Original Article

The effect of family-centered empowerment program on self-efficacy and perceived stress in patients with acute coronary syndrome in yazd social security hospital

Mostafa Javadi [1], Mohsen Hosseini [2], Fatemeh Aghaei Meybodi [3], Ghazal Marvasti nia [3,]*

[1] Shahid Sadoughi University of Medical Sciences, Yazd, Iran
[2] Department Special Care, Social Security Hospital, Yazd, Iran
[3] Department of Midwifery, Islamic Azad University, Meybod, Iran

* Corresponding Author:
Address: Yazd, Porofosor Hesabi Bvr, 116, Yazd, Iran. **Postal code:** 8916118335; **Tel:** +989130831303; **Email:** Qazal.marvastinia @gmail.com

Abstract

Objectives: One of the most common cardiovascular diseases is coronary heart disease. Key issues facing cardiovascular patients are their psychological problems and perceived stress. Stressful situations lower self-efficacy and increase dependence on others, including family members.The aim of this study was to investigate the effects of a family-centered empowerment program on self-efficacy and stress perceptions in acute coronary syndrome patients at Yazd Social Security Hospital.

Methods: This education-oriented and semi-experimental study was conducted on patients with acute coronary syndrome referred to Yazd Shohadaye Kargar Hospital in 2018-2019. Eighty-four patients with acute coronary syndrome who were eligible to participate in the study were selected and randomly assigned to experimental and control groups by random assignment software.The experimental group underwent individual self-efficacy sessions and stress perception training in the presence of active family members, followed up by telephone, and held four group sessions every two weeks.

Results: There was no statistically significant difference in pre-intervention self-efficacy mean scores between the experimental and control groups, but self-efficacy mean scores in the experimental group were higher immediately after the intervention and after two months interval than in the control group (p <0.001). Also, there was no statistically significant difference between the perceived stress mean scores before the intervention in the experimental and control groups. But immediately after the intervention, the perceived stress mean score in the experimental group appeared to be higher than the control group (p <0.001).

Conclusions: Implementing a family-centered empowerment program can improve self-efficacy and reduce perceived stress in patients with acute coronary syndrome, lasting up to two months after the intervention. This affordable and low-cost intervention can thus be used to improve the health of acute coronary heart disease patients.

Keywords: self-efficacy, acute coronary syndrome, stress disorder, empowerment

Introduction

Stress is a response to factors that threaten physical, mental, emotional and spiritual health, triggering physiological responses and adaptations, and affecting the nervous system and other organs of the body- mentally and physically (1). If stress-inducing factors escalate higher than a certain level, they can lead to mental and physical distress (1). Albert Bandura introduced self-efficacy, which refers to self-sufficiency, competence, the ability to cope with life, and the perceived ability to adapt to a particular situation (2). High self-efficacy is essential for developing healthy behaviors and for coping with stress (3). Self-efficacy significantly affects serum catecholamines, heart rate, and blood pressure in stressful situations (4). One nursing goal is to empower the patient to perform daily activities, and families play a pivotal role in empowering them. Because coronary heart disease accompanies the patient's life and affects the patient and their families, it is necessary to involve them in empowerment programs to control the disease to live a comfortable life (7).

In a family-centered care model, the family is recognized as the main focus of all health care; the main stages of this model include increasing knowledge, improving self-efficacy, and augmenting self-esteem and evaluation (8). Through education, nurses can play an important role in improving overall health, promoting self-efficacy, and managing stressful situations for patients (9, 10). According to the World Health Organization, 17.5 million people die each year from cardiovascular diseases. As a result, it is the leading cause of death worldwide (11, 12). The most common cardiovascular disease is coronary heart disease. Statistics show that 317 people have died every day since 1392, which translates to 116,000 deaths as a result of the disease (13). Although mortality from current treatments such as coronary angioplasty is declining, postoperative patients face challenges such as physical limitations, lack of self-control, and role and lifestyle changes (7), which induce uncertainty, anxiety, depression, and isolation in these patients (14). One of the most important problems faced by patients with cardiovascular disease is psychological problems. Lack of attention to stress and psychological reactions trigger the spread of the disease and increases dependence on others including family members. Family performance, therefore, becomes one of the most critical indicators of the quality of life and mental health of a family and its members and can be a key factor in the resilience of reducing current and future risks associated with adverse conditions (15). Studies conducted show that stress management style also appears to be effective for family functioning (16). Empowerment is a dynamic process of shaping oneself in relation to others which improves one's quality of life. Therefore, empowerment is considered essential in recent medical system research (17).

Empowerment program for augmenting knowledge awareness and empowerment leads to improved health and quality of life (18). Patient education maintains health and reduces the complications of the disease (19). Van defines empowerment as involving clients and their families in decision-making to promote health, which requires having the power to make decisions, thus raising self-confidence by increasing self-reliance (20, 21). Family-centered care is a philosophy of care that identifies family as the central focus of chronic diseases (22). However, little attention has been paid to the issue and individuals are uninformed and family involvement has failed to be considered (23, 24). The positive family-centered empowerment model like that of Bandura is directed toward the treatment of chronic diseases (6). This model has been used to improve the quality of life in patients with chronic diseases including myocardial infarction, multiple sclerosis, dialysis, and asthma (25, 27). Family-centeredness is an accepted nursing philosophy, and a participatory process is key to empowering educators (28, 29). The World Health Organization considers health promotion as empowering individuals to gain control over their lives so that they can appreciate their concerns and acquire sufficient skills (30). Asgari et al. (2016) conducted a clinical trial on the effect of family-oriented empowerment on the self-efficacy and self-esteem of patients undergoing coronary artery bypass surgery. The results showed that the family-oriented educational model improved the laboratory indicators in the intervention group, including blood sugar with $p=0.03$, and blood lipids with $p=0.0001$, compared to the control group (31).

In another study, Heidari et al. (2023) performed a quasi-experimental study on 60 patients with COVID-19 discharged from hospitals. The results showed that family-centered empowerment programs in patients improved quality of life

(p = 0.001) but there was no significant difference between the two groups in terms of self-efficacy after three months (32).

A study by Rismayanti et al. (2020) showed that family-centered empowerment program leads to improved self-care and self-efficacy in patients undergoing hemodialysis (33). To the researchers' knowledge, shorter hospital stays, older patients, forgetfulness about educational issues, and lack of a companion can increase patient stress and reduce self-efficacy.Therefore, lifestyle modifications and improved self-efficacy are recommended as important prognostic factors.The purpose of this study was to determine the effects of family-centered empowerment on self-efficacy and stress perceptions in patients with acute coronary syndrome.

Materials and Methods

The present study is an experimental education-oriented and quasi-exprimental conducted on two groups; an experimental and a control group. The study population included patients with acute coronary syndrome referring to Yazd Shohadaye Kargar Hospital in 2018-2019. Inclusion criteria comprised a minimum literacy for the patient or active family member, lack of undergoing heart surgery, no history of hospitalization for coronary artery bypass graft surgery, no mental illness, and the possibility of making telephone calls to the patient after discharge. Exclusion criteria consisted of depression, anxiety, other treated mental disorders, and physical or mobility impairments that prevent the person from participating in the sessions or self-care. Based on a study conducted by Zakeri Bazmandeh et al. (34) and considering the significance level of 0.05 and test power of 80%, a sample size of 38 people was appropriate for each group. However, considering 10% attrition in each group, 84 patients were selected as the sample size of the study (42 for each group). Having approved the plan and obtained permission from the Vice Chancellor for Research and the Ethics Committee of Shahid Sadoughi University, the researcher referred to the Cardiovascular Department of Yazd Social Security Hospital. Among the patients admitted to the ward, 84 were selected conveniently as the participants. After obtaining informed consent from the participants, explaining the confidentiality of all information, explaining the voluntary condition for the commencement and continuation of participation in the study and describing all objectives and stages of the research to the patients, random

assignment software divided participants into two experimental and control groups.The control group was provided with care and treatment services. However, for the experimental group (patients and active family members), in addition to providing care and treatment services similar to the control group, individual sessions with a family- centered empowerment approach were conducted in the hospital for 1.5 hours. Treatment sessions as group sessions with other patients and their families were conducted one to two weeks later and two months after discharge, were repeated every two alternative weeks.The patient's family members included their daughter, spouse or one of the relatives who accompanied the patient during the course of treatment process to improve the patient's health (this person may be a friend, decision-making authority, and decision- making perspective)). In the experimental group, the intervention- implementing the family- centered empowerment model for the patient and the active member of the family- conducted by investigators in collaboration and consultation with cardiologists and dietitians in the four axes of pharmacotherapy, diet, activity and exercise. We proceed through the model in the following order.

Step 1: Appreciation of the threat

Step 2: Self- efficacy (problem-solving)

Step 3: Self- confidence (educational participation)

Step 4: Evaluation

At first, group meetings were held to sensitize and increase knowledge and information (appreciation of the threat), including physiology, symptoms, side effects, treatment measures, treatment plan after discharge, and mental conditions and physical changes. At the end of the summary session, the patient's questions were answered.

A week to two weeks later, the second session (problem-solving) was held as a group discussion in groups of 6-8 people for 40 minutes. How and how much to take medicine in the occurrence of pain was taught.We also talked about taking supportive measures to eliminate or reduce the sources of stress. At these meetings, patients discussed their problems and ways to solve them, and eventually found solutions under the supervision of researchers.

In the third phase (participation in education), patients were asked to teach the information they learned to active family members in one session, and researchers provided support as needed. Finally, the fourth stage (evaluation) was performed. Assessments were performed immediately after the

intervention using a researcher-generated checklist related to the issues addressed in the previous phase. A final assessment was performed in person or by telephone in a similar manner 2 months after the intervention.To collect data,a three-part questionnaire including demographic characteristics, cardiac self-efficacy questionnaire, and perceived stress questionnaire was used. Patient Demographic Information Questionnaire consisted of two parts: a) questions about the patient's personal characteristics including age, sex, marital status, place of residence, household guardianship, level of education, income, caregiver, height, weight, and body mass index. b information on the history of smoking and drugs, history of psychological diseases (based on the patient's self-report) history of diabetes, hypertension and hyperlipidemia, family history of diabetes, hypertension and hyperlipidemia, duration of diagnosis, information resources of the patients and the symptoms that lead patients to refer a doctor.

The cardiac self-efficacy questionnaire was designed in 1998 by Sullivan et al. It consisted of 16 questions. It was scored from zero (I am not sure at all) to four (I am absolutely sure) based on the Likert scale. Scores from 33 to 64 reflected high self-efficacy whereas scores from 0 to32 indicated low self-efficacy. In this study, the mean scores were used. In Varaei's study (35), the validity index of the content of the cardiac self-efficacy questionnaire in terms of pertinence stood at 4.93, of clarity at 8.89, and of simplicity and fluency at 8.90, and in total, the content validity index of this questionnaire turned out to be 33.91%. The internal consistency method was used to assess the reliability of the questionnaire. Thirty patients who were candidates for coronary artery bypass graft surgery were asked to answer the questionnaire and the calculated Cronbach's alpha coefficient was calculated to be 0.997.

The perceived Stress Questionnaire consists of 14 questions in the form of Likert scale ranked from zero to four, and monitors perceived stress variables (Cohen, Camarck, and Marmalestin). is suitable for determining how well people perceive their stress in the face of unpredictable and uncontrollable events. Responses are categorized as 0 (never), 1 (rarely), 2 (sometimes), 3 (most of the time), and 4 (always). Questions 13, 10, 9, 7, 6, 5 and 4 are scored in reverse order. Scores range from 0 to 56, with higher scores

indicating greater stress. Ebrahimi and Ghafari standardized this questionnaire in Iran and the Cronbach's alpha coefficient of the questionnaire was calculated to be 0.84. In addition, shortness of breath, chest pain,palpitations, anxiety, depression, and other problems faced by the patient during the week were recorded in an appropriate daily checklist format. In addition, subjects completed appropriate self-care forms, including measuring and managing blood pressure, taking medications as prescribed by a physician, activities of daily living and walking, and eating. Finally,SPSS software was used to analyze the data and $P < 0.05$ was considered as significant.In order to categorize and summarize the findings, descriptive statistics including tables of absolute and relative frequency distribution, distribution of central indicators and dispersion, and to achieve the main objectives, inferential statistics and statistical measurements of t-test,chi-square and analysis of variance with repeated measures ANOVA were used to determine the relationship before, immediately after the intervention and two months following the intervention in the control and experimental groups.

Results
In this study, 84 patient sincluding 45 males and 35 females. (42 in each experimental and control group) participated.The mean age of the experimental group and control group were 54±86 and 56± 38 years respectively, which were not statistically significant. It should be noted that during the study four participants dropped out: one in the experimental group due to readmission, two in the control group due to readmission, and one due to unwillingness to continue the cooperation. In order to achieve the objectives of the study, data were analyzed and presented in the form of 5 tables in the following order.Table 1 sets out the demographic and clinical information of the patients in the experimental and control groups. Tables 2 and 3 project responses to the first and second specific objectives and are related to changes in the mean score of self-efficacy at different times. Tables 3 and 4 illustrate responses to the third and fourth specific objectives and are related to changes in the mean perceived stress score at different times of the study.

Table1: Demographic and clinical information of the patients in the experimental and control groups

Disease history	Group	Experimental n(%)	Control n(%)	*P* (chi-square)
Sex	Male	24(58.5)	21(56.3)	0.422
	Female	17(41.5)	17(41.5)	
Level of Education	Illiterate	11(26.8)	9(23.1)	
	High school	22(53.7)	23(59)	0.887
	University	7(19.5)	8(17.9)	
Job	Housewife	10(24.4)	10(25.6)	
	Free-lance	16(39)	18(46.2)	
	Employee	6(19.5)	8(15.4)	0.876
	Others	5(17.1)	7(12.8)	
Hospitalization record	Yes	28(68.3)	27(69.2)	0.564
	No	13(31.7)	12(30.8)	
Heart disease record in the family	Yes	15(36.58)	13(33.33)	0.673
	No	26(63.41)	26(63.41)	

Chi-square test showed no statistically significant difference between the experimental and control groups.

Table2: Comparison of mean self-efficacy scores in experimental and control groups before, Immediately after, and two months following the intervention

Time Group	Before intervention		Immediately after intervention		Two months after intervention		*P* value (Repeated Measure) ANOVA
	SD	Mean	SD	Mean	SD	Mean	
Experimental	5.4	30.49	5.35	36.98	5.02	38.56	<0.001
Control	6.71	31.74	6.45	31.46	7.22	31.85	<0.785
P value (t test)	0.358		<0.001		<0.001		

Independent t-test revealed no statistically significant difference between the mean score of self-efficacy before the intervention in both the experimental and control groups. But immediately after the intervention and two months following the intervention, the mean score of self-efficacy in the experimental group appeared to be higher than that of the control group, which was statistically significant. Regarding the significance of ANOVA in the experimental group, the Benfruni post hoc test was used, the results of which are presented in Table 3.

Table3: Comparison of self-efficacy in different stages of the study in the experimental group

Study stages	Before intervention	Immediately after intervention	Two months after intervention
Before intervention	-	<0.001	<0.001
Immediately after intervention	6.48	-	0.023
Two months after intervention	8.07	1.58	-

The high values of the discontinuity line correspond to the statistical level in different comparisons. The values below the discontinuity line are related to the absolute value of the mean difference in different stages of the study. The results of the post hoc test in the experimental group demonstrated that the mean score of self-efficacy immediately after and two months following the intervention compared to that of before the intervention was statistically significant ($p<0.001$). Also, the mean self-efficacy score related to two months after the intervention turned out to be higher than that of scores immediately after the intervention ($p= 0.023$).

Table4: Comparison of the mean perceived stress score in the experimental and control groups before, immediately after and two months following the intervention

Time	Before intervention		Immediately after intervention		Two months after intervention		*P* value (Repeated Meausure ANOVA)
Group	SD	Mean	SD	Mean	SD	Mean	
Experimental	6.4	37.59	5.56	30.23	5.161	31.24	<0.001
Control	7.17	38.15	6.36	36.95	6.56	36.72	<0.1
P value (t test)	0.709		<0.001		<0.001		

Independent t-tests uncovered no statistically significant difference between the mean score of perceived stress before the intervention in the experimental and control groups. However, immediately after the intervention and two months later, the perceived stress mean score in the experimental group proved higher than that of the control group, which was statistically significant. Given the significance of the results of ANOVA with repeated measurements in the experimental group, the Benfruni post hoc test was employed, the results of which are shown in Table 5.

Table5: Comparison of perceived stress in different stages of the study in the experimental group

Study stages	Before intervention	Immediately after intervention	Two months after intervention
Before intervention	-	<0.001	<0.001
Immediately after intervention	7.27	-	0.359
Two months after intervention	6.34	0.927	-

The high values of the discontinuity line correspond to the statistical level in different comparisons. The values below the discontinuity line are related to the absolute value of the mean difference in different stages of the study. The results of the post hoc test in the experimental group revealed a significant increase in the mean score of self-efficacy immediately after and two months following the intervention compared with before the intervention ($p<0.001$). Also, the mean score of self-efficacy two months after the intervention proved higher than that of immediately after the intervention ($p = 0.023$).

chart1: Comparison of mean self-efficacy scores in experimental and control groups before, immediately after, and two months following the intervention

chart2: Comparison of the mean perceived stress score in the experimental and control groups before, immediately after and two months following the intervention
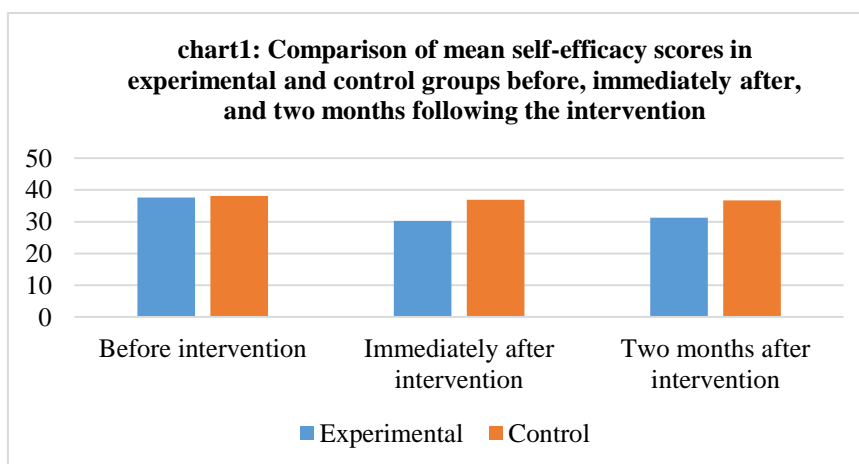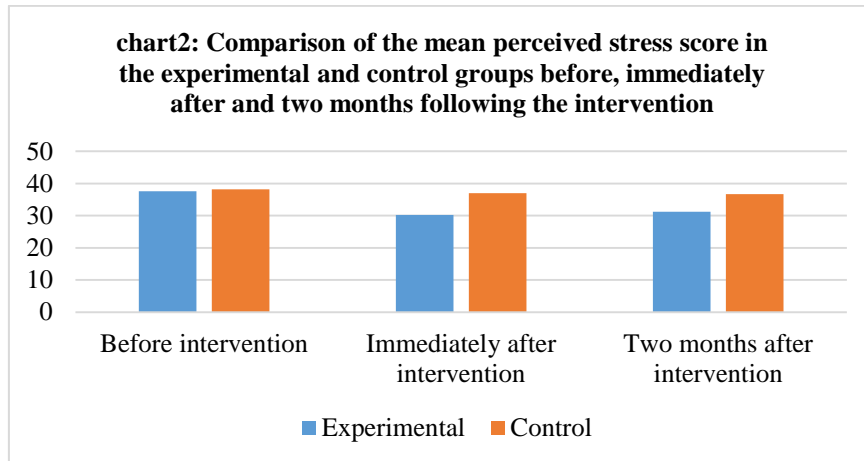
Discussion

The results of the study showed that family-centered empowerment improved perceived stress in the intervention group compared with the control group. Therefore, the first hypothesis of the study "the mean score of self-efficacy in the experimental and control groups after the intervention is different" is accepted. Moreover, the effects of the intervention persisted after 2 months.Therefore, the second hypothesis that "the mean score of self-efficacy in the experimental and control groups is different two months after the intervention" was also confirmed. The results of Sanaei's et al. study aiming at investigating the effect of family-centered empowerment on self-efficacy and self-esteem of patients undergoing coronary artery bypass graft surgery identified a positive effect of family- centered empowerment on patients' self- efficacy (36). Additionally, Shurideh in his study attained similar results regarding the effect of family-centered empowerment on lifestyle and self- efficacy of diabetic patients. In his investigation, patients' self-efficacy increased three months after the intervention compared to that of pre- intervention. The results are in line with the present study (37). Heidari et al. also reported positive effects of family-centered empowerment on the self- efficacy of elderly patients affected with hypertension thus being consistent with the results of the present study (38). However, the results of Naderpour's study are incongruent with the current study. He identified the average self-efficacy scores of the participants increasing after the end of the program but with no statistically significant difference. The reason for this discrepancy lies possibly in the small sample size or lack of conditions for participation in the study of female samples. In addition, individual differences such as differences in psychological traits, changes in interactions between individuals, and differences in motivation are additional factors. (39).

Given the fact that coronary artery syndrome is considered an acute disorder, it can trigger huge stress in an individual. On the one hand, hospitalization and the risk of heart attack can reduce patients' self- confidence and self-efficacy for self- care (40). Considering that in our study, nurses had a direct relationship with the patient and also due to the participation of an influential family member who played a key role in caring for the patient, it can be maintained that it reduced the patient's stress and concerns thus improving self-efficacy in patients. Due to its complex nature and the possibility of turning into a heart attack, coronary artery syndrome is a phenomenon associated with stress and tension for the patient and family members, and with the hospitalization of the patient, this stress is doubled (41,42). The results of the present study revealed that both experimental and control groups experienced relatively high levels of perceived stress. The results also indicated that family-centered empowerment improved perceived stress in the intervention group compared to the control group. Therefore, the third hypothesis of the research as to "the mean score of coping with perceived stress in the experimental and control groups after the intervention is different" is accepted. The effect of the intervention also continued up to two months later. Therefore, the fourth hypothesis of the study that "the mean score of coping with perceived stress in the experimental and control groups is different two months after the intervention" was also confirmed. These findings are in line with

those of Etemadifar and Sushi (43,44). Researchers also reported that providing the patients withinformation about the patient's condition, course and prognosis, examining families' feelings and informing them of what had been done and why, and educating families about the care they could take at the time takind care the patient can all reduce family anxiety (45).

In a similar study, Etemadifar et al. examined the effect of family- centered empowerment program on stress, anxiety and depression in family members of the patients with heart failure, which indicated a positive effect of intervention on controlling family stress. Communication of the care team with family members and patients can lead to constructive interaction (43). In addition informational and emotional care can be effective in reducing patients' psychological problems (46). Implementation of empowerment model in patients with chronic nature of the disease improves clinical outcomes, increases family cooperation, promotes knowledge, self-efficacy, self-esteem, and reduces morbidity and mortality due to disease and reduces costs. The results areconsistent with the results of this study (47,48). The results of the study by vahedian azimi et al. (2010) and Deyhoul et al (2020) are also in line with this study confirming that the implementation of the family-centered empowerment model for heart attack patients is practically possible and is associated with improving or modifying the lifestyle of themselves and their families (25,49).

Finally, the results of the present study is beneficial for patients with acute coronary syndrome Additionally, nursing service managers can encourage patients' participation and responsibility in care and expand nursing services by using patient empowerment models. The strength of this study was holding meetings in the form of group discussions between patients, which resulted in the identification of patient's problems and the sharing of experiences of patients and families. On the other hand, the communication of active family members with each other was effective in achieving better results. Some limitations of this study were the different psychological and spiritual characteristics, the difference in the interactions between the patients, the difference in the motivation, and the level of each person's perception of self-efficacy and self-esteem that could influence the results, and was out of the researcher's control.

Conclusion
Implementing a family-centered empowerment program can improve self-efficacy and lower perceived stress in patients with acute coronary syndrome, the effect of which lasts up to two months after the intervention. Therefore, this relatively accessible and low-cost intervention can be employed to improve the health of patients with acute coronary syndrome.

Conflicts of Interest
The authors state that there is no conflict of interest.

Acknowledgments

References
1. Esmailzadeh Gatabi G, Jalili Z, Farmanbar R. Effect of Stress Management Training Based on PRECEDE Model on Prehospital Emergency Staff Occupational Tension in Mazandaran University of Medical Sciences in 2016. *H D Q*. 2017;3(1):11-20.
2. Bandura A. Cultivate self efficacy for personal and organizational effectiveness. *The Blackwell Handbook of Principles of Organizational Behaviour*. 2017.
3. Locke E. Handbook of principles of organizational behavior: Indispensable knowledge for evidence-based management. *John Wiley & Sons*. 2011:688.
4. Baljani ES, Habibzadeh H, Rahimi J, et al. Effect of self management programs on dietary adherence and interdialytic weight gain in patients undergoing hemodialysis. *J Urmia Nurs Midwifery Fac*. 2013;11(4).
5. Yeh GY, Mu L, Davis RB, et al. Correlates of Exercise Self-efficacy in a Randomized Trial of Mind-Body Exercise in Patients With Chronic Heart Failure. *J Cardiopulm Rehabil Prev*. 2016;36(3):186-94.
6. Musick K, Mare RD. Recent trends in the inheritance of poverty and family structure. *Social Science Research*. 2006;35(2):471-499.
7. Rezai Asl H, Seyyed Mazhari M, Pishgooi SAH, et al. The Effectiveness of "Family-Centered Empowerment Model" on the Treatment Adherence of Patients with Type II Diabetes and Heart Disorder Admitted to AJA

Hospitals, During Year 2015.*M C S.ajaums*. 2017;4(1):58-69.

8. Hassan HE, Mokabel FM, AL_Radwan NA. Effect of Massage Therapy on the Mood and Pain of Post Cardiac Catheterization Patients. *A J N R*. 2019;7(3):392-9.

9. AnAaker A, Elf M. Sustainability in nursing: a concept analysis. *Scand J Caring Sci*. 2014;28(2):381-9.

10. Liu W, Manias E, Gerdtz M. Medication communication between nurses and patients during nursing handovers on medical wards: a critical ethnographic study. *Int J Nurs Stud*. 2012;49(8):941-52.

11. Ratanawongsa N, Karter AJ, Parker MM, et al. Communication and medication refill adherence: the Diabetes Study of Northern California. *J A M A Intern Med*. 2013;173(3):210-8.

12. Mendis S, Puska P, Norrving BE,et al. Global atlas on cardiovascular disease prevention and control. *WHO*; 2011;1(1):1-25.

13. Dehghani A, Dafei M. Coronary Artery Disease among Young Indians and it's Preventive Strategy. *Demo*. 2016;1(1):24-32.

14. Moeini M, Ghasemi TM, Yousefi H, et al. The effect of spiritual care on spiritual health of patients with cardiac ischemia. *Iran J Nurs Midwifery Res*. 2012;17(3):195-9.

15. Sammarco A. Perceived social support, uncertainty, and quality of life of younger breast cancer survivors. *Cancer Nurs*. 2001;24(3):212-9.

16. Zubrick SR., Mitrou F, Lawrence D, et al.. Maternal death and the onward psychosocial circumstances of Australian Aboriginal children and young people. *Psychol Med*.2011;41(9) :1971-80.

17. Golaghaie F, Bastani F. Cross-cultural adaptation of a patient-based tool for evaluating the implementation of patient education in acute care settings. *Patient Educ Couns*. 2014;96(2):210-5.

18. Baghbanian A, Tol A. The introduction of self-management in type 2 diabetes care: A narrative review. *J Educ Health Promot*. 2012;1:35.

19. Egede LE, Zheng D. Independent factors associated with major depressive disorder in a national sample of individuals with diabetes. *Diabetes Care*. 2003;26(1):104-11.

20. Hart HE, Redekop WK, Assink JH, et al. Health-related quality of life in patients with newly diagnosed type 1 diabetes. *Diabetes Care*. 2003;26(4):1319-20.

21. Auld ME, Hatcher MT. Environmental health promotion: advancing the science and practice. *Health Promot Pract*. 2010;11(3):301-2.

22. Won CW, Fitts SS, Favaro S, et al. Community-based "powerful tools" intervention enhances health of caregivers. *Arch Gerontol Geriatr*. 2008;46(1):89-100.

23. Rosland A-M, Piette JD. Emerging models for mobilizing family support for chronic disease management: a structured review. *Chronic Illn*. 2010;6(1):7-21.

24. Kim JI. Continence efficacy intervention program for community residing women with stress urinary incontinence in Japan. *Public Health Nurs*.

2001;18(1):64-72.

25. Tannenbaum C, Agnew R, Benedetti A, et al. Effectiveness of continence promotion for older women via community organisations: a cluster randomised trial. *B M J Open*. 2013;3(12):e004135.

26. Vahedian Azimi A, Alhani F, Ahmadi F, et al. Effect of family-centered empowerment model on the life style of myocardial infarction patients. *Iran J Crit Care Nurs*. 2010;2(4):1-2.

27. Broome BA. The impact of urinary incontinence on self-efficacy and quality of life. *Health Qual Life Outcomes*. 2003;1:35.

28. Aghakhani N, Baghaei R. The Effect of the Family-Centered Empowerment Model on Post-dialysis Fatigue in Hemodialysis Patients, Urmia, Iran. *Saudi J Kidney Dis Transpl*. 2020;31(5):1159-1160.

29. Rajabi R, Mahmoudirad G, Sabzevari SS, et al. The Effect of family-centered empowerment model on quality of Life among mothers of asthmatic Children. *Mod Care J*. 2016;13(1):e9602.

30. Teymouri F, Alhani F, Kazemnejad A. The Effect of Family-Centered Empowerment Model on Self-Efficacy and Self-Esteem of the Children With Asthma. *P C N M*. 2017;7(1):18-26.

31. Naidoo J, Wills J. Foundations for Health Promotion E-Book. *Elsevier Health Sciences*. 2016.

32. Asgari P, Bahramnezhad F, Zand S, et al. Comparison of the effect of two educational methods on the frequency of hospitalization and clinical symptoms of patients after acute myocardial infarction. *J Holist Nurs Midwifery*. 2018;28(1):9-17.

33. Rismayanti ID, Waloejo CS, Iswati S, et al. Family empowerment in the COVID-19 pandemic with the family-centered nursing approach and the utilization of family medicinal plants: a systematic review. *Sys Rev Pharm*. 2020;11(7):636-647.

34. Royani Z, Rayyani M, Vatanparast M, et al. The relationship between self-care and self-effiacy with empowerment in patients undergoing hemodialysis. *J M C S*. 2015;1(2):116-22.

35. Zakeri MA, Abazari F, Khoshnood Z, et al. The effect of nursing continuous care on self-management in patients with myocardial infarction. *Sci J Iranshahr Univ Med Sci*. 2022;1(2):67-74.

36. Varaei S, Shamsizadeh M, Cheraghi MA, et al. Effects of a peer education on cardiac self-efficacy and readmissions in patients undergoing coronary artery bypass graft surgery: a randomized-controlled trial. *Nurs Crit Care*. 2017;22(1):19-28.

37. Sanaie N, Nejati S, Zolfaghari M, et al. The Effect of Family-Centered Empowerment in Self Efficacy and Self Esteem in Patients Undergoing Coronary Bypass Graft Surgery. *J Res Dev Nurs Midwifery*. 2013; 10(2):44-53.

38. Atashzadeh-Shoorideh H, Arshi S, Atashzadeh-Shoorideh F. The effect of family-centered empowerment model on the life style, self-efficacy and HbA1C of diabetic patients. *I J E M*. 2017;19(4).

39. Hedayati B. Effect of Family-Based Empowerment Model on the Self-Efficacy of Hypertensive Elderly People. *Iranian J Ageing*. 2018;13(1):86-97.

40. Naderipour A, Miri J, Rashidi, A A.The effectiveness of chronic disease self-management program on self-efficacy in patients undergoing CABG surgery .*J of Clin Res Paramed Sci.* 2015;3(4).

41. Fioranelli M, Bottaccioli AG, Bottaccioli F, et al. Stress and inflammation in coronary artery disease: a review psychoneuroendocrineimmunology-based. *Front Immunol*. 2018;9:2031.

42. Gecaite-Stonciene J, Hughes BM, Kazukauskiene N, et al.Cortisol response to psychosocial stress, mental distress, fatigue and quality of life in coronary artery disease patients. *Sci Rep*. 2022;12(1):19373.