



The Effect of Family-Centered Empowerment Model on Perform Daily Activities of Life in Patients after Pacemaker Implantation in Chamran Hospital Isfahan

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ABSTRACT

Background: cardiac problem causes changes in different aspects of life in patients, including their activity daily living. Because of the important role of family in caring for patient after pacemaker implantation this study was done to evaluate the effect of family-centered empowerment model on activity daily living of patient after pacemaker implantation. Methods: this study was a quasi-experimental research on 70 patients after pacemaker implantation in Pacemaker Clinic of Chamran Hospital. Samples were selected based on convenience sampling and randomly divided into two groups. Data was gathered using Barthel Index and demographic Questionnaire and was approved with content validity and reliability ($\alpha=0.93$). Family-centered empowerment model was performed in case group according to four steps (threat perception, problem solving, educational participation, and evaluation). Patients in control group received routine intervention during the study. ADL was measured 1.5 months after the intervention. For data analysis SPSS/18 was used. Results: There were no significant differences between-group regarding the patients' demographic characteristics and their baseline ADL scores. However, after the intervention the results showed that the average score of ADL in case group was $92/74 \pm 6/96$ and in the control group was $79/50 \pm 8/94$ and they were significantly different ($p > 0.05$). Conclusion: With regard to fear of activity after pacemaker implantation participation of the families in education and taking care of this patient can improve ADL of theme. Family-centered empowerment model can be used for this goal. Also according to the impact of this model on perform daily activities of life it is recommended that this model be considered in further studies of other chronic diseases.

Key Words: Activity Daily Living, Pacemaker Implantation, Family-Centered Empowerment Model.

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INTRODUCTION

Cardiovascular diseases are recognized as the first, common and most important cause of deaths in Iran and in many countries of the world [1]. Despite reduction in mortality rate of CVD, it still possesses a major

contribution in mortality [2], and it is predicted that by 2020 CVD mortality will increase to 75 percent of mortalities in the world [3]. One of the most important therapeutic methods for patients with heart conduction problems is electrical pacemaker [4]. Artificial pacemakers are electronic devices that stimulate the heart with electrical impulses to maintain or restore a normal

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rhythm in people with slow heart rhythms [5]. It was reported that in 3580 centers, a total of 500 411 PMs were implanted in 2013. The mean number of centers implanting PMs per million inhabitants was (3.8) same as in the preceding year [6]. The statistic shows the global number of pacemakers implanted globally in 2016 has increased and a forecast for 2023. It is estimated that the total volume of pacemakers will reach more than 1.4 million units by 2023 [7]. There are no reliable and accurate statistics in Iran for the number of patients with pacemakers. However, a study in 2007 showed that the total number of implanted pacemakers was 1635 cases, of which almost 88 percent of these cases were new, and the number of patients with pacemakers was reported to be 24 people per million [8]. This disease ultimately causes disability and significant complications in patients, which is a source of great harm to the community and family of patients [9-11].

Also Electrical interventions can cause some complications such as pacemaker site infection and psychological problems [12]. Sim Leng Ooi (2016) reported several problems in patients with pacemakers usually causing weakness, depression and loss of self-confidence so that they impact on patients' quality of life (QoL) and ability to perform activities of daily living [13].

According to Wood, 87% of these patients will suffer from anxiety, depression and decreased daily functioning [14]. It has been noted that the stress levels of relatives of patients can be higher compared with patients themselves and the disease affects their life situations [15]. In addition, a lack of information, uncertainty about outcomes, might lead to caregivers' burden in the family and so it is important to increased self-efficacy of family caregivers. Family decrease the patient activity and risk for complications increases [16].

Therefore, it is essential to eliminate anxiety and concerns of these patients and their family [17]. One of the major measures to do so is follow-up after discharge [18] and training and helping the patient and their family to take care of themselves [19]. Studied researchers on health promotion have indicated that in treatment processes, the family-centered role would be essential [20]. Consequently, one of the aims of care services should be to improve the QOL of families and patient through empowerment [21]. Empowerment is a dynamic, positive, interactive, and social process which takes place in the interaction with others and helps patients feel greater responsibility to their health [22]. The family-centered empowerment model, as an Iranian Model, was provided in 2007 by Heydari et al in order to prevent iron deficiency anemia in adolescent girls [23]. Considering the key role of nurses in teaching self-care behaviors and

closest relationship with patients and their families they can use this model to engage family members in education and helping them to be able to change [24, 25]. In the health system of Iran, post-discharge services are limited and the nurse-patient relationship is disconnected outside hospital [26] also the family don't know and understand their deficiencies and don't have enough power to have taken part in care giving to their patients [27, 28].

Considering that this model is an indigenous model and was provided based on conditions of health services and culture of Iranian patients and have not yet been assessed on ADL of patients after pacemaker implantation so the present study designed with aim of determining the effect of "family-centered" empowerment model on perform daily activities of life in patients after pacemaker implantation.

METHODS AND MATERIALS:

An experimental study was conducted using conventional sampling of 60 patients after pacemaker implantation procedure in Pacemaker Clinic of Chamran Hospital, Isfahan, Iran. 70 patients were allocated randomly to the interventions and control groups by random number table. Samples have been matched for age and sex in two groups. The inclusive criteria were age between 18-80 years, willingness to participate in the study and collaboration one of family member in the study, no known problem in speaking and listening and no simultaneous surgery with pacemaker implantation. Two questionnaires include Demographic questionnaire and Barthel Index has been used for data collection. The reliability and validity of ADL questionnaire for Iranian population have been supported in various studies ($\alpha = 0.93$) [29].

Assessments consisted of two parts, assessments in each session to evaluate the previous session, and final assessment or the third phase (post-intervention phase) 2 months after the intervention to determine the effectiveness of the model in the two groups by completing the tools again. The intervention phase was performed according to needs assessment The first step (to increase the perceived threat) for increasing knowledge and awareness in association with the disease and care of pacemaker, complications and providing the solutions to enhance the ability to perform daily activities of life has been done. Face to face and through methods lectures, discussion of questions and answers, during two 2-hour sessions in two consecutive days. The second step (increasing self-efficacy): At this stage, self-efficacy and a sense of control over the conditions in the caregiver enhanced through problem-solving during two 1-hour

sessions in 3 consecutive days. At this stage, family caregivers faced with their problems and the process of problem solving Self-efficacy of family caregivers examined before, immediately, 2 weeks and 2 months after the implementation of the family-centered empowerment model by the general self-efficacy scale-10. Step Three (Increasing self-esteem): At this stage, self-esteem promoted through collaborative education, the pamphlets and educational package will be provided to family caregivers, and asked to provide a summary of the lessons taught during 2 hours in 2 sessions [20, 30]. Step four (Evaluation): The final evaluation was about 8 week after latest session. Evaluation the effect of implementing the family-centered empowerment model on family caregivers' burden and the ability to perform activities of daily life in patients with pacemaker before, immediately, 2 weeks, and 2 months after full implementation of the model steps. Control group only received routine intervention and after study they had received pamphlet. Data were analyzed using SPSS-v18, and descriptive (frequency, mean, SD) and inferential (t-test, chi-square, paired t-test, repeated measure) statistical indexes.

Ethical consideration: The overall study process was approved by the Research Ethics Committee of Shahrekord University of Medical Sciences. Participation in the study was voluntary, all patients and family member had been informed about the aim of the study; the rules and the course of the study had been explained and each patient had granted their consent to participate in the study.

RESULTS:

Out of 70 patients who participated in the study nine patients have been excluded from the study. Comprehensive data presented in consort diagram. A mean age of participant in case group was 60/23±12/83 and in control group was 62/50 ± 13/20 with no significant difference. Other socio demographic characteristics of the study groups are presented in table 1.

Table 1: Demographic characteristic of sample

Group / Variable		Intervention Group	Control	P=
		Number (%)	Number (%)	
Age		60/23±12/83	62/50±13/20	0/498
Gender	Female	7(22/6)	8(26/7)	P = 0/711
	Male	24 (77%/4)	22(73/3)	
Married	Single	3(9/7)	0(0)	P= 0/238
	Married	28 (%90/3)	30(% 100)	

Education	Illiterate	16 (51/6)	21 (70)	P= 0/337
	Primary	11 (35/5)	6 (20)	
	University	4 (12/9)	3 (10)	
Employment	Unemployment	18 (58/1)	17 (56/7)	P= 0/912
	Employed	13 (41/9)	13 (43/3)	

The independent-sample t-test showed that at baseline, there were no significant differences between the groups in terms of ADL scores (P > 0.05). However, after the intervention, the between-group differences were statistically significant (P < 0.05). The paired-sample t-test also showed that in the experimental group, there were significant differences between the baseline and the posttest values of ADL scores (P < 0.05) while in the control group, these pretest-posttest differences were not statistically significant (P > 0.05). (Table 2).

Table 2. Comparing the Study Groups Regarding the Mean Scores of ADL

Variable	Time	Experimental Group	Control Group	P value
ADL	Before	63/06± 14/76	58/33± 17/39	0/256
	After	92/74± 6/96	79/50 ± 8/94	0/000(***)
	P value	0/000(***)	0/000(***)	
	Pretest-Posttest Mean Difference	29/68± 13/84	21/17± 13/81	(*)0/019

DISCUSSION:

The patient after pacemaker implantation leaves the hospital with unanswered questions and relatives can, because of this, feel worry [31]. Patients with a pacemaker may experience a heightened level of anxiety, emotional turmoil, depression and psychosomatic symptoms that lead to patient restricted participation in social life and have many limitations in doing activities of daily living [32]. The findings of this study showed that mean score of ADL in patients with pacemakers significantly increased after intervention in case group. Participation of family member in education helping them to have more information and skills to manage the life situation and active role in take care of their patients [33]. There are few publications concerning ADL of this group of cardiac patients in the literature [34] but review on publication with same concepts show similar finding. Haley investigated the strain of caregiver and report that overprotection is one of the most common strategies that family member used in order to handle worry and fear



about the symptoms of patients so they might be doubtful about this fact that if their patient are able to perform daily activities as before or not [35].

Ranjbar reported that most patients with electrical implants had no information about the device care and they needed to be taught about self-care issues [36] and also participation of their family in this education can enhance their participation in patient care process [37]. We found a significant difference between the groups regarding the pretest-posttest mean difference of ADL, denoting a significant improvement in case group. This is in agreement with the findings of a study conducted by Allahyari et al showed that after implementing the family-centered empowerment model, there was a significant difference in quality of life of the children with thalassemia in Tehran [38]. In a study by Teimori, the effect of family-centered empowerment model on quality of life of school-aged children with asthma was shown to cause improvement [30]. Pitthaya pong et al. carried out a study in Thailand to examine the effects of Program for Family Caregivers on Post Stroke Survivors. The findings of study show improvement in patient ability to perform daily activities [39].

Besides Sanaie, et al. (2014) reported that their educational intervention was effective in improving Family Cooperation in Following Patient Treatment Regime after Coroner Arteries Bypass Surgery [40]. Although most of the previous studies indicated the effectiveness of family-centered interventions in improving family caregivers' QOL, and improve decision making and self-efficiency and patient ability to perform daily activities but some studies reported that these interventions had no significant effects. For example, Cano-Garcinuno et al. (2007) found that group education of asthmatic children and their parents was effective in improving the children's pulmonary function and self-efficacy and reducing the number of their absences from school; but it had no significant effects on parents' QOL [41]. Masoodi et al. (2013) also found the FCEM effective in improving the QOL of the family caregivers of patients with multiple sclerosis [42]. The control group who only received routine intervention showed no statistically significant change in ADL This finding can be related to the fear of patient and their family that the electrode/electrodes would loosen during physical activity such as garden work, housework, swimming and ... so this resulted in an initial period of anxiety, caution and limited participation in social activities. As these problems disappeared, caution changed into a successive increase in activity and participation in social life. Applying educational methods, and participation of family member in this education session can increase interest of family, in learning and engaging in patient care

and can be very important in promoting health [43]. Empowering patients to take care of themselves and perform their daily activities by using different educational methods leads to the improvement of community health and can be done by planning in this part in order to reduce the costs of patient re-admission and impose patient's costs.

CONCLUSION:

The ADL of patients in intervention group significantly increase so it can be concluded that participation of patient and their caregiver in family-centered empowerment program is an appropriate way to reduce clinic visits and represents as an accepted alternative strategy. Also regarding to positive effect of Family-centered empowerment model this model can be used for other chronic diseases.

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