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Effect of a Supportive Educational Program on Self-Efficacy of Mothers with Epileptic Children

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Abstract

Background: In the aftermath of de-institutionalisation and the move to community management of epilepsy, mothers play an increasing role in the management of the illness. Mothers often complain of being misinformed and ill equipped to aid in the treatment.

Aim: The purpose of this study was to investigate the effect of a Supportive Educational Program on self-efficacy of mothers with epileptic children.

Method: This randomized controlled clinical trial was conducted on two groups of 50 mothers with epileptic children admitted to Ghaem Hospital in the city of Mashhad in 2014. Maternal self-efficacy was measured before and 6 weeks after intervention through Steffen's Revised Scale for Caregiving Self-Efficacy as the research instrument. The Supportive Educational Program was implemented for the experimental group during five 60-minute sessions with an interval of 4 days. The control group received the routine care. Data analysis was performed using SPSS software (version 11.5).

Results: The mean age of mothers in the experimental and control groups were 32.8 ± 6.9 and 32.8 ± 6.8 years, respectively. The findings of the independent t-test revealed significant differences between the two control (47.4 ± 15.06) and experimental (66.5 ± 11.5) groups following the intervention ($p < 0.001$). The paired t-test results also indicated a significant difference between self-efficacy scores before and after intervention in both groups ($p < 0.001$).

Implications for Practice: Stepwise implementation of a Supportive Educational Program can contribute to an increase in maternal awareness about how to care, reasons for recurrence, and measures taken in the emergency stage of epilepsy through gradual strengthening of self-efficacy of mothers with epileptic children.

Keywords: Education, Self-Efficacy, Epilepsy, Mother, Child

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Introduction

Due to recent advances in medical science and technology, prevalence of chronic diseases and disabilities in pediatric population is on a rise (1). Epilepsy considered as one of such diseases is included among the most common neurological disorders (2) and causes of disabilities and illnesses in childhood (3, 4). Epilepsy as a neurological disorder that is characterized by the talent of person to be affected with a seizure and it is defined in the form of the occurrence of two or more spontaneous seizures (5). According to the statistics released by the World Health Organization (WHO), approximately 50 million people worldwide are inflicted with epilepsy and the occurrence rate of such a disease has been reported to be 50 to 70 cases per 10000 (individuals) a year except the cases of febrile convulsion that is similar to epilepsy in terms of its occurrence (4). In Iran, 4.2 cases per 1000 school-age children suffer from epilepsy and 65% of epileptic patients are comprised of children and adolescents (6). A research study by Kaheni and others (2010) showed that the prevalence rate of epilepsy in children of school age in Iran was 0.9% (7). It should be noted that care for patients with chronic diseases brings about a lot of tensions for patients and their families. In this respect, caregivers are mostly vulnerable to such tensions since biological, social, and psychological needs of patients surpass their own demands (8). It has been revealed that mothers were the first child caregivers and consequently more influenced by their children's chronic diseases. In this vein, mothers play a supportive role for children and provide care for their health and well-being. Children with physical or mental disabilities impose certain tensions especially on mothers (9). Compared to children with other chronic diseases, children affected with epilepsy are more dependent on their mothers (10); thus, mothers encounter problems such as negative attitudes towards the disease, growing concerns regarding the large-scale seizures and depression, chronic stress experience, and low self-efficacy accompanied by severe physical and mental disorders (11, 12). Self-efficacy in management of seizures refers to personal opinion about the ability to initiate and successfully accomplish the tasks related to daily management of epilepsy (12). The concept of self-efficacy is included among the key variables in Bandura's Social Cognitive Theory (SCT) as well as the most important prerequisite to changes in behavior (13, 14). Caregivers with higher self-efficacy experience lower psychological-social stress, physical problems, fatigue, and care-related tensions and protect themselves against weaknesses and failures as well as risks of negative consequences by focusing on their abilities (13). Patients with chronic diseases such as epilepsy should apply methods and practices that contribute to managing disease symptoms, slowing down disease progression, and ultimately maintaining quality of life. Self-management behaviors associated with epilepsy include the use of medications according to prescriptions, lifestyle modification in order to lessen seizures, control of seizures and their subsequent side effects, doctor visits, and information gathering about the disease, its treatment and management (15, 17). In children with diabetes and asthma, a series of organized educational programs are used as a part of standard child care program (16). In the case of children with epilepsy and their families, educational programs are similarly implemented; however, such programs have been often aimed at increasing information on the disease, existing treatment options, social-occupational outcomes for patients, and reduction of fears about the disease (17). Nevertheless, empowerment programs similar to what is administered for diabetics were not found in the case of epileptic patients especially for their mothers. Since the nurses are in unique positions to interact with family members; they can provide knowledge, skills, and support necessary to maintain the quality of care at home and play an important role in empowering family members. Empowerment means promoting positive confidence and adaptation, having a sense of power control, and helping others to achieve their goals. The principles of empowerment include the ability in problem-solving, self-reliance, and self-confidence in a way that empowerment is considered as the main element in improving health system in society (18). Studies have shown that the use of empowerment programs for parents of children with disabilities enhances parental self-reliance and problem-solving abilities. In addition, implementation of empowerment programs can increase self-care power in patients with chronic diseases such as diabetes and rheumatoid arthritis (19). But given that epilepsy has unpredictable and non-controlled states, conditions of patients and caregivers are different from those of other diseases and the impacts of such programs on epilepsy are also unknown. Self-efficacy is a valuable tool for nurses in healthcare centers and patient self-efficacy assessment by nurses and its enhancement can lead to a rise in patient motivation in their own self-care (20). Since the ultimate goal of the treatment team is to provide the patient with abilities needed to promote self-efficacy (21)

and counseling is directly associated with empowerment and as nurses help patients to identify their problems and learn new skills important to them, they enable patients to try solving their own problems and achieve a sense of personal empowerment through education and facilitated access to necessary resources (22). As a result, empowerment programs can promote self-efficacy. The present study was conducted to evaluate the effect of care empowerment of children with epilepsy on self-efficacy of mothers with epileptic children in order to use such an intervention to promote self-efficacy in such mothers.

Methods

The study was a randomized controlled clinical trial on mothers of children with epilepsy admitted to Ghaem Hospital in the city of Mashhad in 2014. Sampling in this study was of convenience type; to this end, qualified mothers and children were selected among patients admitted and discharged over last year and then they were divided into two experimental and control groups with random allocation using file numbers and depending on being odd or even. Estimating the sample size in terms of the sub-scales of maternal self-efficacy was conducted using the formula of “comparison of the means and standard deviations of the two populations”. Parameters of mean and standard deviation were adopted from the results of a study by Zhang (2010) (23). In the given study, the mean and standard deviation of each item in this instrument were listed. Thus, the mean score was obtained from the means of all the self-efficacy items ($S_1=13.5$), ($S_2=12.1$), ($m_1=62.5$), and ($m_2=60.7$) and used in the following formula. 95% confidence level and 80% test power were also considered in determining the sample size. The sample size obtained for each group was composed of 50 mothers (a total of 100 mothers).

The inclusion criteria for the study were children aged 1-12 years old, at least 6 months of diagnosis of the disease in children, no parent participation in the same educational programs, ability to complete a questionnaire by mothers, possibility of phone calls with mothers, having the most care roles by mothers, no history of maternal substance abuse, lack of chronic physical diseases in mothers, and absence of other serious diseases in children; and the exclusion criteria included absence from more than one session of empowerment program as well as lack of child care by mothers more than a week at the time of study. The research instruments used in this study were as follows:

Study sample selection form; demographic information form included items about variables such as care duration, education level, frequency of seizures, patient care experience, age, marital status, and employment status which was completed by asking questions from mothers and Steffen's Revised Scale for Caregiving Self-Efficacy. This questionnaire had 35 items and covered five dimensions. In this standardized questionnaire, each item is scored from 0 to 100 based on a Likert-type scale. The closer the scores of individuals to 100, the higher the self-efficacy. The reliability of this questionnaire was measured by Zhang (2010) using Cronbach's alpha coefficient for the whole instrument and each sub-scale which was equal to 80%. The 4-week test-retest reliability for the whole test as well as each sub-scale was calculated by 64% to 85% (23). To clarify the scientific validity of research instruments, content validity was employed; and data collection instruments were also sent out to 10 professors, experts, and faculty members of Mashhad Nursing and Midwifery School in the city of Mashhad after development and translation in order to determine their validity. Items with content validity indices lower than 0.7 were deleted or modified and the ultimate research instrument was used. In order to ensure the reliability of this instrument, the reliability of the Persian translation of five dimensions was re-measured through internal consistency; in this case, the research instrument was completed prior to the start of the study at a time by 10 mothers and then its Cronbach's alpha coefficient was calculated in terms of different dimensions between 0.73 to 0.81 which was confirmed. This study was conducted in three phases as follows. Intervention phase; the Supportive Educational Program was implemented as a group discussion for six groups of 7 and one group of 8 persons during five 60-minute sessions with an interval of 4 days for the experimental group as follows.

Phase one (threat perception): In this phase, mothers became familiar with causes of epilepsy relapse and complications due to lack of control of these factors. As a result, perceived threat as a factor affecting the adoption of proper behaviors increased in mothers.

Phase two (problem-solving): Mothers actually became familiar with their problems and the process of problem-solving in this phase. They became empowered in terms of how to implement emergency

measures at the time of seizures, how to restore the airway, as well as how to use Diazepam rectally. For this purpose; the researcher displayed the mentioned measures to mothers in practice using moulage, then they were asked to do the above-mentioned skills practically and one-by-one in order to be corrected by the researcher in case of any mistake in the implementation of the skills. Furthermore, mothers had debates and dialogues with each other through giving concrete examples of their own situation and what they have been doing to solve the problems, and thus contributed to the choice of solutions effectively. Moreover, the researcher handed in educational cards and CDs with the contents of the sessions to mothers at the end of each session.

Phase three (evaluation): At the end of each session, the researcher evaluated the level of empowerment in mothers in terms of skills learned in previous sessions. The evaluation was conducted in a form in which mothers demonstrated the skills learned in the previous session in a practical manner. After the researcher became ensured that mothers had been empowered, they were given an opportunity for 1.5 months to apply the learned model (12, 13). During this period, the researcher answered the questions and dealt with ambiguities of mothers in the implementation of the empowerment model through phone contacts. Post-intervention phase (final evaluation); Six weeks after the last session of empowerment for the experimental group and simultaneously for the control group, final evaluation or post-test phase was performed. During the study, three mothers in the experimental group and 5 women in the control group left the study; thus, the researcher continued sampling in order to achieve the desired sample size. In compliance with the ethical issues of the study, the research objectives were explained to study samples at the beginning and the informed consent forms as well as demographic information forms were completed by mothers in both experimental and control groups. In addition, all the contents of educational sessions related to empowerment were provided in the form of CDs and teaching manuals to the control group.

Upon the completion of data collection, the forms were coded and entered into the SPSS software (version 11.5) along with self-efficacy scores obtained by mothers and data analysis was conducted through statistical methods after ensuring the accuracy of data entry. The confidence level was considered 95%. To describe the study samples; frequency distribution, mean, standard deviation, and Mann-Whitney test were used. Kolmogorov-Smirnov and Shapiro-Wilk tests were also employed to determine normality of data. Moreover, the main findings of the study were examined by using independent t-test, Mann-Whitney test, paired t-test, and Wilcoxon test and other findings were evaluated through Chi-square and Fisher's exact tests.

Results

Demographic characteristics of the study samples were shown in Table 1. The experimental and control groups were not homogeneous in terms of education level. The results of analysis of covariance analysis (ANCOVA) showed that education in mothers had no significant effect on improving maternal self-efficacy whether in a simple ($p=0.12$) or mutual ($p=0.25$) manner. Therefore, the variable of maternal education had no confounding effects on the dependent variable of the present study. According to Table 1 as well as Fisher's exact test results, the study samples were identical in terms of marital status ($p=1.0$). Results of Table 1 also showed that the ratio of housewives in the control group was 23% more than that in the experimental group. The results of the Chi-square test showed that this difference was significant ($p=0.01$) and both groups of control and experimental were not homogeneous in terms of employment status. However, the results of ANCOVA showed that maternal employment status had no significant effects on their self-efficacy whether in a simple ($p=0.09$) or mutual ($p=0.45$) manner.

The results of independent t-test revealed that the difference between the experimental and control groups was not statistically significant as reported in the pre-intervention phase ($p=0.72$). The results illustrated in Table 2 as well as the the results of the statistical paired t-test within the groups indicated that the mean score of self-efficacy in the control group reduced from 50.7 ± 15.5 to 47.4 ± 15.0 and this reduction was statistically significant ($p<0.001$) while the mean score of the variable of self-efficacy significantly increased from 51.7 ± 13.7 to 66.5 ± 11.5 in the experimental group during the intervention ($p<0.001$). In the post-intervention phase, the self-efficacy score in the experimental group (66.5 ± 11.5) was greater than that in the control group (47.4 ± 15.0) which was statistically significant based on the results of statistical independent t-test ($p<0.001$).

Table 1. Demographic Characteristics of the study participants

	care (month)	intervention group	control group	test results
care duration (month) mean \pm standard deviation		37.7 \pm 42.3	32.4 \pm 31.9	***p=0.95
	primary school	12 (24.0%)	19 (38.0%)	
	junior high school	15 (30.0%)	4 (8.0%)	
education level	high school	17 (34.0%)	22 (44.0%)	
	university	6 (12.0%)	5 (10.0%)	
frequency of seizures per day mean \pm standard deviation		19.8 \pm 68.5	13.6 \pm 30.9	p<0.03
patient caregiving experience	having caregiving experience	10 (20.0%)	18 (36.0%)	***p=0.52
	having no caregiving experience	40 (80.0%)	32 (64.0%)	*p=0.07
age of mother mean \pm standard deviation		32.8 \pm 6.9	32.6 \pm 6.8	***p=0.87
marital status	married	49 (98.0%)	48 (96.0%)	**p=0.55
	unmarried	1 (2.0%)	2 (4.0%)	
employment status	employed	12 (24.0%)	3 (6.0%)	*p<0.01
	housewife	38 (76.0%)	47 (94.0%)	

* Chi-square test

**Fisher's exact test

*** Independent t-test

**** Mann-Whitney test

Table 2. Comparison of mean and standard deviation for self-efficacy scores of mothers in experimental and control groups

Groups	maternal self-efficacy mean \pm standard deviation		paired t-test
	before intervention	after intervention	
Experimental	51.7 \pm 13.7	66.5 \pm 11.5	t=-12.53 p<0.001
Control	50.7 \pm 15.5	47.4 \pm 0.15	t=10.23 p<0.001
Independent t-test results	t=0.36 p<0.72	t=7.14 p<0.001	

Discussion

The results of the present study aimed at determining the effects of epileptic child-care empowerment program on self-efficacy of mothers with epileptic children showed that the mean score of self-efficacy in the experimental group was significantly higher than that in the control group following the empowerment program. These results were consistent with Albert Bandura's theory in which it was assumed that learners learn by observing the behavior of others. So that the given procedure was implemented through the stepwise empowerment of mothers and the use of cards and educational CDs; and according to Bandura, social modeling is one of the methods to self-efficacy promotion. Modeling refers to the state in which one understands what actions must be taken in the same position through observing other people in a particular situation (24, 25).

The results of a study by Sanaie and others on the effect of family-centered empowerment in self-efficacy and self-esteem in patients undergoing coronary bypass graft surgery revealed improvements and promotions in two self-efficacy and self-esteem indices in patients which was in agreement with the findings of the present study (26). As well, empowerment program used in the study by Sanaie was in line with the present study in terms of steps and model phases but the difference was the use of family-centered empowerment in which the active member played an important role. Salehzadeh and

others (2011) conducted a study entitled “The effectiveness of cognitive-behavioral therapy on dysfunctional attitudes in epileptic patients”. The given study showed that the mean scores of dysfunctional attitudes had significantly reduced in the experimental group compared with that in the control group at post-test and follow-up stages (27). Dysfunctional attitudes refer to negative thoughts and feelings about the disease which preoccupy a person’s mind and create an uneasy state for them. These attitudes lead a person to have no sense of necessary efficacy (self-efficacy). In fact, dysfunctional attitudes are the opposites of self-efficacy. As a result, the mentioned study was consistent with the present study (especially in terms of improved self-efficacy in the adjustment of mental state caused by the disease in children). Likewise, an investigation was conducted by Salehzadeh on 20 epileptic patients. Cognitive-behavioral therapy was implemented during 8 weekly sessions with an emphasis on cognitive restructuring, modification of cognitive distortions, and behavioral techniques training for the experimental group during 1.5 months.

Aliasgharpour and others (2013) evaluated the effect of an educational program on self-management in patients with epilepsy. The results showed significant differences between the two groups of experimental and control in terms of self-management (4). It should be noted that one of the important concepts in self-management issues is self-efficacy. Besides, cases evaluated for the review of management dimension of self-efficacy care (such as medication therapy or personal immunity management) are also assessed in the evaluation of the level of self-management. In this study; medication therapy training, information related to epilepsy, types of seizures, issues associated with immunity and lifestyle of epileptic patients were delineated and the results were evaluated after one-month follow-up. While, empowerment intervention in the present study was more comprehensive and included obtaining feedbacks and assessment of mothers in terms of the level of empowerment during a six-week follow-up.

One of the limitations of this study was the lack of precise control over study samples for education through other media and sources.

Implications for Practice

Given the findings obtained in the present study, it was concluded that stepwise implementation of Supportive Educational Program can contribute to an increase in maternal awareness about how to care, causes for recurrence, and measures taken in emergency stages of epilepsy through gradual strengthening of the sense of self-reliance and problem-solving abilities in order to promote self-efficacy of mothers with epileptic children. Therefore, the given program can be introduced as an effective procedure to the pediatric neurology wards and clinics in order to enhance their self-efficacy in terms of epileptic child-care. In line with the present study, examination of other chronic diseases through interventions on the basis of empowerment models can provide proper grounds for further studies.

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Conflict of interest

The authors declare that there is no conflict of interest.

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