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# THE EFFECT OF DIABETIC PATIENT EMPOWERMENT PROGRAM BASED ON ACTIVELY CARING

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## ABSTRACT

The aim of the study was to detemine the effectiveness of a randomized clinical trial of a patient empowerment program based on patient adherence. The sample population consisted of 40 patients who visited a diabetic outpatient clinic.The patients were randomly assigned to the study group (n=20) and the control group (n=20). An empowerment program based on active care was implemented with the study group and the result was statistically analyzed. The mean increase in the SCI score in the study group post-intervention is greater than that of the control group. The mean decrease in HbA1c measurements post-intervention was greater in the study group (1,63) than in the control group (1,14). This difference in the mean decrease of HbA1c scores was not statistically significant, perhaps due to the small sample size. This study supports the view that the patient empowerment program improved patient adherence. A similar study with a larger sample may be warranted to further the effect of such an intervention on patient adherence and blood glucose levels.

***Keywords:*** *Clinical Trial, Diabetes Mellitus, HbA1c Score, Patient Adherence, SCI Score*

## INTRODUCTION

Diabetes mellitus (DM) is a chronic disease caused due to insulin deficiency or diminished body's response to it. This causes elevation of blood glucose levels, which in turn may negatively affect various organ systems. The long term complications of the disease and the resulting costly hospitalizations, are often due to the patients' failure to adhere to the treatment regime (Dunning, 2003; Rowley, 2008). There are two types of DM identified: Type 1, Insulin Dependent DM and Type 2, Non Insulin dependent DM (Dunning, 2003; Soegondo, Soewondo and Subekti, 2003).

In the present scenario Diabetes Mellitus cannot be cured, but blood glucose levels can be controlled within normal limits. The burdens associated with the psychosocial problems contribute to psycho social problems including patient anger, anxiety, difficulty in adjusting to the diagnosis, lack of knowledge, fear and depression (Nute, 2004). In order to achieve good control of blood glucose levels, patients with diabetes are expected to adhere to their medical regimen including diets, exercises, regular medical check-ups and take prescribed drug treatments (Schechter and Walker, 2002; Rowley, 2008). Many patients do not achieve good control of their blood glucose levels and continue to suffer ill health related to non-adherence to diabetic treatment regimens (Ott *et al*., 2000; Bartels, 2004). One study on patients with Type 2 Diabetes revealed that only 25% adhere to prescribed drug treatments and only 30% adhere to dietary supplements (Sobhana, *et al*., 1999).

Several approaches have been used in an effort to improve adherence. Good adherence improves the effectiveness of interventions, promotes health, and improves patients' quality of life and life expectancy (Williams, 2001). Although patient education programs and interventions provided by health professionals have been shown to be effective, these approaches are frequently difficult to implement (Bartels, 2004). It seems that increased knowledge about diabetes and its consequences do not improve self-care and result in better control of HbA1c levels (Rowley, 2008). To improve adherence, the patient needs to be informed along with proper motivation and encouragement to adhere to treatment and pursue lifestyle related goals (International Council of Nurses, 2008). Patient empowerment has emerged in recent years as a new philosophy of patient care, with the aim of improving adherence. The patient is empowered to use the capacity for action, energy and accomplishment, rather than be controlled by others (Funnel and Anderson, 2000; Mok, Mantinson and Wong, 2004) Patient empowerment also means that the patient is educated enough to enable good healthcare decision-making to accept the doctor's decision, manage the affects of the disease on their roles in life and to manage the emotional impact of the disease (Nute, 2004; Santurri, 2008).

The role of nurses in empowering diabetic patients is considered one of the most important factors in helping patients to achieve the therapeutic goals. According to caring theory, patient is the pivotal concern, so the nurse should facilitate the patient, setting the therapy goals and achieving the desired outcomes (Alligood and Tomay, 2006). The nurse can empower the patient through active caring. Active care means enabling others to actively care for something (Geller, 2008). Nurses can facilitate patients to actively care for their health. To do this, nurses will help patients to develop their vision for their own health, set their own goals, identify the behaviours they need to embrace, to achieve these goals and to identify for themselves the consequences that could follow from either changing or not changing their behaviours. There are five aspects of personality that influence one's propensity for active care (Geller, 2008; Issel, and Kahn, 1998).

a) Self esteem ("I am valuable"): One's self concept or feeling of worth is the central theme of most humanistic therapies. The prime goal of many humanistic therapies is to help a person increase self esteem. Self esteem could be enhanced by increased acknowledgement, recognition and praise for individual effort and accomplishment.

b) Self Efficacy: Self efficacy involves the idea that "I can do it". This is the key factor in social learning theory, determining whether a therapeutic intervention will succeed in the long term. Self efficacy could be enhanced by focusing on the positive aspects of a person or providing small tasks that person could initially achieve. This is followed by a series of other tasks that build on each other towards achievement of the end goal. Each step is then perceived as achievable, with the goal achieved by dividing the task into achievable steps.

c) Personal Control : Personal control is the sense that "I'm in control". Those with an internal locus of contol, believe that they have direct control over life events as a results of their knowledge, skills and abilities. Such people will believe that they are the captains of their own lives' ships. Personal control could be enhanced by asking someone to set short term goals and then tracking progress toward long term accomplishment by providing people with time and resources to develop, implement and evaluate interventions.

d) Optimism: Optimism is reflected in the statement, "I expect the best". Optimism is positively related to achievement. Fullfiling an optimistic prophecy can enhance personal control, self efficacy and even self esteem. To be optimistic, a person must think positively about their mode of action.

e) Sense of belonging: The sense of belonging is built in families, where interpersonal connections are initially developed. To enhance the sense of belonging, each member of the family needs to pay attention to and to care for each other.

The role of health care providers, including nurses, in empowering patients through active caring has not yet been fully developed. The purpose of this study was to determine the effect of patient empowerment based on the active caring program to enhance patient adherence.

## METHODS

### Sample

The study used a designed randomised clinical trial. It was conducted in the outpatient clinic for diabetic patients in three hospitals in Jakarta. The eligibility criteria were that participants must be registered in the outpatient clinic, have suffered from diabetic type 2 at

least for two years, be undergoing medical treatment, be able to read and to write and be capable of giving informed consent. Patients were randomly assigned to the study group (n=20) or the control group (n=20).

**Measurement and Data Collection**

Data were collected using the self care inventory (SCI) (La Greca *et al.*,1992) and the glycosylated hemoglobin (HbA1c) scores from laboratory examinations. HbA1c is a marker of evaluation of long term glycemic control in diabetic patients that predicts risks of development and progression of diabetic complications (Gaud *et al*., 2011). The normal score for HbA1c in Indonesia is < 6.5% (Soegondo et al., 2003) The demographic characteristics of the patient were collected in a particular pattern. The reaserchers collected baseline data for SCI and HbA1c scores at the first meeting with the patients in both groups. The empowerment program based on active caring was provided by the researchers to the patient in the study group. The researchers met with each patient individually four times for about forty-five minutes over a period of three months.

**Intervention**

The program was provided using a book called a "Patient Daily Record". Each patient was required to read and follow the instructions. In the book, the patients wrote about their visions, their set goals, the behaviours they must perform and the consequences that might follow if they did not perform those identified behaviours. Along with that, there were sentences to be read by the patients relating to five aspects of personality relevant to active caring. These were self esteem, self efficacy, personal control, optimism and sense of belonging.

At the start of the programme, the researchers acquainted themself with the patients in the study group and initiated a trusting reletionships with them. The researchers explained the programme, and made a contract with each of the participants. During the individual interviews, positive supportive responses provided by the researchers fascilitated continuing development of trusting reletionships. For each meeting, the interactions were also based on information the patients wrote in their books.

**Ethical Consideration**

The study protocol was approved by the Ethical Committee of the Faculty of Nursing, University of Indonesia. Clients were provided with information about the study and signed the informed consent form.

**Data Analysis**

Characteristics of the patient, including age, education and HbA1c score were analyzed with univariate methods using frequency distributions. The effect of the empowerment program on HbA1c and SCI scores were analyzed using paired *t*-tests. *P* values< 0.05 were considered statistically significant.

## RESULTS

Demographic characteristics of respondents for intervention and control groups could be seen in Table 1 below. Both groups were equal in term of age and level of education. The age variable was divided into categories, namely: young adults (⩽ 40 years), middle aged adults and above (>40 years). The level of education variable also was divided into two categories, namely: ⩽primary school and ⩾high school.

***Table 1. The demographic characteristics of the study group and the control group***

| Demographic Characteristic | Study Group (n=20) | | Control Group (n=20) | | *p* |
|---|---|---|---|---|---|
| | N | % | N | % | |
| Age | | | | | |
| ⩽ 40 years | 1 | 25 | 3 | 75 | 0,302 |
| ⩾ 40 years | 19 | 52,8 | 17 | 47,2 | |
| Education | | | | | |
| ⩽ Primary School | 14 | 58,3 | 10 | 41,7 | 0,333 |
| ⩾ High School | 6 | 37,5 | 10 | 62,5 | |

Scores of respondents in the study and control groups for HbA1c before the program could be seen in Table 2 below. Both groups were equal in terms of HbA1 scores before undertaking the empowerment program ($p = 0,107$)

***Table 2. The mean score of HbA1c of the study and control group before the programme***

| Groups | HbA1c mean score | *P* |
|---|---|---|
| Study | 9,29 | 0,107 |
| Control | 8,92 | |

## The influence of empowerment program on SCI score.

It was found that the SCI scores before and after the program increased significantly in both the study group ($p<0.05$) and the control group (0<0.05), as shown in Table 3 below.

***Tabel 3. SCI mean score before and after the program in study and control group***

| *Groups* | HbA1c (%) | | *p* |
|---|---|---|---|
| | Before | After | |
| Study | 3,53 ± 0,51 | 4,36 ± 0,42 | 0,000 |
| Control | 3,53 ± 0,57 | 3,95 ± 0,58 | 0,000 |

The mean difference in increasing SCI scores between the study group and control group was statistically significant ($p<0.05$), which could be seen in Table 4 below.

***Tabel 4. Mean difference of increasing SCI score of the study and control group***

| Groups | SCI | *P* |
|---|---|---|
| Study | 0,83 ± 0,63 | 0,02 |
| Control | 0,42 ± 0,41 | – |

## The effect of patient empowerment program on the HbA1c score.

It was found that the mean scores of HbA1c decreasing significantly after the program for both the study group and the control group, as shown in Table 5 below.

***Table 5. HbA1c mean score before and after the program in study and control groups***

| Groups | HbA1c (%) | | *p* |
|---|---|---|---|
| | Before | After | |
| Study | 9,29 ± 1,86 | 7,67 ± 1,32 | 0,005 |
| Control | 8,92 ± 1,38 | 7,77 ± 1,26 | 0,002 |

In Table 6 below the mean difference in decreasing HbA1c scores in the study group was higher than in control group. The difference between the mean decreases in HbA1c scores in the study group and those in the control group were not significant ($p>0,05$). This may have been due to the small sample size.

***Tabel 6. The mean difference of HbA1c score in study and control group.***

| Groups | HbA1c | *p* |
|---|---|---|
| Study | 1,63 ± 2,03 | 0,396 |
| Control | 1,14 ± 1,45 | – |

## DISCUSSION

This study has limitations which must be acknowledged. The criteria by which it was decided that patients had been empowered were based only on frequency of meetings and the completion of daily patient records. These criteria are arbitrary and subjective. Another limitation was that the number of the respondents may have been too small in each group to give the study sufficient statistical power to yield meaningful results.

More than 95% of diabetes care is done by the patient. Health professionals have very little control over the process of management of illness by the

patient at home (Funnel and Anderson, 2000). The patient adherence to chronic illness will be higher if the patients' motivation comes from within themselves, (autonomy motivation). To improve patients adherence it is necessary not only to improve patient knowledge, but to promote patients' active caring about goals, action plans and consequences (Geller, 2008; Delamater, 2006). Diabetic patients need behavioural strategies to remind them about and to reinferce the value of their adherence (International Council of Nurses, 2008).

In this study, the empowerment program based on active caring was seen to improve adherence by increasing SCI scores and decreasing HbA1c scores.This was the result of a program that involved a process of nurse-patient interaction using a formal behavioral contract as a strategy for improving patient adherence (Delamater, 2006). This program involved patient's daily record, as well as their educational and behavioral approach to establish a affective method. Rapport building is one stategy to enhance coping skills and self efficacy (Schechter and Walker, 2002; Geller, 2008). Recording patient's daily report made it possible for assigned homework to be checked and to discuss the homework in relation to the patients' self esteem, self efficacy, sense of belonging, personal control and optimism.This approach helped patients to feel actively cared. When the nurses met with the patients subjected to these interventions it was necessary to look for positive developments and to praise all activities and self monitoring efforts regardless of the patient's activities (Geller, 2008; Issel and Kahn, 1998).

The results of this study are consistent with those of a study about patient empowerment interventions that showed nurse follow up to be effective in maintaining optimal glycemic control and enhancing adherence to health behavior (Wong *et al*., 2005). These findings are also consistent with the study done by Piette, *et al*., 2000, that found automated calls with nurse follow up that could improve self-care behaviour and glycemic control. Active caring could be grouped as nursing therapy that enhances the potential of patients (Alligood and Tomay, 2006; Sitorus, 2004). The role of nurses in empowerment of diabetic patients is one of the most important factors in helping these patients to achieve their therapeutic goals. According to caring theory, the patient suffering from a disease should be given therapy according to his or her needs to facilitate fast recovery (Alligood and Tomay, 2006).

## CONCLUSIONS

This study showed that patient empowerment program based on active caring maybe an effective strategy for improving the treatment adherence of diabetic patients. It increased SCI scores significantly in the study group and was associated with a greater decrease in HbA1c scores in the study group than in the control group, eventhough this difference was not statistically significant. Further research is warranted to study the effects of such an intervention on a larger patient sample.

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