	1.25	3.90	0.42	0.002

- After education program the result show that there is valuable differences between control and intervention group (Table 3).

DISCUSSION

Diabetes although isn't deadly but could be result in permanent disabilities (Ganbari, 2001). Most of these effects are preventable by precise considerations about its control (Ragab, 2007). The Chronic Care Model has been tested as an effective approach for chronic illness care teams. This approach is based on actively involved patients working with informed, proactive health care teams. The empowerment philosophy is keeping with this approach to care (Funnel and Anderson, 2004).

Our study show that there is no valuable differences between control and intervention group before educating But after educating empowerment program during 6 weeks, intervention group showed positive changes about all psychosocial self efficacy scales and their subscales (psychosocial aspects of diabetes, dissertation and ready to change, setting and achieving diabetes goals). Funnell and colleagues remark that to manage diabetes successfully, patients must be able to set goals and make frequent daily decisions that are both effective and fit their values and lifestyles, while taking into account multiple physiological and personal psychosocial factors. Intervention strategies that enable

patients to make decisions about goals, therapeutic options and self-care behaviors and to assume, responsibility for daily diabetes care are effective in helping patients care for themselves (Funnel and Anderson, 2004).

Anderson *et al*. (1995) studied the effect of the empowerment DM education model. Programs using an empowerment education model were correlated with improved perceived psychosocial self efficacy (Anderson *et al*., 1995).

In other study about evaluating a problem-based empowerment program for African Americans with diabetes, both control showed a broad array of small-to-modest positive changes during 6 week but researchers believed that both groups changed because of the combination of volunteer bias, study effects and program impact (Anderson *et al*., 2005).

Pibernick and colleagues purported that the empowerment model increases the persons self efficacy resulting in improved health and quality of life (Pibernik-Okanovic *et al*., 2004).

IN other study in Turkish the impact of patient-centered education program was studied (Atak *et al*., 2008). In this study the intervention resulted in limited but some encouraging results, especially in perceived self management of the psychosocial aspects of diabetes; assessing dissatisfaction and readiness to change; and setting and achieving diabetes goals. To explain the

results the researchers presented 3 caveats about the approach employed in the education program. First, the length of the education program was 1.5 h and was perhaps not adequate to give the patients the chance to practice setting goals, evaluating the results and obtaining feedback for their daily self-management behaviors relevant to the disease. For example, in the intervention that Funnell *et al.* (2005) conducted, the length of the program was 10 h in total and lasted for 6 weeks. Second, applying post-test 2 weeks after the education is probably not adequate to see changes in self efficacy or attitude of the patients or to obtain positive improvements in self-management of the diabetes. A third consideration is the lack of follow-up to evaluate the results of the program in the long-term.

According to the results of Anderson *et al.* (2005), significant improvements were maintained at 6 months and at one year. In our study the length of study was 6 h in total and lasted for 6 weeks.

An other empowerment education program have done in Iran that its sample size was 47 diabetic adolescents in 2 health centers, the data were collected and analyzed 2.5 months after the empowerment intervention, there was a significant difference between the 2 groups after the intervention in terms of scores of the quality of life (p<0.001).

Funnell and colleagues remark that, the empowerment Model has been tested as an effective approach for diabetes patients (Funnel and Anderson, 2004).

CONCLUSION

We concluded using the diabetes empowerment based is an effective intervention to improve psychosocial self efficacy in Iranian diabetes people. But we believe that there is need to other studies which could be evaluate this program for a long time and with follow up sessions for diabetic patients. After these programs, it seems that, diabetes empowerment based education would be an effective intervention to use in Asian countries.

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