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# Effects of educational intervention based on PRECEDE model on self care behaviors and control in patients with type 2 diabetes in 2012

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## Abstract

**Background:** Diabetes is a chronic disease and its control requires essential change in patients' life style. The aim of this study was survey of effects of educational intervention based on PRECEDE Model on self care behaviors and control in patients with type 2 diabetes.

**Methods:** This was a quasi-experimental study carried out in 78 patients with type 2 diabetes who have referred to Minoodasht clinic of diabetes. The educational program has been designed according to the PRECEDE Model. Prior to perform the educational intervention, the patients filled a questionnaire which was designed according to the structure of PRECEDE Model for type 2 diabetes patients. The diabetes education program was performed on three target groups (patients, their families and Health care personnel). After four weeks, the effects of the educational program have been evaluated through the same questionnaire. The findings were analyzed by SPSS version 16 and p-value less than 0.05 was taken as statistically significant.

**Results:** The mean age of participants was 49 years, 87.2% were married and 19.2% was illiterate. The rate of income of 44.9% was low. 66% had a family history of diabetes and 64% had been afflicted with diabetes more than 5 years. The Chi-square test showed a significant relationship between formation of a file in diabetes clinic and on-time presence to receive services and participation in the educational classes with the marital status variable. The results also showed that there is a significant relationship between observing food diet and job. The mean scores of knowledge, attitude, practice, reinforcing factors and enabling factors has increased after educational intervention. The Chi-square test shows a significant difference before and after of education intervention in stages of the model.

**Conclusion:** The obtained results based on PRECEDE Model would support the positive effect of the educational intervention and its major elements (predisposing, enabling and reinforcing factors) on diabetes self-care behaviors.

**Keywords:** Educational intervention, PRECEDE Model, Self-care, Type 2 diabetes

## Introduction

Diabetes is a prevalent disease which can lead to metabolism disorders, health problems and chronic consequences including diseases of kidney, heart, blood vessels, vision and etc., which are created both as a result of genetics and environmental behavioral factors [1].

In recent decades, the number of individuals afflicted with diabetes is increasing rapidly, the spread of diabetes of type 2 will increase from 171 millions people in 2000 to 366 millions people in 2030 [2]. In general, the results related to outcomes and control of diabetes has proved that a well metabolic control and sufficient education can improve the clinical outcome of people with diabetes [3].

According to WHO, education is the base and infrastructure of diabetes treatment. The key purpose of diabetes education is to change the behavior of individuals and promotion of self-care [4]. In recent decades, various

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studies have shown that education of patients is accompanied with the reduction of chronic consequence of diabetes [5].

The models of planning provide a framework for the health trainers to produce a program. At present, one the most famous and applied applicable theory is The PRECEDE<sup>a</sup> model. In a first look, The PRECEDE model seems to be very complex, but having it examined closely, it will be learned that there is a very logic sequence in the 9 mentioned phases and will cause the design of the planning process for the health promotion. The PROCEED model starts with end results and moves in the back direction to reach the causes [6].

This model shows that how the social diagnosis, epidemiology and behavior lead to a clear understanding of the society individuals' needs, problems and desires. It also examines those groups of behavioral factors which have a close link with health and specifies the pre-behaviors or factors affecting the behavior in educational diagnosis such as predisposing factors (knowledge, attitude, etc.), reinforcing factors (impacts of others, family, peer groups, etc.) and enabling factors (accessibility of resources, skills, etc.) [7,8].

Unfortunately, the education of patient is given less importance as compared with other clinical actions and in most cases [9]. It should be taken into consideration that the use of theory will increase the effect of educational program and help with the identification of individuals' features and their surrounding environments which have impact on behaviors in one way or another [10].

Considering the fact that the promotion of self-care behaviors by diabetic patients are under the influence of different sources and any kind of action to its increase should be made with regard to individual, environmental and social factors, also taking into consideration that the framework of PERCEED model examines effective individual and environmental factors on a problem, so the framework of this comprehensive model was used to promote the diabetic patients' self-care behaviors.

The effective application of this model has been proved in various health subjects. For instance, Jalili could show that educational programs based on The PRECEDE model has had a greater effects in the correction of mothers' nutritional behaviors and their children' blood indexes as compared with classic education and prescription of supplementary iron [11]. Also, the framework of PRECEDE model was used to diagnosis the obstacles of screening the women's Cervix cancer [12].

This research has been conducted in Iran due to the increase of the statistics of diabetes and the lack of a written educational plan based on educational and behavioral models and theories with an aim to plan based on PRECEDE model and its impact on the promotion of self-care behaviors of the patients with diabetes type 2 to improve their quality of life.

## Methods

This study was performed through following stages:

At the stage of social diagnosis, the patients' quality of life was determined based on the questionnaires of WHO. Moreover, it was conducted based on the data collected from the quality of life questionnaire and previous researches on this area, primary feasibility studies to intervene based on the identification of patients. Afterwards, the social problems which had a negative impact on the diabetic patients' quality of life were specified.

At the stage of epidemiologic diagnosis, the patients' health problems were determined with regard to a review of the texts and findings of the interview with patients and also the primary studies made by the researcher on patients (lack of self-care skills). At this stage, the general goals and exclusive objectives of educational program were compiled.

Reviewing the texts and findings of the interview with patients, the lack of self-care skill included: the lack of control of blood sugar, blood fat, blood pressure and weight through inappropriate nutritional diet and the lack of physical activities, sport and quit of cigarette smoking.

The variables of age, gender, income, academic level, job, body mass index, (BMI) duration of affliction with disease and genetics were considered as the non-health factors affecting the diabetic patients quality of life.

At the stage of behavioral diagnosis, the behaviors classification has been made on the basis of importance. Finally, certain behaviors, such as consumption of prescribed medicine by physician, control of blood sugar, fats, blood pressure and observing food diet, exercise, formation of file in diabetes clinic and on-time presence in educational classes, were determined as behavioral factors affecting health problems. Also, age, gender, genetic potential and lack of facilities to do exercise, lack of observing food diet and lack of free-of-charge facilities to measure blood sugar, fat and blood pressure were determined as effective non-behavioral factors.

At the stage of educational diagnosis, the predisposing, enabling and reinforcing factors were reviewed. Reviewing the primary studies by the researcher, the knowledge, attitude, belief and values were selected as predisposing factors to conduct self-care behaviors. The enabling factors of self-care behaviors included sufficient skill to control diseases of (sugar diabetes, blood pressure–weight) and having resources, educational classes and family support. The reinforcing factors including the positive experiences of patients, family encourage and involved staffs were determined in the research.

With regard to these stages, the standard and self-made questionnaires were prepared. After preparing the related questionnaire, 78 patients referring to the Diabetes Clinic of Miniodasht City (Golestan province) were studied. The sample volume with regard to the conducted research