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The effects of empowerment program on psychosocial self-efficacy in type one diabetic patients

Zahra Imani Goghary[1*], Masoud Rayani[2], Parvin Mongolian[3], Fariba Borhani[4]

[1]PhD Student, Razi Faculty of Nursing and Midwifery, Kerman University of Medical Sciences, Kerman, Iran
[2]Assistant Professor, Razi Faculty of Nursing and Midwifery, Kerman University of Medical Sciences, Kerman, Iran
[3]PhD Student, Razi Faculty of Nursing and Midwifery, Kerman University of Medical Sciences, Kerman, Iran
[4]Assistant Professor, PhD student, Razi Faculty of Nursing and Midwifery, Kerman University of Medical Sciences, Kerman, Iran

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***Corresponding author:** Zahra Imani Goghary, Department of Nursing and Midwifery, Kerman university of Medical Sciences, Kerman, Iran. Tel: 09131792297,
Email: imanigoghary@yahoo.com

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Abstract

Introduction: Diabetes is a chronic disease that produces serious disabilities, complications, and effect all features of a patient's life. One of the important parts of diabetes care is the patient's active participation in the care plan. This patient-centered approach is called empowerment program, which its philosophy is enabling the patient to play an active role in planning and making decisions in health-related activities. With the failure of traditional methods in patient education, checking efficacy of new methods sounds essential. The purpose of this study was to estimate the effect of empowerment program on psychosocial self-efficacy in type 1 diabetic patients.

Methods: In this semi-experimental research, 40 type 1 diabetic patients were randomly divided into two equal intervention and control groups. Diabetes empowerment scale, after obtaining content validity and reliability by the calculation of Cranach's alpha, was used for data collection. Both groups completed the questionnaire. Then the empowerment program according to a former prepared protocol during six sessions and 90 minutes in length was held for the intervention group. Two months after intervention, both groups completed the questionnaire again. SPSS software was used for data analysis.

Results: Findings did not show any significant difference in psychosocial self-efficacy before the intervention ($P > 0.05$), but the difference was significant after the intervention ($P = 0.000$) in the intervention group.

Conclusion: The implementation of empowerment program had a significant effect on psychosocial self-efficacy for type 1 diabetic patients and caused positive changes in total psychosocial self-efficacy scale and its subscales. Therefore, using similar programs can improve self-efficacy and enhance stress management. It also helps decision making for diabetes, facilitates the recognition of suitable and achievable goals, overcomes the barriers, and finally improves patient's health status.

Keywords: Empowerment program, Psychosocial self-efficacy, Type 1 diabetes

Introduction

Diabetes Mellitus (DM), a chronic disease and a psychosocial problem, is one of the major health problems worldwide that can produce many serious complications (1). The incidence and prevalence of DM worldwide is increasing. World Health Organization (WHO) estimates a 54% increase in the number of diabetic patients from 2010 to 2030 (2). According to previous studies in different cities of Iran, the prevalence of diabetes was between 4.2 to 15.9%, so it seems that the prevalence of diabetes in Iran is more than the mean rate of the world's prevalence (3,4). Diabetes has many effects on physical, psychological, and social health. Diabetic patients experience multiple organ complications, such as cardiac and renal diseases, blindness and organ amputations (1). In spite of the great efforts that have been made in the treatment of diabetes in recent years, many patients do not achieve optimal outcomes and experience devastating complications that result in a decreased length and quality of life. On the other hand, health care professionals try to deliver unfixable and the same education to all diabetic patients, and traditionally the success of patients to manage their diabetes has been judged by their ability to adhere to a prescribed therapeutic regimen (5).

Living with a chronic disease, diabetic patients face many challenges that influence all aspects of their lives. In this case, they have to integrate a number of new lifestyles or apply treatment-related behaviors into their everyday

lives. This need for change occurs not only at a behavioral level, but also at a psychosocial level. Therefore, they may experience a distressing feeling of powerlessness (6).

It should be noted that diabetes is a self-managed disease in which the patient usually provides more than 90% of the daily care, so the education and empowerment of diabetic patients have an integral part in diabetes care (7).

One of the important parts of diabetes care is the patient's active participation in his/her care. Because of the serious and chronic nature of diabetes, and the daily multiple self-care decisions, such as nutrition, physical activity, medication, blood glucose monitoring, and stress management that diabetic patients require, a predetermined care program is generally not adequate over the person's life, so patients must be able to set goals and make frequent daily decisions that are both effective and fit their priorities, goals, resources, culture, and lifestyle (8).

It seems that many diabetic patients get most of their education from their physician and the diabetic specialist nurse in individual counseling within the usual diabetes care when they visit their care provider for regular check-ups. This system often does not give patients sufficient knowledge about their disease (9). Usually, this kind of education is generally prescriptive and is based on the belief that patients have an obligation to follow the direction of their providers. As the large literature in non-compliance indicates, these models are not effective in diabetes care (5). So a new approach is needed to recognize that patients are in control and are responsible for the daily self-management of diabetes (10).

Research in recent decades has indicated that one of the most important aspects of diabetes care is that patients are actively involved in their own care. This patient-centered collaborative approach (empowerment program) was introduced at the beginning of 1990s by Anderson *et al* at the University of Michigan (9). In the empowerment model, health care professionals respect the patient and assist the patient in making decisions in ways that have meaning to the patient (11).

The philosophy of patient empowerment enables patients to make informed decisions and play an active role in planning and making decisions in health-related activities (8). One of the empowerment goals is to enhance the perceived self-efficacy of patients in order to self-manage their diabetes and improve individuals' initiatives to do actions for their health with confidence, hope, and a feeling of self-worth (12). Perceived self-efficacy is related to the beliefs about capabilities, willingness, and the ability of people to engage in various behavioral challenges including preventive and disease management behaviors and also enhancing psychological skills (12).

Anderson and Funnell have demonstrated the effect of perceived self-efficacy on the ability of people to have a greater frequency of self-care practices, and make positive changes in psychological and emotional functioning (12). Considering these findings, Zamanzadeh *et al* demonstrated a six-week, one hour empowerment program session for type 1 and 2 diabetic patients. The results showed an improvement in all aspects of patient's perceived self-efficacy (13).

Tsay and Hung conducted a randomized controlled trial to investigate the effectiveness of an empowerment program on the empowerment level, self-care, self-efficacy, and depression in patients with the end-stage renal disease. The results indicated that scores of the empowerment, self-care and self-efficacy in the empowerment group had a significantly greater improvement than the control group (10).

Also other studies have highlighted the effect of empowerment program on improving self-efficacy and changing lifestyle (5,6,12,14).

Regarding to this point, the concept and practice of self-efficacy and self-care will likely be approached differently by culture (13) and on the other hand, the review of literature showed little nuances to this viewpoint in our country. Now the question is: does the empowerment program have an effect on the self-efficacy of type 1 diabetic patients, and can it be considered as an alternative to traditional education? Therefore, the goal of this study is to investigate the effects of empowerment program on self-efficacy in type 1 diabetic patients in Sirjan Diabetes Center.

Methods

In this semi-experimental study, all type 1 diabetic patients who were registered in Sirjan Diabetes Center made the sampling frame. Forty patients participated in this study that by simple randomization they were divided into experiment (n= 20) and control group (n= 20). Eligibility criteria included those patients who were diagnosed with diabetes and were treated for at least 6 months, having registered in diabetes center, did not have any obvious psychosocial and mental disorder, being able to hear and speak, did not receive any other empowerment program from other centers and showed willingness to participate in the study by completing the consent form. Subjects with an acute illness or hospitalization, and those with a report of psychiatric or cognitive disorders or physical limitations in self-care were excluded.

At the beginning, both groups randomly became equal in terms of the demographic characters (age and sex). The Diabetes Empowerment Scale (DES) was used as the research instrument. This instrument was developed by Michigan Diabetes Research and Training Center (12) for assessing the self-efficacy of type 2 diabetic patients. This instrument was translated to Persian by two translators that were native in Persian and English with backward and forward method and were compared with both English and Persian versions. Then in order to assess self-efficacy in type 1 diabetes, the instrument was modified. We assessed the instrument's content validity by 10 faculty members of Kerman Razi Nursing and Midwifery

College. And its reliability was calculated by Cronbach's alpha (α= 0.9).

DES is comprised of 28-item with 3 subscales including: 1) managing the psychosocial aspects of diabetes: This subscale assesses the patients' ability to obtain social support, manage stress, be self-motivated, and make diabetes-related decisions that are "right. 2) assessing dissatisfaction and readiness to change: this scale assesses patients' perceived ability to identify aspects of care for diabetes that they are dissatisfied with and their ability to determine when they are ready to change their diabetes self-management plan. 3) setting and achieving diabetes goals: this scale assesses patients' perceived ability to set realistic goals and reach them by overcoming the barriers to achieve their goals (12).

In the first session, after introducing ourselves we described the purpose of the study and obtained informed consent. We also took into account voluntary entry and exit from the study.

To collect data before intervention, the DES questionnaire was distributed to patients in both groups and the demographic data were obtained by a researcher. For low literacy patients, the questionnaire was read item by item and their answers were placed on the questionnaire. So, in this way the self-efficacy of patients was assessed before the intervention. In the nine next sessions, the empowerment program was held for the intervention group.

Empowerment program

The empowerment program for diabetic patients in intervention group was held for 6 weeks in which each session lasted for 90 minutes. By the same token, interactive teaching strategies were designed to involve patients in problem solving and addressing their cultural and psychosocial needs. As patients shared their experiences, it was evident that we were able to individualize each group's educational programs and ensure that the content provided is relevant for the needs of each group. The content of sessions was presented in response to issues and questions raised by patients. At the end of each session, patients were encouraged to choose a short-term goal for the week and the subsequent session began with a group discussion about the results. These experiences and questions were then used as a focal point for discussion.

We tried to motivate patients to continue their participation by giving information about diabetes and the complications that they faced. Similarly, we invited some nutrition specialists, physicians, and counselors to answer patients' questions.

In our intervention we used a program that was designed by Funnell *et al* (5). This behavior-change protocol includes these five steps:

Step I: Explore the problem or issue (Past)

Step II: Clarify feelings and meaning (Present)

Step III: Develop a plan (Future)

Step IV: Commit to action (Future)

Step V: Experience and evaluate the plan (Future)

The first two steps are to define the problem and ascertain patients' beliefs, thoughts, and feelings that may support or hinder their efforts. The third is to identify long-term goals towards which patients will work. Patients then choose and are committed to make a behavioral change that will help them to achieve their long-term goals. The final step is for patients to evaluate their efforts and identify what they learned in the process. The role of the provider is to provide information, collaborate during the goal-setting process, and offer support for patients' efforts (5).

Two months after intervention, both control and intervention group were asked to complete the questionnaire for the second time. The data were analyzed with SPSS (version 15) statistical package. The statistical tests included frequency, percentage, mean, standard deviation, independent and pair T-test.

Results

The sample included 40 type 1 diabetic patients that their demographics are shown in Table 1. There were no differences in demographic characteristics of the patients between the control and intervention groups (P> 0.05). The data indicates homogeneity of subjects across the groups.

For assessing the effect of empowerment program on self-efficacy, we used independent T-test to compare the control group with intervention group before intervention and also to compare them after intervention. Re-

Table 1. Patients' characteristic

Demographic	Control		Intervention		P
	Number	%	Number	%	
Sex					0.65
Male	10	50	11	55	
Female	10	50	9	45	
Education					0.15
Primary and lower	7	35	7	35	
High school and upper	13	65	13	65	
Age	Mean ± SD= 32.25 ± 13.8		Mean ± SD= 36.7 ± 16		0.75
Length of diagnosis	Mean ± SD=8 ± 7.5		Mean ± SD= 16.5 ± 8		0.35

sults showed that before intervention there was not any significant differences between two groups in terms of psychosocial self-efficacy scale and its subscales (P> 0.05). But comparing psychosocial self-efficacy of patients after empowerment program between the control and intervention group showed valuable differences between two groups regarding psychosocial self-efficacy scale and its subscales (P= 0.000). The results are presented in Table 2. To compare psychosocial self-efficacy of patients in control group before and after intervention we used paired T-test. The results did not show any significant differences for psychosocial self-efficacy scale and its subscales (P> 0.05). We also compared psychosocial self-efficacy of patients in intervention group before and after intervention by using paired T-test. In this case, the results showed significant differences between the score of psychosocial self-efficacy scale and its subscales before and after implementing the empowerment program in intervention group (P= 0.000). This part of the results is presented in Table 3.

Discussion

This study found that there were no significant differences in psychosocial self-efficacy between control and intervention group before implementing the empowerment program, but after a 6-week empowerment program, the intervention group showed improvement in all psychosocial self-efficacy scales and its subscales (psychosocial aspects of diabetes, dissatisfaction and readiness to change, and setting and achieving diabetes goals). These results show that empowerment program has positive effects on self-efficacy.

For improvement in the first subscale "Managing the psychosocial aspects of diabetes": A) We motivated patients to recognize places that gave social services and motivated them to take social support which is essential for managing chronic diseases. B) Patients were encouraged to explore their emotional responses, look at alternative ways of coping with stress, and repeatedly practice stress management skills during individual counseling sessions as stress can intensify physical symptoms (15). C) Acknowledged the patients' right and responsibility to make self-care choices and to be the primary decision-makers. During implementation of the program, patients were encouraged to express their fears and concerns, know their

Table 2. Comparing psychosocial self-efficacy of patients before empowerment program and after it between control and intervention groups

Group			Intervention		Control		P
			Mean	SD	Mean	SD	
Before	Scale	Overall diabetes empowerment scale	3.61	0.55	3.69	0.42	0.6
	Subscale	The psychosocial aspects of diabetes	3.37	0.7	3.47	0.54	0.59
		Dissatisfaction and readiness to change	3.79	0.48	3.91	0.36	0.39
		Setting and achieving diabetes goals	3.67	0.72	3.69	0.42	0.89
After	Scale	Overall diabetes empowerment scale	4.49	0.2	3.46	0.33	0.000*
	Subscale	The psychosocial aspects of diabetes	4.42	0.18	3.36	0.46	0.000*
		Dissatisfaction and readiness to change	4.52	0.18	3.64	0.34	0.000*
		Setting and achieving diabetes goals	4.52	0.2	3.36	0.52	0.000*

*P<0.05 is significant

Table 3. Comparing psychosocial self-efficacy of patients in intervention group and control group before and after intervention

Group	Scale	Index	Mean	SD	P
Intervention	Overall diabetes empowerment scale	Before	3.61	0.55	0.000*
		After	4.49	0.2	
	The psychosocial aspects of diabetes	Before	3.37	0.7	0.000*
		After	4.42	0.18	
	Dissatisfaction and readiness to change	Before	3.79	0.48	0.000*
		After	4.52	0.18	
	Setting and achieving diabetes goals	Before	3.67	0.72	0.000*
		After	4.52	0.2	
Control	Overall diabetes empowerment scale	Before	3.69	0.42	0.7
		After	3.46	0.33	
	The psychosocial aspects of diabetes	Before	3.47	0.54	0.53
		After	3.36	0.46	
	Dissatisfaction and readiness to change	Before	3.91	0.36	0.02
		After	3.67	0.34	
	Setting and achieving diabetes goals	Before	3.69	0.42	0.13
		After	3.36	0.52	

*P<0.05 is significant

emotional response in facing with disease-related stress, get familiar with the alternative ways to encounter with stress, and practice stress management methods. We also provided a patient-centered environment for active collaboration of patients in their care in order to take decisions related to management of physical and psychological aspects of their diabetes. Following these practices we observed an increase in the mean of subscale scores (from 3.67 to 4.42) in intervention group. Therefore, we can state that the intervention group became empowered in this subscale.

For improvement in the second subscale, "dissatisfaction and readiness to change" according to this point that undertaking the responsibility of care about diabetes needs a readiness for change and when readiness and motivation for change is at a high level, implementing educational, interventional, and self-management program becomes easy to use. Conversely, if these are not met, using these programs for both the educator and patients become frustrating (15). Therefore, we tried to help patients gain the necessary stimulus to know the different aspects of their dissatisfaction from diabetes self-care by arranging group discussions, problem-solving methods, and trying to make them familiar with complications and influences of self-management in order to decrease the complications. The increase in the mean of scores after applying the program (from 3.79 to 4.52) showed that we met our goal by implementing the empowerment program.

For improvement in the third subscale "knowing suitable and achievable diabetes goals and overcoming the barriers to reach them", patients were encouraged to share their experiences in developing therapeutic short-time goals. This helped them to become familiar with the goal setting method. The increase in scores after intervention compared to before intervention scores, showed this important matter. As Bandura said, self-efficacy is the people's beliefs about their capabilities that are necessary for setting and getting goals (16). In addition, Funnell and colleagues believe that to manage diabetes successfully, patients must be able to set goals and make daily care decisions about their diabetes. So, the following matters are effective and fit with their values and lifestyles. For example, interventional strategies that enables patients to make decisions about goals, therapeutic options, self-care behaviors and being responsible for daily diabetes care in helping patients care for themselves (5). Zamanzadeh *et al* conducted a semi-experimental study to evaluate the effectiveness of a patient empowerment program in self-efficacy in diabetic patients in Tabriz University. The program was six weeks in duration with a length of one hour. Six weeks after the program, the intervention group showed significant greater improvements in total psychosocial self-efficacy scale and its subscales than the control group (13). This finding is consistent with the findings of our study. The implementation of empowerment program is not only specific to diabetic patients. There are some reports of its effects on other chronic diseases. We point to one of these studies that was conducted by Tsay and Hung to investigate the effectiveness of empowerment program on empowerment level, self-care, self-efficacy, and depression in patients with an end-stage renal disease. The results indicated that scores of the empowerment, self-care, self-efficacy, and depression in the empowerment group were significant compared to control group (10).

In our study, patients' participation were in a high range, maybe it can be related to the consideration paid to patients' needs and respecting their essential roles in decision-making in diabetes care. So, with regard to the results of this study, it is suggested that nurses consider providing empowerment therapies as an alternative method to improve diabetic patients' self-efficacy and self-care.

This approach should be expanded to include a longitudinal design, allow rooms for future researchers to state with more confidence that an empowerment program can be applied to improve self-efficacy and self-care.

Conclusion

As people with diabetes must rely on themselves for daily management of the disease, they must also be able to take responsibility for their self-care. In this case, they must have insight into their own values, needs, goals, and they need to have knowledge about diabetes and its treatment. Most of all diabetes-related self-care connected to perceived self-efficacy and a sense of personal autonomy that enabling people to maximize daily diabetes self-care decisions.

Empowered people with diabetes learn enough about diabetes and improve their self-efficacy so that patients with collaboration to nurses and other health care professionals can select and achieve their own goals for diabetes care.

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Ethical issues

This study was approved by Razi Nursing and Midwifery College.

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