

## Research Article

# Effect of Family-Centered Empowerment Model on Awareness Level of mothers with Diabetic Children

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### Abstract

#### Introduction

Diabetes mellitus disease is not curable, but it can be controlled. The aim of this study is determine the effect of family-centered empowerment model on the awareness level of mothers with diabetic children.

#### Methods

This is an experimental study. 100 parents of children with diabetes (6 to 12 years old) were selected by studding and randomly classified into two groups, control and intervention based on the conditions of entry. The data-gathering tool was a researcher-made questionnaire that was completed by mothers and gathered data were analyzed again using SPSS19 tool and descriptive and inferential statistical methods.

#### Results

The results of research showed significant differences than before the intervention (Diet:  $p < 0.001$ , symptoms, physical activity and disease control test:  $p < 0.0001$ ). While not observed this significant difference in the control group.

#### Conclusion

According to the results of this study, based on the impact of the implementation of empowerment model on increasing mothers' awareness with diabetic children. It is recommended that this model

be used in other age groups of children as well as other chronic diseases.

**Keywords:** Awareness; Diabetic children; Family-centered empowerment model; Mothers

### Introduction

Diabetes is one of the most common metabolic diseases in the world, as well as our country [1,2]. Diabetes mellitus is one of the most common chronic diseases during childhood and the most the most common glandular- metabolic disorder during childhood and adolescence that is caused due deficiency or absence of insulin [3]. It is a challenge for children, adolescents and their parents because of the chronic and progressive nature of this disease and managing it [4,5]. The disease is not curable, but it can be controlled. Until 1921, control means avoiding premature death and coma, but now controls it means not only keeping blood sugar as normal, but also keeping other indicators such as blood lipids and blood pressure as normal. So, controlling diabetes means to prevent and delay its complications. Poorly controlled diabetes can lead to high blood sugar, which, it has a very strong relationship with chronic complications such as cardiovascular complications, and retinopathy, nephropathy, neuropathy and multiple psychological effects in the long term that these complications are associated with high health costs and reduced life quality [1,5]. Changes due to complications can be postponed to 20 years later with proper control and if control is poor, vascular changes show themselves sooner than 2.5-3 years after diagnosis [2,6]. A large staffing is needed for controlling this disease that it can be managed using parents and children at home completely [7]. Effective care, treatment and controlling diabetes depends on the patient and his family participation in self-care models [8].

According to the forecast of International Diabetes Federation, the number of people with diabetes will reach 333 million people; that this number is more than the World Health Organization's forecasts in 1997. This figures shows that diabetes is growing at high speed; meanwhile, 50-80% of the people with diabetes are not aware of their illness (which most of the people live in less-developed or undeveloped countries). Due to the statistics that is presented by the International Federation of Diabetes according to data from 216 Center of five continents, the number of diabetics in the world until 2030 AD, 439 million people is estimated [9]. The age of onset diabetes is more between 7-15 years old in our country. Diabetes onset type 1 has two peak ages, 4-6 years and 10-14 years old. The annual incidence of diabetes is estimated 3.7 cases of a hundred thousand people in Iran that this figure is varies around the world [10]. Statistics of diabetic children in Iran have doubled over the last 20 years.

There is no exact number of children with diabetes in Iran. Unfortunately, people with diabetes are young in Iran than other parts of the world, which this issue is very worrying, i.e., when a person can be considered as an active and useful person for himself, his or her family and society, he is affected by this disease. Family as the basic unit of society is responsible for providing proper and appropriate health cares for patient and his or her relatives. When providing care

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to the patient, family requires a good understanding of the disease [11]. Family has various educational capacities for learning and understanding the medical models that their skill in providing balanced diet, and drug therapy monitoring will be increased by involving in care issue, and cause the feeling of being useful as a member of the medical team [2]. This approach will enhance the family's health and welfare. In accordance to the advances achieved in the field of removing the health problems, family caregivers are substitutes for care institutions [12].

With regard to raised issues, the purpose of this study is assessing the impact of family-centered empowerment model on mothers' awareness with diabetic children.

## Materials and Methods

This is an experimental study. 100 mothers of children with diabetes (6 to 12 years old) who referred to clinic of one of teaching hospital in Ahvaz/Iran (2016) were selected by randomly classified into two groups, control and intervention based on the conditions of entry (presence of child's parent (mother or primary caregiver), ability to read and write, passing two months from diagnosis for children, ability to participate in necessary research and cooperation, having necessary condition to answer questions). The whole period of study was 5 months. Mothers participated in the study with written consent and knowingly. It should be noted that with the permission of the authorities honorable teaching hospital and getting the written consent of samples and explain study conditions for them, Sampling was performed for two month so achieve a sufficient sample size. The data-gathering tool was a researcher-made questionnaire that was completed by mothers. The noted questionnaire included 22 questions including two parts; the first part containing demographic characteristics (4 questions), and the second section containing knowledge questions (18 questions in term of diet (7 questions), sport exercises (2 questions), complications of disease (6 questions), and tests related to diabetes control (3 questions). Knowledge analysis is done based on 0-1 degree if the answer given a score of 1 if no answer is given a score of zero. Content validity method was used to determine the validity of the questionnaire that, questionnaires was reviewed and consultations by a group of faculty members of School of Nursing and Midwifery of Ahvaz University of Medical Sciences. Cronbach's alpha coefficient of questionnaire was 0.8, which represents confirming science reliability of tools. The researcher after introduction herself, expressing research purposes and obtains satisfaction and participation of samples requested research samples to complete research tools. After analyzing the data from the pre-intervention and detecting capabilities, parent's limitations and educational needs for different field of training regimens, educational content of empowerment model were set that was designed for needs and wishes of the study sample. Empowerment model was conducted based on three steps (threat perception, problem-solving and evaluation) for this study [13]. Perceived threat (perceived severity (i.e., perceived risk in case of failure to prevent) is the first step in empowerment model of increasing treatment. Lack of awareness of parents of children with diabetes is one of their problems. This phase was carried out by increasing awareness of understanding and therefore understanding severity via notification than disease's nature, early and late complications of diabetes such as hypoglycemia, hyperglycemia, diabetic retinopathy, nephropathy, neuropathy and diabetic ketoacidosis and important issues about nutrition and exercise for children with diabetes during the two sessions.

In the second step (problem solving), the purpose of researcher was detecting problems by research sample and presenting solutions and implements through discussion that was performed in group method during one session. The third step (evaluation) involved two steps was done through evaluation (including process of intervention in all sessions with oral questions about discussed topics in previous sessions) and final evaluation. Two months after intervention, the questionnaire was completed again. Obtained data were analyzed by SPSS 19 and using descriptive statistics (mean, standard deviation, frequency and percentage) and inferential statistics (independent t, paired t).

## Results

All parents who participated in intervention and control groups were all mother. Age ranges were (37±5) in the intervention group and 34±5 in the control group. In terms of education in the intervention group 64% were in primary school level, 36% were in diploma level. In terms of education in the control group 44% were in primary school level, 56% were in diploma level. In terms of being employment in the intervention group, 90% were housekeeper and 10% were employer. In terms of being employment in the control group, 90% were housekeeper and 10% were employer. In terms of family income in intervention group, 22% were poor, 60% in middle level and 18% were in suitable condition and in control group, 65% were in middle level and 35% were in suitable condition.

There is a significant difference between awareness averages about diet, exercise, complications and diabetes control tests in intervention group while this statistical difference was not significant in control group (Table 1).

## Discussion

The main focus of this study is the impact of family-centered empowerment model on the awareness of mothers of children with diabetes. Proper control of diabetes needs to adhere to the continuous treatment regimen. This treatment regimen includes medications, nutrition, exercise and education, which are considered as foundation of diabetes control [2,14]. Education is a fundamental underpinning of diabetes control. Training and strengthening education help families to can control disease. Based on these results, education plays an important role in promotion parental knowledge so we should not imagine that once training create necessary behavior change, but continuous training should be continued [12].

Generally with the empowerment of the family system (patient and other family members) will upgrade the level of their health [15]. According to performed analysis, comparing the mean of awareness before and after intervention were significant in case group ( $p=0.0001$ ) but there wasn't a statistically significant difference in term of awareness compared before and after intervention in control group ( $p=0.03$ ). Tahirook and his colleagues study showed those mothers' knowledge and train them has a significant impact on better keeps of diabetes and it reduces late complications of diabetes in children [16]. The nurse as a key member of taking care of the patient helps the family, as well as to increase hopes and trust. Such an approach will improve the health and well-being of the family. So, nurses are in a unique position to interact with individuals and family members. They can get the awareness, skills and support necessary to maintain the quality of care which they provide at home; the purpose of the nursing interventions in family-centered care is promoting the ability of members of families in the certain area to overcome on the existing obstacles in the areas of health and wellness [11].

| SD±Mean                                   | Intervention Group  |                    | P Value | Control Group       |                    | P Value |
|---|---------------------|--------------------|---------|---------------------|--------------------|---------|
|   | Before Intervention | After Intervention |         | Before Intervention | After Intervention |         |
| Awareness on diet                         | 5.145±0.132         | 6.21±0.093         | 0.001   | 3.94±0.178          | 4.51±0.156         | 0.013   |
| Awareness on exercise                     | 0.78±0.059          | 1.63±0.058         | 0.0001  | 0.69±0.065          | 0.74±0.0714        | 0.09    |
| Awareness on complications of the disease | 1.79±0.064          | 5.18±0.093         | 0.0001  | 1.88±0.977          | 1.99±0.084         | 0.001   |
| Awareness on diabetes control             | 0.76±0.064          | 2.57±0.058         | 0.0001  | 1.03±0.069          | 1.08±0.063         | 0.034   |

**Table 1:** Comparison between scores of awareness in mothers of the aged 6-12 children with diabetes (about diet, exercise, disease complications, and diabetes control) in the treatment and control groups before and after intervention.

Nowadays, the role of nurses in the education of patients around the world is well known [17]. The important role of nurse is training in the patients with diabetes and their families in various areas of disease and measures for controlling disease. Joseph and Associates study showed that children with diabetes successfully manage is possible by parents ongoing training and in this regard, children with diabetes care team connection (family) and medical team playing a vital role in management of children’s diabetic [18]. Training and strengthening education help families to can control disease [12] that isn’t consistent with this study. Based on a systematic study of Couch et al., teach children and their family’s leads to increased knowledge and control diabetes and metabolic disease [19].

The limitations of the study samples emotional status during the completing the questionnaire will be effective the result of the study that is not controllable by the researcher.

### Conclusion

The results of this study showed that awareness of mothers of diabetic children (6-12 years old) in intervention group has been a significant increase than awareness of mothers in control group. So performing empowerment model lead to increasing mothers’ awareness next, diet treatment of children better control of disease and finally prevent late and early complications of the disease. It should be noted that implementation of this empowerment model is possible with the least equipment also, mothers have more welcome than it and ask for continue that pattern. Therefore, it is suggested such pattern is done to increase the knowledge of mothers and patients’ families in other age groups and other chronically ill in relevant institutes.

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