Effectiveness of Group-Based Diabetes Self-Management Education in Type II Diabetes Patients in Yazd

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Abstract

Objective: The aim of current study was evaluation of group-based diabetes self-management education (group-based DSME) effectiveness in improving glycemic control among type 2 diabetic patients attending the Yazd Diabetes Research Center in 2014.

Materials and Methods: The study design was quasi-experimental with control group.In this study, 62 diabetic patients were randomly allocated into intervention and control groups. Patients in intervention group participated in 12 weekly workshops over 3 months and patients in control group received routine diabetes care. HbA1c levels were assessed at baseline and after 12 weeks in both intervention and control groups at the beginning and at the end of the study.

Results: Findings of this study demonstrated that group-based diabetes self-management education (group-based DSME) could be effective in improving glycemic control among type 2 diabetic patients (P<0.001).

Conclusion: Therefore given the positive results of this study and high prevalence of type 2 diabetes mellitus in Yazd, it is essential that appropriate planning and policies to be adopted

Keywords: Type 2 diabetes mellitus, Group-based DSME, Glycemic control

Introduction

In recent decades, the prevalence of diabetes mellitus has been increasing worldwide, and has been especially accelerated in low- and middle-income countries. Diabetes mellitus causes increased risk of cardiovascular disease, lower-limb amputation, kidney failure, blindness and premature death and disability (1). The basis of diabetes mellitus treatment is glycemic control, which reduces or delays the risk of microvascular and macrovascular complications of diabetes (2).

The process of diabetes self-management education (DSME) is an important component of care for all patients with diabetes mellitus. It is a continuing procedure of facilitating the knowledge, skillfulness, and ability required for diabetes self-care. The DSME includes the requirements, purposes, and life experiences of the patients with diabetes and is directed by

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evidence-based standards (3,4). The general purposes of DSME are training the informed decision making, problem solving, self-care behaviors, and active collaboration with the healthcare workers to enhance quality of life, clinical outcomes, and health status (4). Self-management activities include appropriate food choices, physical activity, regular medication program, and self-glucose monitoring (5). It should be noted that although diabetes education is essential but it must be conducted to act or self-care activities to entirely profit the patients (5). Knowledge of diabetes self-management is reliant on the knowledge of diabetes, and enhancing patients' knowledge of self-management practices would authorize them to contribute effectively to their care (6).

Nowadays, there is increasing attention to the self-management programs of chronic diseases to enhance health advantages while decreasing healthcare costs (7). But, despite the increasing trend of diabetes mellitus, a standard self-management education program or package have not been developed in Iran (8). Also, qualitative studies have reported, patients with diabetes mellitus have mentioned that they have weak knowledge on diabetes (9).The purpose of this study is evaluation of group-based diabetes self-management education (group-based DSME) effectiveness in improving glycemic control among type 2 diabetic patients attending the Yazd Diabetes Research Center in 2014.

Materials and Methods

A quasi-experimental pretest-posttest design was applied in the study. The study's protocol was approved by the Medical Ethics Yazd Diabetes Research Center. Sixty two patients with T2DM were randomly allocated into intervention and control groups. Two groups were matched for age and gender. The inclusion criteria was, the patients with type 2 diabetes mellitus, the age range of 30 to 65 years, not receiving psychological treatment and medications for at least 6 months before entering the study, and at least diploma in education. Participants could leave the study at any time if they want. After describing the purposes of the study, informed consent was signed by participants. A blood sample was taken for measurement of HbA1c level. The intervention group received 12 weekly group self-management education sessions including describing diabetes, self-awareness skill, problem-solving skill, anger management skill, stress management skill, positive thinking skill, happy-life skill, nutrition, physical activity, health effects of tobacco, self-monitoring of blood glucose, and foot care. The control group continued with their routine treatment during training of intervention group. After completing the training course, another blood sample was taken to measureHbA1c level. Finally, data were analyzed by SPSS 16 software. Analysis of covariance was used to assess the effects of group-based self-management education on intervention-group participants.

Results

Sixty two participants completed the study. Table 1 show the demographic and clinical characteristics of both intervention and control groups at the beginning of the study.

There was no significant difference in mean HbA1c values between two groups of intervention and control in the pre-test. Intervention group and control group showed a significant difference in mean HbA1c in the post-test. Mean HbA1c level had a significant decrease in post-test of intervention group compared to post-test of control group (table 2).

Analysis of covariance (ANCOVA) showed that mean HbA1c level in the intervention group were significantly lower than it in the control group (P-value<0.001), and so glycemic control was better in the intervention group.

Discussion

The self-management package of this study included training of psychological adaptation, nutrition, physical activity, foot care, and self-

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Table 1. The demographic and clinical characteristics of both intervention and control group at the beginning of the study.

Variables		Intervention group (n=31)	Control group (n=31)	*P*-value
Gender (%)	male	25.8	38.7	0.277
	female	74.2	61.3	
Age*		53±6.6	52.1±6.7	0.582
HbA1c*		7.83±1.3	7.71±1.1	0.71

* Mean±Standard Deviation (SD)

Table 2. Mean HbA1c levels of two groups in the pre and post-tests

Variable	Groups	Pre-test (Mean±SD)	Post-test (Mean±SD)	*P*-value
HbA1c (%)	Intervention (n=31)	7.83±1.32	7.47±1.32	<0.001
	Control (n=31)	7.71±1.11	7.72±1.24	

monitoring of blood glucose. Although the mean HbA1c level after applying self-management package in the intervention group was significantly lower than it in the control group, but it was higher than the normal amount recommended by the American Diabetes Association (ADA) (10); the short follow-up period (3 months) can be one of the reasons justifying this subject.

Studies show a decrease in HbA1c could have a considerable impact on reducing the complications of diabetes; about 1% decrease in HbA1cdecrease the relative risk for myocardial infarction 14%, microvascular complications by 37%, and diabetes-related deaths by 21%, (11). It is represented that diabetes self-management education improve level of HbA1c at short-time follow up, and education improve the effectiveness; But, the impact of education decreases 1-3 months after the intervention stop, suggesting that educated behaviors alter over time (12). American Diabetes Association suggests evaluation of self-management abilities and knowledge of diabetes at least once a year, and the provision or persuasion of continuous diabetes education (12). The American Association of Clinical Endocrinologists (AACE) Guideline emphasizes that all diabetic patients should receive comprehensive and continuing training in diabetes self-management abilities and nutrition therapy, and the educations should centralize on all aspects of diabetes self-management related to each patient's treatment program and advance behavioral alterations (13). Studies have shown that interventions which contained a cognitive reframing training method, face to face delivery, and exercise content were more probable to improve glycemic control (14). In addition, it is represented that most efficient behavioral interventions have a patient-centered approach (15). The Canadian Diabetes Association has established a guideline which expresses patients with diabetes mellitus must be supported in the skills of self-management, because their involvement in disease management is enormously essential for success. Patients with diabetes need education in goal setting, health monitoring and problem solving, which are necessary for self-management (15).

Conclusion

The main achievement of this study was increased awareness of the patients with diabetes. The good self-management program of diabetes will reduce HbA1c level and it will improve the general health, physical function, mental health, and quality of life. Therefore, given the positive results of this study and high prevalence of type 2 diabetes mellitus in Yazd, it is essential that appropriate planning and policies to be adopted.

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