

Investigating the effect of family-focused nursing intervention on caregiver burden of the family members of the patients undergoing coronary bypass surgery in Isfahan Shahid Chamran Hospital during 2012

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ABSTRACT

Background: Family burden is defined as the problems, concerns, and unpleasant events affecting the patients undergoing coronary arteries' surgery, and is associated with these patients physical and psychological improvement. Nurses are in a good position to provide appropriate intervention. This study aimed to investigate the effect of family-focused nursing interventions on the burden of the family members of the patients undergoing coronary bypass surgery.

Materials and Methods: This is a clinical trial conducted on 50 family members of the patients undergoing coronary bypass surgery in Isfahan Shahid Chamran hospital. Caregivers were selected by convenient sampling and were randomly assigned to two groups of study and control. Caregivers in the study group attended a three-interventional session program during their hospitalization time, while the subjects in control group did not. Data collection tool was Novak and Guest caring burden inventory (CBI). Data were analyzed by SPSS.

Results: Means and SDs of caring burden before and after the intervention were 30.08 (14.03) and 19.2 (10) in the study group, respectively, and 30.16 (12.62) and 35.44 (10.42) in the control group, respectively. Changes of total scores of caring burden showed a significant difference after the intervention in the study and control groups ($P < 0.001$). Score changes of subscales of time dependence ($P < 0.001$), developmental ($P < 0.001$), physical ($P < 0.001$), and emotional caring burden ($P = 0.007$) were also significant.

Conclusions: Results showed that family-focused nursing interventions were effective in reducing the family burden of the patients undergoing coronary bypass surgery. Nurses can administrate family-focused nursing interventions to reduce the caregiver burden.

Key words: Coronary bypass surgery, disease burden, family care, family-focused nursing, Iran

INTRODUCTION

Cardiovascular diseases are the leading cause of mortality worldwide and about 17,000,000 cardiac deaths occur each year.^[1] Coronary artery diseases are among the most common form of disabling cardiovascular diseases. Over one-third of mortality in Iran is associated with the incidence of cardiovascular events.^[2] Coronary bypass surgery, as a major vascular constructive

surgery method, is one of most common surgical methods to treat these patients, and results in a notable improvement in these patients' angina pectoris signs, and their function and activity.^[1] The goal of this surgery is to supply new and adequate circulation for cardiac muscle after the stenosis of coronary artery through transplantation of a vein or artery.^[3] These patients are directly admitted in Critical Care Unit after surgery due to possible complications and receive coronary artery bypass specific cares.

They undergo mechanical ventilation after surgery, need special and specific care, and should be constantly monitored concerning postoperative complications and problems.^[4]

One of the components of postoperative nursing care is supporting these patients and their families.^[5] As the family is an important basis for patients' recovery and its members affect each other's health status and function,^[6] the patient's family, as an addressee group of nursing, has been described

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as both a recipient of care and a caregiving unity.^[7] Family members of the patients with coronary bypass surgery are in crisis due to their specific condition and possibility of death. This crisis affects their normal pattern of life and leads to family discomfort, especially when family crisis is resulted from hospitalization of one of its members. Being involved in a disease, and consequently, a family member's hospitalization brings about numerous physiologic and psychological problems for the patients and their families.^[5] Although playing a caregiving role is associated with a divine and family reward, research shows that the extension and severity of this role also leads to caring burden. A family caregiver is a person who receives no salary and provides the patient with care and physical, emotional, financial, and other types of support. Family members of the patients often act as a caregiver.^[8] The pressure on the caregiver because of caregiving activities may cause caring burden. This term is used to define the complications resulting from caring, which include physical, emotional, financial, and social caring related problems.^[9] Family members' caring burden is defined as the problems, troubles, and unpleasant events that affect the family members of the caregiver who cares the diseased member.^[10]

A few studies have been conducted on the effect of family-focused interventions on the imposed pressure to the patients' family, and are more in relation with the patients with dementia, schizophrenia, cancer, and physical disabilities, which have shown such interventions reduce the burden of care. Few studies have investigated the burden imposed to caregivers of coronary bypass patients. These studies have shown that the increase in the load, imposed to the caregivers, is significantly associated with poor physical and psychological recovery of the patients undergoing coronary bypass surgery.^[11] Previous research also showed the families need help for the constant adaptation, and their main need is education and support, but in recent years, modern medical technology has not paid enough attention to this issue of family support, so that the families have not received adequate support.^[7] As family members play an important role in the psychological recovery of their patients through staying with them, taking care of them, and making a meaningful interaction with their patient as well as cooperating with the treatment team in administration of care, their ability to support the patient may be impaired due to the imposed tensions.^[12] Therefore, with regard to the supportive role of family toward the individuals and its increasing effect on efficiency of official service systems, the caregivers should be supported by official supportive systems.^[7] Since the nurses spend a lot of time with the patients and their families, they are in a good position to detect the load of work and ability of caregivers and for provision of appropriate nursing interventions for them.^[8] Appropriate nursing care is defined as putting the patients at

the heart of attention and care, so that the care also covers the patients' family members. Although the care given by the family members is out of charge, this care imposes health burden to the caregivers.^[13]

The present study aimed to investigate the effect of family-focused nursing intervention on caring burden of the family members of the patients undergoing coronary bypass surgery.

MATERIALS AND METHODS

This is a two-group, two-step clinical trial to study the effect of the independent variable of family-focused nursing interventions on the dependent variable of caregiver burden. The study objectives were to define and compare total and subscales' mean scores of caring burden in two groups of study and control before and after the intervention.

Research environment in the present study comprised women and men surgical wards of Shahid Chamran Hospital affiliated to Isfahan University of Medical Sciences, where coronary bypass surgery patients were hospitalized and the patients' caregiving family members attended in. Inclusion criteria, in the present study, were being an immediate family member of the patient (spouse, child, father, mother, sister, or brother), age over 18 years, being interested in attending the study, being able to speak, read, and write in Persian (only one family member was selected), not being responsible for taking care of another patient, and finally, having the direct responsibility of taking care of the patient. Any problems prohibiting the family to continue with the study or the families whose patients were about to die during the study were excluded from the study. The subjects were selected through convenient sampling on the day of patients' hospitalization in women and men surgical wards of the hospital from the families of the patients who were candidates for coronary bypass surgery and had met the inclusion criteria.

In the present study, firstly, 25 patients were randomly selected from the subjects who met the inclusion criteria for the study group, and then 25 subjects were randomly selected and assigned to the control group. The data were collected by a questionnaire, which was completed by patients' families attending the study through self-administration.

The first section contained subjects' demographic characteristics (age, sex, employment status, marital status, education level, relativity status with the patient, and the length of patients' involvement in cardiac disease). The second section included Novak and Guest caregiver burden

inventory. This multi-dimensional tool measures caregivers' burden and assesses the imposed pressure and load to them. This inventory contains 24 items, and the subjects should declare to what extent they experience the inquired situations in a five-point Likert scale. This questionnaire measures five subscales of time dependence tolerance (5 questions), developmental tolerance (5 question), physical tolerance (4 questions), social tolerance (5 questions), and emotional tolerance (5 questions). The items are scored as: zero = not at all disruptive, 1 = somehow disruptive, 2 = moderately disruptive, 3 = disruptive, and 4 = very disruptive. The scores range from 0 to 96, and higher scores show higher caregiver burden. The Cronbach's alpha, reported in Novak and Guest study conducted on 107 caregivers, was 0.79-0.93, and reliability of the questionnaire was calculated to be 95.8%. Internal items assessment showed correlation coefficient of 0.66 among the items.^[14,15] In the first hours of patients' admission, the researcher got their written informed consent and filled the questionnaire related to demographic information and caregiver burden. In the study group, the interventions were conducted for the qualified family members of the patients in three 30-45 min sessions during 3 days of stay of the patients in the hospital [Table 1]. Interventions were administrated in three personal sessions for each family. The first session was held 24 h prior to the surgery, the second one during the surgery, and the third session was held 48-72 h after patients' return from the operating room to the surgery ward. Finally, on the last day of hospitalization, caregiver burden questionnaire was given to the selected family members in the study and control groups to complete. Data obtained in the present study were quantitative (discrete and continuous) and qualitative (nominal and ordinal), which were analyzed by descriptive and inferential tests (paired *t*-test, independent *t*-test, Mann-Whitney, Fisher's exact test, and chi-square test) in SPSS version 16.

RESULTS

Mean (SD) age of the subjects in the study and control groups were 40.4 (10) and 37.8 (8.9) years, respectively. Other subjects' variables have been presented in Table 2. Results showed no significant difference between the two groups in age [$P = 0.35$ (independent *t*-test)], sex [$P = 0.3$ (Fisher's exact test)], caregivers' relativity to the patient [$P = 0.35$ (chi-square test)], marital status [$P = 0.24$ (chi-square test)], and level of education [$P = 0.35$ (Mann-Whitney test)], so the two groups were almost statistically homogenous. Independent *t*-test showed no significant difference in the total mean scores of patients' family members' burden before the intervention [Table 3] in the two groups ($P = 0.98$), but there was a significant difference in the total mean

Table 1: Family intervention sessions schedule

Session one: Educating the patients and their caregivers about the disease process as well as providing other education in order to help the caregivers to show appropriate reactions to patients' disease-related problems such as pain, fatigue, and sleep and appetite disorders

Session two: Giving necessary education to help caregivers show appropriate reactions to patients' disease-related psychological and emotional problems such as anxiety, anger, depression, as well as educating the caregivers to take care of themselves

Session three: Talking to caregivers and giving them a chance to discuss about their problems and success in taking care of the patients and educating them about five steps of problem-solving skill (What is the problem? What is my plan? What might happen if? Try it out! How did I do?) and the way to use these steps to fulfill their needs concerning a caregiving role

Table 2: Subjects' variables in caregiving family members of the patients undergoing coronary bypass surgery in the study and control groups

Control group		Study group		Subjects' variables	
Percent	Frequency	Percent	Frequency		
88	22	96	24	Female	Gender
2	3	4	1	Male	
24	6	12	3	Single	Marriage
72	18	88	22	Married	
4	1	0	0	Divorced	
24	6	36	9	Mate	Compared with patients
76	19	64	16	Child	
32	8	48	12	Under diploma	Educational level
68	17	48	12	Diploma	
0	0	4	1	University	

scores of family members' burden after the intervention in the study and control groups ($P < 0.001$). Paired *t*-test showed a significant difference in patients' family members' burden in the study group before and after the intervention ($P = 0.01$). In order to compare the total mean scores of changes in caregiver burden after the intervention in the study and control groups, independent *t*-test was adopted and showed a significant difference ($P < 0.001$). Comparison of caring burden subscales' mean scores before the intervention in the study and control groups, through independent *t*-test, showed no significant difference in the subscales of time dependence caring burden ($P = 0.28$), developmental caring burden ($P = 0.55$), physical caring burden ($P = 0.28$), social caring burden ($P = 0.65$), and emotional caring burden ($P = 0.15$). Comparison of caring burden subscales' means after the intervention in the study and control groups, through independent *t*-test, showed a significant difference in time dependence caring burden ($P < 0.001$), developmental caring burden ($P < 0.001$), physical caring burden ($P < 0.001$), social caring burden

($P = 0.012$), and emotional caring burden subscales ($P = 0.007$). Comparison of caring burden scores in the study group before and after the intervention through paired t -test showed a significant difference in time dependence caring burden ($P < 0.001$), developmental caring burden ($P < 0.001$), social caring burden ($P = 0.01$), and emotional caring burden ($P = 0.012$) subscales, but no significant difference in physical caring burden subscale ($P = 0.53$).

In the control group before and after the intervention, the differences in mean scores of time dependence caring burden ($P = 0.02$), physical caring burden ($P = 0.001$), and emotional caring burden ($P = 0.04$) subscales were significant, but the differences in social caring burden ($P = 0.7$) and developmental caring burden ($P = 0.06$) subscales were not significant. Independent t -test results obtained from comparison of caring burden subscales' scores after the intervention in the study and control groups have been presented in Table 4.

DISCUSSION AND CONCLUSION

The obtained results of the present study showed a significant difference in the total mean scores of family members' caring burden of the patients undergoing

coronary bypass surgery. A case-control study (2008) investigating the effect of social and psychological interventions on the family caregiver burden among patients with dementia showed that five sessions of intervention including subjects' education and formation of discussion groups significantly decreased their caring burden and enhanced caregivers' satisfaction.^[16]

Another study in Iran (2009) investigating family education efficiency on the level of family caregiver burden of the patients hospitalized in psychiatric diseases ward showed a significant reduction in caregiver burden after four sessions of family education in the study group compared to the control group, and the intervention decreased psychological burden in the study group.^[17] In the present study, total mean scores of caregiver burden of patients' family members showed a significant difference before and after the intervention in the control group; but contrary to the study group, this difference was in the form of an increase in mean score of family members' caregiver burden in the control group after study compared to before study.

The period of hospitalization possibly increased family members' caregiver burden in this group. The results of a

Table 3: Total mean caring burden scores and subscales' mean scores of patients' family members' burden before and after the intervention in the study and control groups

Control group		Study group		Subscales	
After intervention	Before intervention	After intervention	Before intervention		
35.44	30.16	19.2	30.08	Mean	Total mean scores of caregiver burden
10.42	12.62	10	14.03	SD	
12	10.52	7.72	12	Mean	Time dependence burden
4.10	4.41	3.08	5.28	SD	
8.96	7.72	3.36	7	Mean	Developmental burden
2.89	4.55	3.54	4.08	SD	
6.84	4.68	3.40	3.72	Mean	Physical burden
1.97	2.88	3.01	3.36	SD	
5	5.16	3.36	4.76	Mean	Social burden
2.58	3.31	1.80	2.87	SD	
2.28	1.48	0.92	2.24	Mean	Emotional burden
1.69	1.44	1.70	2.22	SD	

Table 4: Comparison of total mean caring burden and subscales' scores changes of patients' family members after the intervention in the study and control groups

Statistical test		Control group		Study group		Groups' subscales
P	t-test	SD	Mean	SD	Mean	
>0.001	5.51	3.09	1.48	4.20	-4.28	Time dependence burden
>0.001	5.80	3.23	1.24	2.69	-3.64	Developmental burden
0.002	3.28	2.77	2.16	2.56	-0.32	Physical burden
0.124	1.56	2.86	-0.16	2.73	-1.40	Social burden
>0.001	3.75	1.87	0.80	2.11	-1.32	Emotional burden

study (2009) on the experiences of accompanying persons (caregivers) of the hospitalized elderly showed that lack of support to these accompanying persons in the hospital led to increase of their tension.^[18] Another research (2005) showed that during patients' hospitalization the entire focus of the treatment team is on the patients, and consequently, the needs and concerns of the family members are ignored. Their stress and burden is increased and lack of necessary interventions leads to incidence of a crisis among them.^[19] A study (2009) showed an increase in caring burden mean scores immediately after intervention in the control group compared to before intervention.^[20] Other researchers in 2009 explained that caring burden mean scores in the control group showed a minor increase 6 months after intervention compared to before intervention.^[21] The obtained results showed the highest scores of caring burden subscales in the study and control groups before intervention were for time dependence caring burden, developmental caring burden, social caring burden, physical caring burden, and emotional caring burden subscales, respectively. In both study and control groups, time dependence caring burden and emotional caring burden subscales had the highest and lowest scores before the intervention, respectively. After the intervention, the highest caring burden scores were for time dependence, physical, developmental, social, and emotional caring burden subscales in the study group, respectively, and for time dependence, developmental, physical, social, and emotional caring burden subscales in the control group, respectively. Subscales' score changes after the intervention [Table 1] were significant in time dependence, developmental, physical, and emotional subscales, while in the subscale of social caring burden, the score changes were not significant in the study and control groups. Social caring burden subscale mean the feeling of role conflict among caregivers, so that they may be ignored and not appreciated by other members. As most of the caregivers in the present study were patients' children who were married and had their own families and the sort of the conducted interventions did not create the chance to interact with the caregivers' family members to encourage them to support the caregivers, there was no significant change in this subscale (social caring burden). Some researchers (2005) concluded that patients' disabilities are the best predictors for time dependence caring burden subscale, and emotional caring burden subscale is more influenced by caregivers' anxiety and depression.^[22] In the present study, it seems that hospitalization period and surgery increase patients' disabilities. Conducting interventions for caregivers' families during hospitalization had the highest effect on reduction of time dependence caring burden subscale, so the highest score changes were observed in this caring burden subscale.

SUGGESTION FOR MORE RESEARCH

Bases on the findings of the present study, it is suggested to investigate the experience of family caregivers of the patients undergoing cardiac surgery concerning family-focused nursing interventions by the bed of the hospitalized patient. Investigation and comparison of the effect of family-focused nursing interventions on anxiety, depression, stress, and satisfaction of the patients' caregivers' families, as well as comparison of family-focused nursing interventions' effect on caring burden of the families with patients undergoing cardiac surgery, and with patients hospitalized in other wards of the hospitals are also suggested.

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