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# Evaluation of the Effect of Empowerment Model on Self-Efficacy and Self-Esteem among Diabetic Patients: A Randomized Control Trial Study

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## Abstract

***Background:*** *Improvement and enhancement level of psychological aspects of patients is important in the control of chronic diseases, especially in diabetes. This study aimed to determine the influence of empowerment model on self-efficacy and self-esteem in patients with diabetes.*
***Methods:*** *This study was a clinical trial comprising 103 patients with diabetes, which were randomly divided into experimental and control groups. Empowerment model was considered for the experimental group and routine education was considered for the control group. Applied research tools consisted of demographic data, standardized questionnaire of self-efficacy, and Coppersmith's self-esteem questionnaire.*
***Results:*** *Before intervention, the two groups were not significantly different in the demographic variables, self-efficacy, and self-esteem scores. There was a significant difference between self-efficacy and self-esteem mean scores of patients, after intervention of the experimental group. Moreover, by using the paired t-test, before and after the intervention, the difference in mean scores of the experimental group was significant.*
***Conclusions:*** *Based on the obtained results, empowerment model has been effective on self-efficacy and self-esteem of diabetes patients. Therefore, empowerment based education planning for diabetic patients is recommended.*

**Keywords:** Empowerment model, Self-efficacy, Self-esteem, Diabetes.
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# Introduction

Recently, the provision of nursing based on empowerment approach is a necessity of health units.[1] Empowerment is a familiar concept in various contexts of medical sciences that has a root in social performance ideology and self-help approach in 1960s.[2] Empowerment principles contains capability in problem solving, self reliance and creating self confidence; as empowerment is the main element in enhancement of community health.[3] Kiffer (1984) believed empowerment has more emphasis on solution than problem and representing power, rights and abilities. He asserts that empowerment as evolutional and time consuming process that leads to grow participatory skill.[4] Faulkner (2001) linked empowerment by learning as much as dominate and independence and stated empowerment as antithesis of disability.[5] So empowerment is effective concept in education, management, practice and nursing research[6] which leads to

improve self-care and the role of nurses in facilitating the patient's empowerment process is undeniable.[2]

Empowerment model is a new approach in order to adapt to the rapidly changing paradigm in diabetes care. This model has been tied with clinical components with psychosocial and behavioral components in self-management education. This approach recognizes the true nature of diabetes experiences and knows health professionals as reliable sources and advisers. This approach aims to compile information related to diabetes and self-management skills. Moreover, it insists on patients' self-awareness besides their values, beliefs, needs, and goals. Patients can trust their instincts to control their decisions, behavior, and actions. Proponents of empowerment model presumes that empowerment due to influential behavior and by using personal and social resources promotes health.[7]

Generally Practical measure to increase a patient's ability to monitor the health of family through the promotion of self-efficacy and self esteem is important.[8] Self-efficacy and self esteem are causal mechanism of health promotion and Studies have shown Setting these two indicators in adjustment of empowerment in health-related behaviors such as weight loss is effective.[9] The study was conducted by Clari and colleagues (2009), self-efficacy and self esteem as two important problems in the ability of patients with chronic diseases were known.[10]

Self-efficacy is the belief and confidence of especial successful treatment that person by doing that has expect a favorable results and is one of the most widely used concept inHuman Sciences Research Which was first introduced by Albert Bandura.[11] According to Bandura, whether or not the sense of efficacy can make a threatening situation into an opportunity and adjust his reactions rather than events that are leading to anxiety.[12] Self-efficacy is the ability to create a desired effect and is defined as understanding or judgement of a person about the ability to perform a certain action successfully by controlling the surrounding factors. People with high self-efficacy, usually consider difficult tasks as challenges to deal with and do not avoid them;[13] Such an effective view leads to the achievement of human goals, reducing stress and increasing the control of individuals over their living conditions Self-confidence can boost one's self-efficacy. Self-efficacy plays an important role in inhibition as well as generalizing and maintaining adaptive behaviors.[14] In general, improving an individual's self-efficacy leads to increased self-esteem.[15] Self-esteem is person's experience of being competent to adapt to life conflict and deserve happiness, a concept that is essential for efficacy.[16] Self-confidence or self esteem is the ratification,

confirmation, acceptance and value that person feels about himself. This feeling may be compared with others or independent of them. Self esteem and self-efficacyare two basic components to learning which are interrelated and complementary.[17] Results of a study by Chia–Huei (2009) showed that severe stress associated with long-term illnesses can significantly reduce patients' self-esteem.[18] Also various studies have found that educational programs can enhance self efficacy in diabetes patients.[19,20]

Due to the lack of studies in this field and On the other hand weakness of traditional teaching in regard to the active role and participation of patients in treatment and care, Empowerment as an effective training method can be effective in patients with diabetes.

So, according to what was said and the lack of studies in this field, current study aimed to determine the effect of empowerment on self-efficacy and self esteem was conducted on diabetic patients.

## Materials and Methods

This paper is part of a clinical trial study investigating the effect of empowerment model on self-efficacy and self-esteem of diabetic patients. The effect of this model on metabolic control of diabetic patients has already been published,[21] and in the present study we examined the effect of empowerment on the following components of his collection.

The study population consists of patients with type II diabetes and inclusion criteria were: age above 18 years, the definitive diagnosis of diabetes and having a file in diabetes center, the willingness of patients to participate in research, having no specific mental illness, and the ability to participate in training programs. Imam Hussein Hospital Diabetes Center in Shahroud, due to the ease of access to data, has been selected as the research environment. Permission from the relevant authorities, introduction and explanation of the purpose and importance of research to patients, getting testimonial, and finally reassuring confidentiality to the patients about their personal information, were the ethical considerations in this research.

Applied tools in this research consisted of demographic data collection form and information about disease (22 questions), standard self-efficacy questionnaire DES-SE, and Smith's 35 questions self-esteem measurement questionnaire. HbA1C test for random allocation of patients was performed based on the patients in block stratification, in both control and test groups.

Self-efficacy measurement derived from the DES-SF standard questionnaire that included eight items on a 5-point Likert scale, ranging from "stongly agree" to "strongly disagree" 22. A higher score indicates higher self-efficacy in patients; despite being standard, the reliability of self-efficacy questionnaire was calculated through Cronbach's alpha and was found to be 0.84.

Validity and reliability of Cooper Smith's standard adult measurement of self-esteem in different studies have been calculated.[23] Reliability of the questionnaire using Cronbach's

alpha was 0.89. The questionnaire included 35 questions based on the Likert scale. A score of 25–100 indicated higher self-esteem in these patients, level score of 25–50 indicated low self-esteem, 51–75 indicated an average self-esteem, and 76–100 indicated high self-esteem.

All subjects of the study were informed about the purpose of the study and signed the informed consent form. Moreover, this study was approved by the Ethics Committee of Shahroud University of Medical Sciences with a Code 920.02.

After completing the questionnaire and random allocation of patients, the requirements and weakness of patients were identified; accordingly, the empowerment training program was designed and implemented. In this research, pre- and posttest were used, indicating that patients in the control group only received the routine training, whereas the test group was trained with the empowerment model. The diabetic patients, with cooperation and consultation from a specialist and a dietitian, were treated in four stages including medication, diet, exercise and foot care, based on the template (understanding the threat, problem solving, and evaluation); this indicates that in the first stage (understanding the threat), department meetings were held on two separate days in order to sensitize and raise the level of patient information. After a week, the second stage (problem solving) group discussion sessions were held in groups of six to eight.

In these sessions, the patients discussed their problems and solutions under the supervision of a researcher; moreover, they also received training for the required practical skills. The third stage (evaluation) was carried out in two ways including the process and the final. After 3 months again the self-efficacy and self-esteem were measured individually. To analyze the data, chi-square test, t-test, and independent t-test were used.

## Results

Table 1 indicates homogeneity of the research units in both control and test groups in terms of individual specifications (Table 1).

**Table1. Descriptive characteristics of the patients with type 2 diabetes**

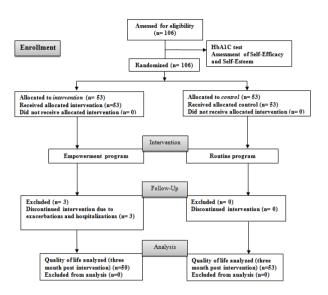| Variable | Mean ± SD or N (%) | | P.V |
| --- | --- | --- | --- |
| | Control | Intervention | |
| Age (y) | 48.15 ± 6.52 | 46.94 ± 5.53 | *0.18 |
| Sex | | | |
| - Male | 20 (37.7%) | 23 (46%) | **0.19 |
| - Female | 33 (62.3%) | 27 (54%) | |
| Educational status | | | |
| - Primary | 34 (64.2%) | 33 (66%) | |
| - Middle school | 13 (24.5%) | 10 (20%) | **0.76 |
| - Diploma and higher | 6 (11.3%) | 7 (14%) | |
| Occupational status | | | |
| - Unemployed Retired | 10 (18.9%) | 14 (28%) | |
| - Employed | 14 (26.4%) | 9 (18%) | **0.34 |
| - Housewife | 29 (54.7%) | 27 (54%) | |
| Marital status | | | |
| - Married | 44 (83%) | 36 (72%) | **0.69 |
| - Single | 9 (17%) | 14 (28%) | |
| Disease history(y) | | | |
| - <5 | 16 (30.2%) | 13 (26%) | |
| - 5—10 | 28 (52.8%) | 26 (52%) | **0.62 |
| - >10 | 9 (17%) | 11 (22%) | |

*one-way ANOVA, **chi-square test

**Figure 1.** The process of study design

## Discussion

Applying the empowerment model caused the mean values of self-efficacy and self-esteem in the experimental group test to increase after the intervention, when compared to the mean values before the intervention; these differences were statistically significant. Attention to concepts such as patient empowerment to improve the intervention results in the area of chronic diabetic patients is inevitable; alternatively, an approach shift in education of in-service training of those involved in the field of education of diabetic patients in the area of health is essential.[24] The results showed that the self-efficacy in patients in the control group has not changed; however, with the implementation of empowerment model in the test group, the patients' average self-efficacy score significantly increased. In a study by Anderson et al. (1995), implementation of the empowerment model improved the self-efficacy in diabetic patients.[25] Besides these results, Shi et al. showed in their study that intervention based on efficacy pattern and strategies of diabetes education caused statistical significant changes in the self-efficacy of diabetic patients in the intervention and control groups.[26] Education based on empowerment has shown its impact on the psychological aspects of self-care in diabetic patients. Clary (2009), in his study, concluded that proper care with the aim of empowering patients can increase their motivation to manage their disease, increase their efficacy, and improve their quality of life.[27] A controlled clinical trial by Funnel et al. (2008) states that empowering patients with educational programs based on empowerment and self-efficacy impacts the outlook of people with diabetes toward their disease.[28] Pibernick et al. (2004) concluded that the empowerment model improves efficacy in patients with diabetes through enhanced quality of life.[29] Another study also states that the empowerment model had positive psychological effect on diabetic patients and increased the patients' efficacy in the intervention group.[23] Zamanzade et al., in their research, also revealed similar results.[30] Alternatively, self-esteem of patients in the present research was reported at a low level. Besides this research, Harcrider et al. (2007) also showed that chronic diseases were associated with low self-esteem.[31]

Furthermore, the present study showed that patients' self-esteem in the control group did not change; however, empowerment implementation in the test group increased the self-esteem scores of patients. Similarly, a study by Heidari et al. (2007) showed that applying empowerment model on diabetic teenager cause significant increase in the average self-esteem of patients in test group.[32]

Regarding the results of this study and the desired effects of implementation of empowerment model on self-efficacy and self-esteem of patients, it seems using this template provides appropriate areas to improve health condition of diabetic patients with increasing self-efficacy and self-esteem. More similar interventions are required to investigate the influence of this model on other health-related factors.

Limitation of this study includes = difference in knowledge level, previous experience, psychological specifications, and emotional and cultural status of patients that naturally could be effective on their learning. However, these differences was

Considering the efficacy in patients before intervention, independent t-test results did not show statistically significant differences in the mean self-efficacy of research units in both control and test groups; however, after the intervention, the difference was statistically significant. Moreover, there was a significant difference in the average self-efficacy score before and after the intervention in the case group but there was no significant difference in self-efficacy scores in the control group (Table 2).

**Table 2. Comparisons of mean self-efficacy in diabetes patients in the control and experimental groups before and after intervention**

| Indicator groups | Self-efficacy (Mean ± SD) | | P.V[*] |
|---|---|---|---|
| | Before | After | |
| Control | 13.75±2.69 | 14.76±2.76 | 0.350 |
| Experiment | 14.72±2.64 | 16.78±3.95 | 0.003 |
| P.V[**] | 0.429 | 0.001 | |

*paired samples test, **independent samples test

Alternatively, the results showed that the average self-esteem of patients in both control and test groups are at low levels. The findings also showed that there was no significant difference in the self-esteem scores in the control group before and after intervention; however, in the case group, there was a significant difference in the average self-esteem score. Furthermore, a comparison between the control and intervention groups before intervention by independent t-test shows that there was no significant difference in self-esteem before intervention, but there was a statistically significant difference between the two groups after intervention (Table 3).

**Table 3. Comparisons of mean self-esteem in diabetes patients in the control and experimental groups before and after intervention**

| Indicator groups | Self-esteem (Mean ± SD) | | P.V[*] |
|---|---|---|---|
| | Before | After | |
| Control | 40.72±9.44 | 43.65±9.55 | 0.581 |
| Experiment | 42.94±9.48 | 49.50±9.30 | 0.004 |
| P.V[**] | 0.528 | 0.001 | |

*paired samples test, **independent samples test

tried to be minimized by random allocation of cases based on metabolic control.

## Conflict of Interest

The authors declare that they have no conflict of interest.

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