

Research Article

The Effect of Family-centered Empowerment Model on Blood Pressure in Patients with Hypertension

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ABSTRACT

Background and purpose: Hypertension is the most important health challenge in developed and developing countries is the most important modifiable cardiovascular diseases. This study aimed to determine the effectiveness of family-centered empowerment model was performed on blood pressure in people with hypertension.

Materials and methods: This semi-experimental study was done on 67 patients who visited Qaen therapeutic sanitary centers in 2013. Having selected persons who met entry criteria to the study, the participants were randomly divided into a control group (n = 35) and an experimental group (n = 32). During 2.5 months and within 6 sessions, the experimental group went through a family-centered empowerment model with the four dimensions of perceived threat, self-efficacy, educational partnership, and valuation; the control group received the usual care. The data were collected by a researcher-made questionnaire and analyzed using t test, independent t and Mann-Witney tests

Result: Mean systolic and diastolic blood pressure in the experimental group of 139/81 and 88/77 mm Hg mmHg before intervention to 124/73 and 81/85 after intervention was significant difference between mean blood pressure. Paired T-test showed a significant difference between Mean systolic and diastolic blood pressure before and after the intervention (p<0.05).. Also, according to independent t test, a significant difference between the mean diastolic BP was observed experimental and control groups after intervention.

Conclusion: In general, performing family-centered empowerment model is effective on Hypertension control in patients with hypertension

Keywords: Family-Centered Empowerment Model, hypertension, Nurse

INTRODUCTION

Hypertension is the biggest health challenge in developed and developing countries (1). Among non-communicable disease, it is the first cause of death, and the second highest burden of disease in the world (2) In 2008, the prevalence of hypertension in people over 25 years is almost "40% and this value equal to one billion by 2025 and is projected to reach 5.1 billion people (3). According to WHO report,

hypertension prevalence in Southeast Asia is 8% to 40% (4) And Iran in the Middle East with the economic situation average prevalence of hypertension is 22.1% (5). Hypertensive disease is the cause of 13 percent of all deaths and 7% of disabilities (6) The World Health Organization in 2011, in Iran the death rate from hypertension is 33.44 in one thousand people and ranked 67 in the world (7).

Despite being considered hypertension prevention and treatment of disease and its specific solutions offered, but studies show that treatment success was 27% only in the United States and in England and France is much less than this (8). In Iran, the reported values in blood pressure control is very disappointing. Ghanbarian and colleagues in the study, only 36 percent had a history of drug therapy and of these, only 40 percent had controlled blood pressure (9). In the absence of proper control patients, 50% of patients with coronary artery disease and heart failure, stroke by 32 percent and 10-15 percent die of kidney failure (10). The results indicated that lower blood pressure by 5 mm Hg, with a 14% reduction in deaths from strokes, heart disease mortality decreased by 9% and 7% of the total deaths of their relatives (11). The empowerment of patients and increased global focus on engaging patients in their care (13).

Model of empowerment among the factors that attracted the attention of many researchers to improve living conditions, control and treatment of people with chronic conditions were (14). Studies also show that large-scale social control and prevention of hypertension, only the correct policies at all levels of society can be achieved and to achieve this objective should all community members, especially family members of people participate in this (15). And family as the fundamental unit of society is responsible for providing health care to the patient and those around him (16). Teaching family members and even prevent disease control can be very useful because there is a strong correlation between health status and family members. Patients, their family members are dependent chronic diseases and even their attitudes affected families. It seems family-centered empowerment model is helpful in this regard.

The effectiveness of family-centered empowerment model with emphasis on the role of the individual and other family members in three dimensions motivational, psychological (self-esteem, self-control and self-efficacy) and features the problem (knowledge, attitude and perceived threat) is designed (17). Nursing

interventions in the pattern of family-centered empowerment is done to empower families to make the participation of nurses and families with emphasis on reducing risk factors and promoting health (18). In this model, using practical skills by displaying the ability of the patient first and then through educational partnership will improve the abilities of families (19). Considering that the researches are based on teaching the patients, and the role of family as a collaborative source in achieving the clinical goals is less concerned. Therefore, the effect of family-centered empowerment model on blood pressure in patients with hypertension is studied.

ANALYSIS METHOD

Quasi-experimental study on 67 patients with essential hypertension, referring to health care centers in the city Cain was conducted in 2013. The sample size based on the results of the same study (20) was estimated for each group of 25 people to enhance the accuracy of the study, 35 patients to the control group and 35 patients were selected for the intervention group. Followingly, 3 patients were failed in the intervention group (one man and two children to dial disease due to travel and participate in educational programs). The study included 32 patients took the intervention group and 35 patients in the control group. Inclusion criteria included people with essential hypertension endorsed by the cardiologist, having health records in health centers (patient and medical personnel are not family members), age 35-55 years, passing at least six months diagnosis of diseases, diabetes and kidney failure, have at least read and write the patient and family members participating in educational programs and no history of hypertension, cardiovascular disease or weight loss program. In order to the diagnosis of diabetes and kidney failure while studying and wanting individual or family member, the Empowerment of Exclusion criteria were used.

In the intervention group as a member of the family members was involved in the research. In order to collect data from a demographic questionnaire was used and blood pressure by a

researcher in health centers and in compliance with international guidelines blood pressure using a mercury sphygmomanometer with Mark (HANSEN) that was calibrated to exact standards and making Mvrdandaz-h it placed. In order to accurately measure blood pressure in addition to accuracy and precision of the measuring device (standard and adequate size) to the prevailing environmental conditions such as mental patient comfort, not to speak when measuring blood pressure, lack of exposure on both legs, picking up clothing from the arm, quiet environment, explain the techniques were given to the patient (21). That practice was 15 minutes after the subject was sitting and leaning, one arm at heart level supported by hard (chair) was used. Within 10 minutes of right arm blood pressure measured twice and the average person is considered as the blood pressure was recorded. Samples from patients to health centers - were visiting the health and entry requirements for intervention was performed and then randomly divided into control and test groups. After identifying the needs of empowerment, family empowerment model was conducted in six sessions on lifestyle training for group discussion based on the step and the steps outlined in the model for the experimental group; and to control education for health centers, regular meetings were held. The main interventions include the use of family-centered empowerment approach that includes four major steps in the form of six training session for a group discussion carried out. The first step (the knowledge): At this stage two training sessions were held for group discussion sessions to meet high blood pressure, causes, symptoms, treatment and complications.

The second step (self-promotion) was done to improve the efficacy of 4 training sessions for 40 minutes through a group problem solving and practical training in the field of nutrition, exercise, sleep, smoking, stress management and self-learning skills such as how to measure blood pressure, perform and relaxation. The third step (increase self-esteem through educational partnership): In this phase, patients were asked to be active in teaching to family members. So, the patient should transfer the

discussed matters in each session and everything was learned through self-efficacy sessions to his family. The patient should note the questions and ask them next session. According to these reports and direct contact with the active member of family, the success level of patients in transferring the matters is discussed. In this step, the family, as a major source of support in the learning process by improving self-efficacy and self-esteem empowerment intervention was considered. After the intervention and discharge, telephone follow-up program to monitor patients for their physical and mental condition and biweekly telephone call and also answer questions from the researcher and patients, the changes were evaluated.

Step Four: including process evaluation and process evaluation at the end of each session to ensure the mental and practical involvement in the care plans and ensure the necessary follow-up meeting to be evaluated, and final evaluation was performed 1.5 months after the intervention to measure the effectiveness of this model in both systolic and diastolic BP by standard methods again". Spss software was used for data analysis. Descriptive statistics were used to measure the mean and standard deviation of all quantitative data and independent t-test, Mann-Whitney for comparisons between groups and paired t-test to compare the situation before and after the intervention in both groups. The significance level of $p < 0/05$ was considered in all measurements.

FINDINGS

Kai test didn't show two significant differences between gender, marital status, education, employment and family history that suggests the same in the two groups of these variables (Table 1). According to this test, the Kolmogorov - Sminorov showed that the distribution of age did not have a normal distribution, the Mann-Whitney U test was used to compare age groups. The mean age in both case and control groups were 47.03 ± 5.39 and 48.51 ± 7.37 years. The Mann-Whitney U test showed no significant correlation between the two groups ($P=0.28$).

And mean BMI in the intervention group

is 28.66 ± 3.88 and the control group 28.71 ± 2.92 .

Independent t-test showed no significant association between these variables ($P=0.95$). Most gender percent frequency in both groups (78.1%) and controls 80% belonged to women. And 100% of the experimental group and 96.7% of the controls were married and all members of the groups living in 61.3 was observed in the experimental group 57.1 in the control group family history of the disease. Mean systolic and

diastolic blood pressure in control and experimental groups before implementing family-centered empowerment model, there was no significant difference between the paired t test after the intervention in the experimental group were significant differences in systolic and diastolic blood pressure after the intervention showed while in the control group, a significant difference in systolic and diastolic blood pressure after the intervention.

Table 1. Distribution of demographic variables in people with hypertension to separate the control and intervention groups

Sig.	Test group		Control group		Variable	
	Number	Percent	Number	Percent		
$=0/62p$	17/1	6	21/9	7	Male	Gender
	82/9	29	87/1	25	Female	
$=0/29p$	2/9	1	0/0	0	Single	Marital status
	94/4	33	100	32	Married	
	0/0	0	0/0	0	Widow	
$=0/59p$	62/9	22	50	16	Elementary	Education
	11/4	4	25	8	Guidance school	
	8/6	3	12/5	4	Diploma	
	17/1	6	12/4	4	Higher diploma	
$=0/14p$	11/5	4	12/5	4	Self-employed	Job
	11/4	4	15/6	5	Employee	
	77/1	27	71/47	33	Housewife	
$=0/73p$	57/1	20	62/5	20	Yes	Family experience
	42/3	15	37/5	12	No	

Table 2. Mean and standard deviation of the systolic blood pressure of the patients' right hand who suffered hypertension before and after intervention in the test and control groups

T coupled test	After		Before		
	SD	Mean	SD	Mean	
0/002	15/95	127/29	19/21	139/81	Test
0/23	16/07	138	16/18	141/20	Control
	0/06 p=		0/54 p=		T independent test

Table 3. Mean and standard deviation of diastolic blood pressure of the patients' right hand who suffered hypertension before and after intervention in the test and control groups

T coupled test	After		Before		
	SD	Mean	SD	Mean	
0/002	10/20	81/85	8/52	88/77	Test
0/53	9/85	87/55	8/52	88/79	Control
	0/02 p=		0/76 p=		T independent test

DISCUSSION AND CONCLUSION

So in this study to investigate the effects of family-centered empowerment on blood

pressure in patients with hypertension were discussed. The result analysis of demographic variables, showed that the number of female

participants than male participants. On the other demographic variables such as education level showed that the majority of people with education at the elementary level findings similar study is Izadi and colleagues (8). In Izadi's study, most participants are female with education of below diploma. The rate of decline is 15.8 mmHg and mean diastolic blood pressure of 88.77 mm Hg in the intervention group before intervention was reduced by 81.85 mm Hg after the implementation of the educational model by the results of the study, Ezzati through group discussions. The boys' parents had been able to blood pressure decrease was consistent with hypertension (15). The reason for this manager application that can be expressed in intervention follow-up period (22).

Jafari and colleagues through family counseling through home visits to control hypertension, which is consistent with the results of the present study (23). Morisky and colleagues studied family members teaching with the aim of supporting the patients for diet therapy through consulting and educational handbook during 3 years. The results showed that diastolic blood pressure and patients' weight were reduced significantly in test group compared to controls (25) and Associates study results empowerment program teaching them how to control blood pressure could be significantly reduced blood pressure of patients in the intervention group (26).

Sadeghi and colleagues in a study to compare the effect of patient-centered and family-centered approach based empowerment to control their diabetes. The results showed that both patient centered and family-centered empowerment intervention had an effect in reducing HbA1c but the decrease has been more dependent on family-centered (16) Sanaee and colleagues in their study showed that the pattern of family-centered empowerment in adherence to treatment was effective in patients undergoing cardiac surgery (19)

Rosland in his study showed that the social supports especially the support of family members can lead to control of blood sugar in the diabetics, recovery of blood pressure, reducing

the heart attacks, and reducing arthritis in patients (27).

Family support, facilitate and motivate behavior change, cooperation in gathering information to help problem solving and decision making. And total self-care easier. In all studies listed family members are an integral part of your plan of care, and with respect to the effect that family members purchase food and prepare food, physical activity and emotional support in times of stress and disease could be the cause for self-care program will be easier or harder, and with the active participation of family members in your application environment for successful patient care can be facilitated for Disease Control.

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REFERENCES

1. Kearney PM, Whelton M, Reynolds K, Whelton PK. Worldwide prevalence of hypertension: a systematic review. *J Hypertens*. 2004;22(1):11-9.
2. Wenzel D, Souza JM, Souza SB. Prevalence of arterial hypertension in young military personnel and associated factors. *Rev Saude Publica* 2009; 43(5): 789-95.
3. Systolic hypertension: an increasing clinical challenge in Asia. Park JB, Kario K, Wang JG. *Hypertens Res*. 2015;38(4):227-36
4. Su TT, Majid HA, Nahar AM, Azizan NA, Hairi FM, Thangiah N, et al. The effectiveness of a life style modification and peer support home blood pressure monitoring in control of hypertension: protocol for a cluster randomized controlled trial. *BMC Public Health*. 2014;14(3):1-7
5. Malejzadeh M, Etemad A, Kamangar F, Khademi H, Golozar A, Islami F, et al. Prevalence, awareness and risk factors of hypertension in a large cohort of Iranian

- adult population. *J Hypertens*. 2013;31(7):1364-71.
6. Gelfer M, Drouin D, Dawes M, Campbell N. World Health Day: focusing on hypertension in 2013. *Can Fam Physician*. 2013;59(4):341-2.
 7. Eftekhari Ardebili H, Fathi S, Moradi H, Mahmoudi M, Mahery A. Effect of Educational Intervention based on the Health Belief Model in Blood Pressure Control in Hypertensive Women, *Journal of Mazandaran University of Medical Sciences* 2014; 24 (119) : 62-71(Persian).
 8. Izadirad H, Masoudi GH. R, Zareban I, Shahraki Poor I, Jadgal Kh. The Effect of Educational Program Based on BASNEF Model on Women's Blood Pressure with Hypertension. *Journal of Torbat Heydariyeh University of Medical Sciences* 2013; 1 (2) : 22-30(Persian).
 9. Ghanbarian A, Majid M, Rahmani M, Sarrafzadeh A, Azizi F. Distribution of blood pressure and prevalence of hypertension in Tehran adult population: Tehran Lipid and Glucose Study. *Iran J Endocrinol Metab* 2003; 5(4): 425-36(Persian).
 10. Wilson PW. Established risk factors and coronary artery disease: the Framingham Study. *Am J Hypertens* 1994;7(7 Pt 2): 7-12
 11. Wexler R, Aukerman G. Nonpharmacologic strategies for managing hypertension. *Am Fam Physician*. 2006 Jun 1;73(11) :1953-6.
 12. Samiei Siboni F, Alimoradi Z, Sadegi T, Impact of corrective life style educational program on controlling stress, anxiety, and depression in hypertensives. *Journal of Birjand University of Medical Sciences* 2013; 19 (6) : 1-9(Persian).
 13. Tol A, Alhani F, Shojaeazadeh D, Sharifirad GH. Empowerment Approach to Promote Quality of Life and Self-Management among Type 2 Diabetic. *Journal of Health care* 2011;7(2):157-(Persian).
 14. Charkazy AR, Kochaki Gh, Badeleh, MT, Gazi Sh, Ekrami Z, Bakhsha, F. The effect of education on nurse's staff knowledge, attitude and practice toward hypertension. *Journal of Gorgan University of Medical Sciences*. 2007; 9(1): 43-48.
 15. Ezzati E, Anosheh M, Mohammadi E. A study of the effects of group discussion with male high school students on their parents' hypertension control. *J Research Health* 2011; 1(1): 64-72.(Persian)
 16. Sadeghi M, Pedram Razi Sh, Nikbakht Nasrabadi A, Ebrahimi H, Kazemnejad A. Comparison of the impact of education based on the empowerment model and family-center empowerment model on knowledge and metabolic control of patients with type 2 diabetes mellitus. *Journal of Nursing Education*. 2013;2(3) : 18-27. (Persian)
 17. Alhany F. Design and evaluation of family-centered empowerment model for prevention of iron deficiency [PhD Thesis]. Tehran, Iran: Tarbiat Modarres University; 2004 (Persian).
 18. Vahedian Azimi A, Alhani F, Ahmadi F, Kazemnejad A. Effect of family-centered empowerment model on the life style of myocardial infarction patients. *Iran J Crit Care Nurs* 2010; 2(4): 127-32.(Persian)
 19. Sanaie N, S Nejadi S, Zolfaghari M, Alhani F, Kazemnezhad A. The Effects of Family-based Empowerment on Family Cooperation in Following Patient Treatment Regime after Coronary Arteries Bypass Surgery. *Journal of Birjand University of Medical Sciences*. 2014;11 (1):18-26.(Persian)
 20. Navidian A, Abedi M. R, Baghban I, Fatehizadeh M., Poursharifi H. Effect of motivational interviewing on blood pressure of referents suffering from hypertension. *Kowsar Medical Journal* 2010;15(2):115-121.(Persian)
 21. Bahrami Nejad N, Hanifi N, Moosavi Nasab N. Comparing the effect of two family- and individual-based interventions on blood pressure and lifestyle. *J Qazvin Univ Med Sci* 2008; 12(1): 62-8. (Persian)
 22. Jafari N. Effectiveness of family - based counseling on blood pressure control and life style in women suffering from hypertension of Nimavar [MSc Thesis]. Tehran, Iran:

Medical College of Tarbiat Modares;
2004. (Persian)

23. Ribeiro AG, Ribeiro SM, Dias CM, Ribeiro AQ, Castro FA, Suárez-Varela MM, Cotta RM. Non-pharmacological treatment of hypertension in primary health care: a comparative clinical trial of two education strategies in health and nutrition. *BMC Public Health* 2011;11:3-10.
24. Morisky DE, DeMuth NM, Field-Fass M, Green LW, Levine DM. Evaluation of family health education to build social support for long-term control of high blood pressure. *Health Educ Q.* 1985;12(1):35-50.
25. Figar S, Glarza C, Petrlik E, Homstein L, Loria GR, Waisman G. Effect of education on blood pressure control in elderly persons. *American Journal of Hypertension.* 2006; 19(7):737-743.
26. Rosland AM, Piette JD. Emerging models for mobilizing family support for chronic disease management: a structured review. *Chronic Illn.* 2010 Mar;6(1):7-21.