

## EFFECT OF DISCHARGE PROGRAM ON SELF-EFFICACY OF PATIENTS WITH TYPE 2 DIABETES

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### ABSTRACT

Diabetes is a major public health problem. The nature of the disease and its complications cause heavy economic burden and reduce the quality of patients' lives. Since the discharge program causes the reduced length of hospital stay, lower costs, reduced readmission, continued care in the community, reduced mortality, mental health, patient satisfaction with care team members, improved outcome and a smooth healthy transition to home. Therefore, the purpose of this study is to evaluate the effect of discharge program on self-efficacy of patients with type 2 diabetes. This clinical trial was conducted on 70 patients with type 2 diabetes who were referred to endocrinology departments of Tehran University of Medical Sciences hospitals. Qualified patients were selected by convenient method and assigned to experimental and control groups. Discharge program was performed for the subjects in the experimental group. The program included two general admission time and telephone counseling during 8 weeks after discharge from the hospital. Data on demographic and disease was collected by DMSES questionnaire which its validity and reliability were assessed and approved to evaluate self-efficacy of patients. Data was analyzed using SPSS software by independent t-test, correlation coefficient and Chi-square ( $\alpha \leq 0.05$ ). Results showed that the discharge program significantly increased the mean self-efficacy in the experimental group. The independent t-test compared two groups at the time of discharge and after the discharge and found a significant difference in mean self-efficacy of experiment and control groups ( $P < 0.001$ ). Self-efficacy automatically improved by discharge program for patients with type 2 diabetes. Improved self-efficacy is essential for patients with chronic diseases; thus, it is recommended to perform the discharge program on other patients with chronic diseases.

**KEYWORDS:** discharge program, self-efficacy, type 2 diabetes

### INTRODUCTION

Diabetes is a major problem for public health which is now considered as one of the major public health (Padala et al (2008)) concern in the 21st century in developing and developed countries. Type 2 diabetes is the fifth leading cause of death in the world (Association (2014)). The nature of the disease and its complications cause heavy economic burden and reduce the quality of life of patients and their families (Van der Ven (2003)). Chronic course of the disease attacks the organs, gradually develops, and its symptoms manifest years later, leaving irreversible effects (Basit, Shera (2008)). Since Iran is one of the Asian countries in which the shift from traditional lifestyle to industrial one has increasingly grown in recent decades, the susceptibility to diabetes is very high in Iran (Larijani et al (2005)). In 2007, approximately 32% of the adult population living in Tehran suffered diabetes or some degrees of impaired glucose tolerance and about 40% of people were unaware of their disease (Hadaegh et al. (2005)). According to the latest statistics of the International Diabetes Federation (IDF) in 2011, more than 366 million people (3.8%) of adults worldwide currently suffer diabetes. If this trend continues, it is estimated that this number will exceed to more than 552 million people by 2030, 90% of which will be the type 2 diabetes. According to the report, the prevalence of diabetes has been reported as 9.33% in Iran (International Diabetes Federation (2011)). According to the World Health Organization (WHO), diabetes is a challenge in primary health care in the twenty-first century. The challenge is more serious in the Middle East (Esteghamati et al. (2008)). Increased public information about the symptoms, risk factors, complications, prevention, and early control is significantly related to increased general health, mortality, morbidity and the empowerment of labor (Yun et al. (2007)).

Discharge program is one of the major components of the health system in many countries. The purpose of discharge program is to reduce the length of hospital stay, costs, readmission, to continue care in the community, to reduce mortality, to improve mental health, patient satisfaction with care team members and outcome and a smooth healthy transition to home (Shepperd et al. (2013)). In similar studies in Iran, the level of public awareness of diabetes and its complications has not been ideal (Sharifabad, Tonekaboni (2009)). Studies show that education has a major role in raising awareness of diabetics and non-diabetics in the treatment of disease, attitude and behavior than before (Wellard et al. (2008)). meanwhile the discharge program is a key responsibility of nursing (Watts et al. (2005)).

In (2005), Lin et al found that the degree of patient satisfaction with discharge program rises, which can lead to higher quality of care and reduced hospital stay. In fact, they believe that the discharge program is designed for comfort and well-being of patients (Lin et al. (2005)). The patient is satisfied when his needs are met and he can comply with the status quo. In this case, the patient can be consistent to the world around him and partial problems cannot disrupt his balance. Thus, his balance will increase in the face of hardship (Kreitler, Peleg (2007)). Self-efficacy can be known as individual beliefs in abilities to perform certain behaviors in special circumstances (Perkins et al. (2009)). In other words, it is belief in personal ability to perform duties and responsibilities (Wu et al. (2013)). Therefore, efficiency refers to the sense of competence, efficiency and the ability to cope with life (Kreitler, Peleg (2007)). According to Bandura's theory, self-efficacy includes trust and confidence in one's ability to get things done well in order to achieve desired results (Marks, Allegrante (2005)). Self-efficacy is a valuable tool for nurses in health care centers. Evaluation of self-efficacy by nurses and its improvement increases patient incentives for self-care. Improved self-efficacy increases life expectancy and modifies health behaviors (Bentsen et al. (2010)). Self-efficacy on ability to perform activities is a significant predictor of patient behavior (Dishman et al. (2005)). Studies show that high self-efficacy of patients with type 2 diabetes is associated with diet control, cholesterol reduction, regular exercise, drugs or insulin injections and self-monitoring of blood glucose (Boyer, Paharia (2008)). Since diabetes is one of the socio-economic and health concerns worldwide as a controllable disease and due to the fact that patients and their families play the most important role in controlling diabetes and preventing its complications, it is essential to obtain information about diabetes by training in different ways. In Iran, several studies have been conducted in the field of training to diabetics; however, no research has been conducted in the field of discharge program for patients with diabetes. Considering the importance of discharge planning for patients with diabetes in endocrine wards, the need for a clinical trial seems necessary.

## **MATERIALS AND METHODS**

The present study was a clinical trial in two groups. The sampling was performed by convenient method. Therefore, the qualified patients with a diagnosis of type 2 diabetes admitted in endocrinology wards of Tehran University of Medical Sciences hospitals were taken informed consent as samples. The study included two groups of experiment and control; to allocate samples to the experiment and control group, the control group was first sampled from any hospital; then, the experiment samples were enrolled. The control group only received routine trainings of that health care center. For the experiment group, the discharge program (starting from the first day of admission which is the best time to start training) was performed by identifying training requirements of patients by assessment form, face-to-face training, pamphlets and educational contacts, and follow-up and by responding to questions of patients for 8 weeks after hospital discharge. Training programs were considered by needs of patients in treatment with insulin, glycemic control (and symptoms of hypoglycemia and hyperglycemia), diet, exercise, foot care for diabetics to control diabetes. The individual training program was performed for patients in groups of 2 or 3 people during second, third and fourth days of hospitalization, for 30 to 45 minutes face-to-face.

Self-efficacy of samples was evaluated using a DMSES questionnaire. This questionnaire was developed by a research team in Australia to evaluate self-efficacy behaviors in diabetics (reliability 0.93 by Cronbach's alpha). Several countries including England, America and China have used this questionnaire (Van der Ven et al. (2003)). In Iran, this tool was translated into Farsi by Sarvestani. By cross-cultural adaptation and validation, the questionnaire was used. Content and formal validity was confirmed by a panel of experts and its reliability was estimated using Cronbach's alpha (0.84) (Sabet Sarvestani, Hadian Shirazi (2009)). The questionnaire contains 20 questions scored based on a Likert scale in for items including diet (9 questions), measured blood glucose (4 questions), physical activity and weight control (4 questions) and medical care (3 questions). The responses range from zero to ten (zero represents "do not know" and ten indicates "I am quite capable of doing"). The total score is 200 and higher number indicates higher self-efficacy. By introduction, expression of goals, attraction of satisfaction and participation of respondents, the researcher analyzed the completed questionnaires on three occasions, before the discharge program, at the time of discharge and after the discharge program using SPSS software. The t-test correlation test was used for the study.

## **RESULTS**

The study involved 70 patients with diabetes. The results related to demographic characteristics of samples, including type 2 diabetic patients, found no significant difference between intervention and control groups in terms of personal characteristics. The results related to exercise and the number of exercise, participation in training programs, source of

information, diagnosis time, detection of disease, medications and complications showed that most of the subjects had no exercise program or 3 to 5 times a week. Most of them did not participate in training programs. The time of diagnosis was 5 to 10 years and the disease was often discovered accidentally. The majority of subjects received glibenclamide tablets and mixed insulin. They did not take herbal medicines. Most of them had a high blood pressure. Given the homogeneity of demographic variables and disease, the results can be attributed to the effect of intervention. Therefore, the results can be generalized. According to results, mean self-efficacy was 151.086 for experimental group and 98.28 for control group at the time of discharge. Variations are evident in self-efficacy of patients in two groups compared to the time before the program, while there is a significant difference in experiment group. The result of paired t-test to compare two experiment and control groups show a significant difference in self-efficacy of experiment patients at the time before the discharge program and at the time of discharge. In addition, there is a significant difference in self-efficacy of experiment group at the time of discharge and after the discharge program (8 weeks after the discharge). Table 1 presents the result.

**Table 1: Self-efficacy of patients with type 2 diabetes in experiment and control groups before, at the time and after the discharge**

Group	Experiment		Control		t-test result
Index Group	Mean score of self-efficacy	Standard deviation	Mean score of self-efficacy	Standard deviation	
Before training	88.97	33.63	91.71	32.29	T = - 0.348 df = 68 P = 0.729
Discharge time	151.86	22.06	98.28	29.93	T = 8.52 df = 68 P = 0.000
After the discharge	167.60	19.08	98.48	29.71	T = 11.57 df = 68 P = 0.000

## DISCUSSION

According to results, mean self-efficacy was 151.086 for the experiment group and 98.28 for the control group at the time of discharge. Although the self-efficacy increased in patients of both groups, there is a significant difference in the experimental group. The result of paired t-test to compare two groups of control and experiment shows a significant difference in self-efficacy of experiment patients at the time of discharge. Studying patients with type 2 diabetes in 17 primary care clinics in Japan, Inoue et al (2013) found a positive relationship between the level of critical knowledge and perceived diabetes and self-efficacy. Edraki et al (2013) evaluated the effect of training program on quality of life and self-efficacy of mothers of children with congenital heart disease. They showed that proper training to mothers of children with congenital heart disease increased quality of life ( $F = 59.91$ ,  $P < .0001$ ) and self-efficacy ( $F = 114.11$ ,  $P < .0001$ ). Sadeghi et al (1392) measured the effects of discharge program based on the quality of life in school-age children with congenital heart disease who underwent surgery. They showed that the mean scores of quality of life were similar in both experimental and control groups ( $p > 0.05$ ) before the intervention. However, there was a significant difference after the discharge program in scores of quality of life between the experiment and control groups ( $p < 0.05$ ). In addition, the mean self-efficacy was 167.60 for experiment group and 98.48 for control group after the discharge, which was significantly different from the experiment group at the time of discharge. The result of paired t-test to compare two groups at the end of discharge indicates a significant difference between the experimental and control group in self-efficacy. Hertzog (2006) studied elderly underwent coronary artery bypass in Lincoln and showed that telephone counseling and home visits significantly improved physical function of subjects in the intervention group compared with the control group ( $p = 0.01$ ). According to Barnason et al, follow-up care of surgery patients after discharge from the hospital significantly influenced the prevention of problems due to the lack of information on patients. Yen-Fan Chin, Tzu-Ting Huang and Brend Ray-Sea Hsu (2012) showed that diabetic foot care dramatically increased self-efficacy. According to Miller et al, home visits and telephone counseling after discharge significantly

influenced physical, psychological and social functions. As evidenced, the above results are consistent with the present study. According to the findings, discharge program seems to be effective on self-efficacy of intervention group.

## CONCLUSION

Analysis of the findings show that the experimental and control groups are homogeneous in demographic characteristics, exercise program and the number of exercise, participation in training programs, source of information, diagnosis time, detection of disease, medications, and complications before the intervention.

Comparison of pre-intervention self-efficacy showed no significant relationship between two groups (experiment:  $p = 88.97$ ; control:  $p = 91.71$ ); both groups were matched for pre-intervention self-efficacy. Comparison of self-efficacy in experiment group shows that the discharge program significantly increased self-efficacy at the time of admission and 8 weeks follow-up after discharge. Therefore, the discharge program increases self-efficacy of patients with type 2 diabetes.

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