

## Application of Collaborative Care Model on Components of caregiver burden in families of patients with mental disorders

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**Background:** Collaborative care can be used as a component of self-care in reducing the complications of care in family caregivers of mental patients. Therefore, the present study aims to "determine the impact of the use of collaborative care model on the care burden parameters of the family of patients with mental disorders".

**Methods:** In this clinical trial, 66 households from family caregivers of mental patients participated who were eligible for inclusion in a study in the Shahid Rajaee Hospital of Yasuj in 2014. The samples were available and were divided into two groups of intervention (33 families) and control (33 families) based on simple random sampling. The instruments were demographic information sheet, primary needs assessment checklist, Novak's caregiver burden inventory (CBI). Collaborative care model was implemented based on the motivation, preparation, involvement and evaluation phases in the intervention group for 11 sessions. No intervention was performed for control group during this period. Data analysis was performed based on descriptive and inferential statistics (Chi-square, independent t-test, and Mann-Whitney) using SPSS V.21 with a significant level ( $p < 0.05$ ).

**Results:** The results showed that there was no significant difference in the scores of care burden between the two groups before intervention ( $P > 0.05$ ); however, after implementation of the model, there was a significant difference between the mean care burden and all the components of the intervention group and the control group. ( $P < 0.05$ ).

**Conclusion:** Implementation of collaborative care model is effective in decreasing the care burden of the family of patients with mental disorders. Therefore, it is recommended using of this model in health care.

**Keywords:** Collaborative care model, care pressure, family caregivers, mental disorders

## Introduction

The family-centered approach was used to reduce the length of stay in the hospital and to develop social and nursing services for the treatment of mental illness (1). The statistics show that more than 60% of patients discharged from mental care centers have returned to their original family (2). Therefore, today, the family as the best source of care plays a central role in satisfaction and quality of life of these patients (3) and is a hidden health care system (4). Therefore, the role of caring for patients involves the major challenges, such as managing the complex and difficult behaviors of the patient, and how to deal with guilty feelings confused the families. As a result, caregivers of these patients have symptoms of psychological and physical illness and tolerate more pressure (5-7). Caregiver stress has an intrinsic and completely personal nature. Understanding this concept is personal and internal, including factors such as time-dependent caregiver stress, developmental, physical, social and emotional care (8, 9). Moreover, creating psychological, physical and social stresses causes the problems of anxiety, depression, and burnout in home-caregivers of mental patients (10). The sources of stress in the family caregivers of mental patients include tolerance of lack of autonomy, the perception of increased vulnerability, patient's extreme diet plan, the difficulty of living with these patients due to sudden changes, ongoing care of mental illness at home, consecutive hospitalization due to reoccurrence of illness, lack of continuous contact with a doctor, unplanned termination of medication, lack of social support, loss of working ability, reduced family financial strength, lack of support and training to deal with harmful behaviors of the patient, confronting with the legal issues of the patient's behavior in the community, having a sense of shame regarding the disease in family and interpersonal relationship conflict of family members (11-13). In developed countries, one of the effective approaches to reduce the burden caused by the illness is through the use of general and specialized nursing education in the field of mental health. In addition, the self-sufficiency of caregivers to care themselves and participate in their care programmes are paramount of importance. Since if the caregiver or community members were trained in the nature and treatment of their illnesses can participate consciously and fundamentally in their care program and reduce the consequences of the burden caused by the illness (14-15). For this purpose, the collaborative

care model is consistent with the native culture of the country to control the blood pressure in the city. For this purpose, a collaborative care model was designed and evaluated by Mohammadi (2001) to assess the blood pressure in Babol city, Iran (13). Collaborative care is a regular and logical process of effective and equitable communication. From the perspective of this model, in the process of care, the quality and type of relationship between the two sides of the relationship are essential and vital (16). The efficacy of this model is confirmed in research on the quality of life of dialysis patients (17), children with major thalassemia (18), and chemically injured victims with chronic pulmonary disease (19). Therefore, considering the unconscious negligence of family caregivers of mental patients and their irreparable damages, as well as the lack of skill training programs for these people, this study was conducted aimed to investigate "the impact of using the collaborative care model on care pressure of families of patients with mental disorders".

## methods

This clinical trial was conducted on family caregivers of patients with mental disorders who had a three-month history of being hospitalized in Yasuj, Shahid Rajaee Neurology Hospital, 2014. The sample size calculated according to previous studies was 66 households (246 people) (19, 20). To access the samples with the permission of Vice Chancellor for Research and Treatment Affairs of the University, the information was extracted from the patient medical records, and then the family caretakers were invited to enter the research with informed consent. The participants selected via convenience sampling were randomly divided into two groups of intervention (33 households) and control (33 households). The Inclusion criteria were the average total score of each household in the Caregiver Burden Inventory (CBI), the age range of 15 to 75 years, reading and writing literacy, the main caregiver (father, mother, sister, brother, spouse, child, son-in-law, daughter-in-law), absence of suffering from a mental illness, score of  $\geq 47$  in CBI, and giving written informed consent for participation in the study. The exclusion criteria included, the freedom to quit the research whenever the sample wants, lack of cooperation, incomplete questionnaires, migration, lack of participation in one of the training sessions after entering the research. The instruments were a demographic information questionnaire and Novak 24-item caregiver burden inventory. The questionnaire consists of five subscales of Time-Dependent,

Developmental, Physical, Social, and Emotional Burden. The Scores for each item are evaluated using a 5-point Likert scale ranging from completely wrong to completely correct. Accordingly, the scores from this questionnaire range from 24 to 120; the scores from 24 to 47 are considered as mild burden, 48 to 71 as moderate, 72 to 95 as intensive and 96 to 120 were considered as extremely intensive (8). The validity of this questionnaire was confirmed in Iranian studies. Moreover, for the reliability of this tool, the Cronbach's alpha coefficient was reported as 0.80 (10). Implementation of the model in the intervention group included motivation, preparation, engagement and evaluation phases. The intervention group initially participated in the analysis of information for the motivation stage, and all members of the team, including clinical psychologists and nursing staff, cooperated actively. To evaluate the educational needs, a primary needs analysis checklist was used, and then the patients' problems were defined as care diagnoses by a psychiatric nurse. This model was implemented for all 4 families as a group in a total of 8 groups and for 11 weeks intervention for each based on the model in the hospital for caregivers for the intervention group. According to the requirements of the patients and the type of problems posed by the clients, seven training sessions were determined based on the prioritization of the primary need assessment checklist and four collaborative visit follow-up. In the first step, familiarizing with care problems, current conditions, the risks and complications of stress and encouraging more engagement in self-care was performed to motivate the patients. Moreover, at this stage, explanations provided to caregivers regarding where are you going to do? what? How? Why? By whom? And when? The second phase of the model, the engagement of the client, began with collaborative educational visits that lasted seven times, including the following issues. For the control group, there was no intervention just usual treatment.

#### A) Collaborative Educational Visits (Seven sessions)

The first session: (the role of the family in the context of the patients' counseling), the second session: (familiarity with mental illnesses), the third session (familiarity with medication methods for patients with mental disorders), the fourth session (non-medication therapies for patients with mental disorders), fifth session (psychological communication), sixth session (coping skills with stress and excitement), seventh session (problem solving and decision-making skills): all collaborative educational visits were

presented and implemented in the form of lectures, pamphlets, questions and answers in the 60 to 90 minutes.

#### B) Collaborative visit: First to Fourth Follow-up

Each visit taking a maximum of 30 minutes was made for 4 sessions, with an interval of one week. In these visits, while examining the problems of the patients, the positive and negative results of the educational actions and previous measures were reviewed and examined. Guidance for solving problems was provided. At the end of the evaluation phase, a participatory care model was performed one month after the intervention in the intervention group as well as the control one. At the end of the assessment, as a result, the positive impact on the intervention group, all educational content and follow-up visits were provided to the control group in the form of a booklet. Data were analyzed using descriptive statistics and inferential statistics (Chi-square, independent t-test, and Mann-Whitney) using SPSS V.21.

#### Results

The average age of caregivers in the family of psychiatric patients was  $34.53 \pm 13.74$  years. The participants were female (131; 54%), single (106; 43%), married (125; 51%) and divorced (15; 6%). The highest frequency of home caregivers was 114 (46.3%) for the children of psychiatric patients, and the lowest was related to the spouse and father of mental patients (7; 2.9%). In terms of education, the highest was associated with bachelor degree (84; 34%) and the lowest for intermediate education (8; 3%). For occupation, the highest for clerks (65; 26.4%) and the lowest for unemployed (14; 26.5%). The majority of psychiatric patients under home nursing care had a history of once hospitalization (130; 53%) and the minority of them had three times hospitalization (26; 10.6%). The results also showed that the mean and standard deviation of hospitalization duration was  $12.33 \pm 3.98$ .

The frequencies of psychiatric disorders in the patients were psychosomatic (41; 16.7%), anxiety (59; 24.2%), schizophrenic (71; 28.8%) and mood disorders people (75; 30.3%). Before the intervention, caregiver burden and all its components, except social one, were lower in the intervention group compared to the controls; however, independent t-test verified no significant difference between the mean of care burden and all its components in the intervention group and the control ( $P > 0.05$ ) (Table. 1). The results showed that after the intervention, the burden of the care and all its components in the intervention group were less than that of control group.

Considering normalization of the data, we used independent t-test to compare the time-dependent burden and Mann-Whitney for the other components of Care Burden. The results showed that after implementing the model, there was significant difference between the care burden and all its components in the intervention and control groups ( $P < 0.05$ ) (Table 2). The findings also

showed that the decrease in the changes in the care burden and their components in the intervention group was 1.5 times higher than that of the control group. Independent t-test showed that the reduction in the scores of care burden and its components in the intervention group were significantly higher than that in the control group ( $P < 0.05$ ) (Table 3).

**Table 1:** Mean and standard deviation of care burden scores and its components in home-caregivers of psychiatric patients before implementing the model in intervention and control group

Group		Intervention	control	T	p-value
The statistics		mean±sd	mean±sd		
variable					
Care burden		70.54±3.63	71.92±3.17	1.65	0.11
Care burden components	Time-dependent care pressure	14.94±1.8	15.07±1.53	0.299	0.77
	developmental care pressure	14.19±1.38	14.87±1.41	2	0.07
	Physical care pressure	1.23±11.71	1.39±12.01	0.94	0.35
	Social care pressure	1.11±14.86	1.44±14.83	-0.09	0.92
	Emotional care pressure	1.5±14.84	1.16±15.14	0.94	0.35

**Table 2:** Mean and standard deviation of care burden scores and its components in home-caregivers of psychiatric patients before implementing the model in intervention and control group

group		intervention		control		● Z U Mann- Whitney ●● T	p-value
Statistics variable		mean±sd	Mean rate	mean±sd	mean rating		
<b>Care burden</b>		39.85±3.74	21.58	53.24±12.67	45.42	-5.05	0.0001
Care pressure components	Time dependent care burden	8.54±1.26	---	10.91±2.98	---	●● 4.19	0.0001
	developmental	8.3±1.2	24.17	11.57±3.49	42.83	● -3.96	0.0001
	Physical care burden	6.43±0.95	41.8	9.72±3.18	41.8	● -3.51	0.0001
	Social care burden	8.28±1.31	28.35	10.42±3.68	38.65	● -2.18	0.029
	Emotional care pressure	8.29±0.99	26.41	10.62±3.36	40.59	● -3.1	0.003

- Mann Whitney Test
- Independent T-Test

## Discussion and conclusion:

The findings showed that at the end of the implementation of the collaborative care model, the level of care burden in the intervention group was significantly reduced compared to that of control group. Although the findings of the present study on the positive effect of care burden after implementing a collaborative care model are not comparable to other studies due to the lack of a precisely similar study, the positive impact of care pressure on other interventions in some previous studies was proven.

The results of the Phong studies in China (2004) showed when caregivers have a clear understanding of the illness, symptoms, and status of the patient, the care burden is reduced and their ability to cope with their problems increased (20). The results of the Grove et al. study (2006) indicated the effectiveness of family psychosocial education on reducing the care burden of caregivers of schizophrenic patients (21). Bernad et al. (2006) in their study showed that family psychosocial education in bipolar patients significantly decreased the feeling of pressure or family

burden after intervention and one year later (22).

**Table 3:** The mean, standard deviation and mean score of changes in the scores of care burden and its components in the home caregivers of the psychiatric patients before and after the implementation of the model in intervention and control group

group		intervention		control		● Z U Mann-Whitney ●● T	p-value
statistics	variable	Mean changes Pre-intervention and post-intervention score ± sd	The average rating	Mean changes Pre-intervention and post- intervention score ±sd	The average rating		
Care burden		-30.68± 5.15	---	-18.68± 12.22	---	●● 5.19	0.0001
components care pressure	Time dependent care burden	-6.4± 2.09	---	-4.16± 3.13	---	●● 3.41	0.001
	developmental care burden	-5.89± 2.09	---	-3.3± 3.59	---	●● 3.56	0.001
	Physical care burden	-5.27± 1.53	---	-2.29± 3.02	---	●● 5.05	0.0001
	Social care burden	-6.57± 1.69	29.15	-4.41± 4.04	37.85	● -1.84	0.066
	Emotional care burden	-6.55± 1.73	---	-4.52± 3.3	---	●● 3.11	0.003

To rationalize the reduced effect of collaborative care model on the level of care burden, it can be said that the implementation of educational visits based on initial needs assessment involve coping strategies for adaptation to psychiatric patients, and provide information on communication methods, problem-solving, mental patient management and pharmaceutical and non-pharmacological treatment methods in mental disorders. In explaining this reduction in control group, the reason would be the use of pharmaceutical therapy and psychotherapy methods in psychiatric patients that causes a reciprocal effect on caregivers leading to lower care burden. The results of the study of Sullivan et al. (2007) showed significant recovery of anxiety disorders caused by the impact of collaborative care model (23). The findings of Hegel et al. study showed the effect of collaborative care on the control of depression in the elderly people compared to that of routine care (24). Graham's research showed that collaborative care contributes better than normal care in the recovery of depression in old people (25). Findings of the Azadi et al. study (2006), showed the effectiveness of collaborative care in improving the quality of life of patients with coronary artery disease [26]. The positive impact of collaborative care model on the quality of sleep in patients with heart failure was demonstrated in a study by

Nayyeri et al. (1014) (27). Therefore, previous studies on the use of collaborative care model are consistent with some results of the present study. The limitations of this work are the lack of sampling from family caregivers of a type of mental disorder and the comparison of this model with other educational methods for the family of psychiatric patients.

## Conclusion

The findings of this study confirmed the positive effect of collaborative care model on reducing the care burden and its components in family caregivers of patients with mental disorders, hence, considering the cheapness and simplicity of this model, it was recommended to reduce the burden of caring for family caregivers. Furthermore, considering the prevalence of mental illnesses and the negative effects of these diseases on the family, this model can be used as a native caring model compatible with Iranian culture in nursing education as well as the design and implementation of a nursing process for people with mental disorders.

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