

## The Effect of Psycho-educational Intervention on the Caregiver burden among Caregivers of Hemodialysis Patients

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### Abstract

**Background and objectives:** Chronic renal failure has a progressive nature and there is always a need for a person to care for them. A caregiver, who is usually a patient's family member, may face many problems during the care process, which ultimately causes burnout. The aim of this study is to determine the effect of psycho-educational intervention on the caregiver burden of patients undergoing hemodialysis.

**Methods:** This study was a clinical trial that carry out on 105 caregivers of patients undergoing hemodialysis. The burnout questionnaire of Zarit was completed by the participants. The Caregivers were allocated randomly in two groups of intervention (discussion, workshops) and control. Two weeks after the completion of 6 sessions of the group discussion and 4 sessions of the workshop, caregiver burdon questionnaire of Zarit was completed again. Data was analyzed by using version 16 of spss software and parametric and non-parametric tests.

**Results:** Results showed that there was no significant difference between the three groups before intervention in the mean scores of burden ( $p=0.423$ ). However, after the intervention there was significant difference in the mean scores of burden between intervention groups with control group ( $p<0.001$ ). Tukey post hoc test showed no significant difference between the two intervention groups in the mean scores of burden ( $P=0.204$ ).

**Conclusion:** The results of this study can be found that training classes such as group discussion had a significant reduction in the severity of caregiver burden. Therefore, it is recommended that in the health system planning attend to the role of family members in the treatment of these patients also benefit from this training method.

**Keywords:** Psycho-educational intervention, Caregivers Burden, Hemodialysis

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## Introduction

Caregivers are the people who are most involved in caring and helping the patient to adapt and manage chronic disease (1). They help to meet the daily needs of a sick person without financial support (2). These people can be a spouse, parent, child or any of the relatives of the patient (3). It is estimated that about 52 million Americans are caregivers for sick or disabled people (4). Economically, it is estimated that caring for adult and disabled patients are worth 196 billion \$ over a year (5).

Considering the inevitable progressive nature and long-term treatment of chronic renal failure and changes in caregivers' performance, they often endanger the physical and mental health of the patients (6). According to the latest statistics, the number of patients with chronic renal failure in the world is estimated to be around 1.9 million, of which 1,455,000 undergo hemodialysis (7). According to the statistics in 2008, 16,600 hemodialysis patients existed in 355 hemodialysis wards in the country and 20 % is added to them annually (8).

The heavy responsibility for long-term care of the patient leads to a change in the caregiver's lifestyle and has a negative impact on her/ his emotional and social aspects and causes burnout (9, 10). According to the definition of the American Psychiatric Association, the burnout is a set of physical and psychological symptoms during which a person seems to be depressed and upset, depending on the different cultures, has different manifestations (11). Zarit defined the burnout as a multi-spectral response to the negative assessment and perceived stress of caring the patient (12).

Lack of awareness and ambiguity regarding the prognosis of the disease are the main risk factors for creating a burnout (13). Caregivers may take care of the patient without any readiness, support, and training (14, 15). This decreases the level of care and increases the psychological requirements (16).

Numerous interventional programs were designed to support caregivers, reduce negative aspects and increase the positive aspects of the care (17). Interventions such as training, support and psychotherapy can reduce the caregivers' burnout, increase the quality of the provided care, as well as the physical and mental health of caregivers (18, 19). Training programs are recommended as a helpful solution for supporting and providing information to caregivers (3). On the other hand, caregivers are also interested in training and learning (20, 21). Training the caregivers can include providing information regarding the illness and employing communication and coping skills and problem solving (13). Group training programs are widely recommended as a valuable strategy to support the caregivers (22).

One of the most common, active and modern methods of training is group discussion method (23), provided as an effective strategy in the field of health sciences (24). On the other hand, a workshop is a training tool that one of its advantages is to provide a large number of topics within a short time (25). The techniques, methods, and the workshop working way are such that they engage the participants in the process of problem-solving and conclusion and the lecturer will help participants in inferring concepts and issues (26).

In the study of Mollaoglu et al., home-based care training through group discussion was effective on burnout severity among caregivers of hemodialysis patients (13). In the study of Farahani et al., training the hemodialysis patients' caregivers were effective in reducing the burnout and other care-related problems (27). In the study of Ghane et al., a supporting curriculum was effective in the life quality of hemodialysis patients' caregivers (28).

Given that the number of people with kidney failure and their need for home care is increasing, the caregivers may face with the problems such as burnout needed to be paid enough attention to find effective and more practical training methods. In the studies, there is no comparison between training methods. This study aimed to determine the effect of psycho-educational intervention through two educational methods of group discussion and a workshop on burnout among caregivers of hemodialysis patients referring to educational centers of Urmia in 2015.

### **Materials and Methods**

The present study was a pre-test/ post-test trial performed on caregivers of patients undergoing hemodialysis referring to Imam Khomeini and Ayatollah Taleghani educational centers of Urmia in 2016. The sample size in this study, according to Fallahi Khoshkanab et al. (29) was determined 93 people that with a probable loss of 10% increased to 105. The researchers, after arrangement with the relevant authorities, selected the samples including 105 caregivers of the patient based on the inclusion criteria of the study. They were selected randomly using the Excel program and based on the pre-prepared sampling framework including 400 (350 people in Taleghani Hospital and 50

in Imam Khomeini Hospital). The inclusion criteria were the following : the age of 18-60 years, having literacy, not having chronic mental and physical illnesses, as well as cognitive, hearing and vision disorders according to the person's statement. The rest of criteria were absence of psychedelic drugs, history of being caregivers at least for 6-month, no university education in medical sciences, life with a patient in one place, familiarity with Persian language, willingness to participate in educational sessions, no drug abuse, and lack of attendance in the similar educational classes. Exclusion criteria included absences of more than 2 sessions, patient deaths during the study, and getting the caregiver an illness requiring hospitalization during the study.

The data collection tool was a demographic questionnaire and Zarit Caregiver Burden Interview. The demographic questionnaire included gender, age, marital status, educational level, and relation to the patient, duration of care, monthly income and insurance coverage status. The Zarit Caregiver Burden Interview was composed of 22 questions and it can be used to measure the various aspects of burnout such as, individual (1, 2, 7, 10, 11, 17, 19, 20 and 21), social (3, 6,12 And 13), emotional (4, 5, 8, 14, 9, 18 and 22) and economic (15 and 16). This questionnaire was graded in 5-point Likert based (never= 0, rarely= 1, sometimes= 2, often= 3 and always= 4), and the scores of the participants in the test ranged from 0 to 88. Scores of 0-20 indicates a lack of burnout to a low-level burnout, 21-40 indicates a low to moderate level of burnout, 41-60 represents moderate to severe burnout, and 61-88 indicates the intensive burnout (12). Validity and reliability of this tool were investigated by Navidian et al. (2008) in Iran. The reliability was confirmed using a retest

method with a correlation coefficient of 0.94, and the convergent validity was approved based on the positive and high correlation with Hamilton anxiety scale ( $r = 0.9$ ) and Beck Depression Inventory ( $r = 0.67$ ) (30). Furthermore, in the research of Kuhestani and Bagchi (2012), the content validity of this questionnaire was confirmed and the reliability of the questionnaire was approved using retest (0.85) and internal consistency and Cronbach's alpha (0.88) (31).

After meeting with the research samples and explaining the purpose and method of the research, the written consent was obtained from the samples and they were reminded that all information obtained from them will be kept confidential and the results will be published without mentioning the name. They were also informed that at any stage of the research, they could leave the study for any reason. In this study, the authorization was obtained from the Ethics Committee of the University of Medical Sciences (ir.umsu.rec code 1394.184). After the pre-test, the participants were randomly assigned to three groups of 35 (two intervention groups and one control group) by giving cards with English letters (A, B, C). In one of the intervention groups, a care-training workshop and in the other group, a care-based group discussion was held. The control group

received the same routine training, however, in the end, they were provided training packages for acknowledgment their participation in the research.

Subsequently, the intervention groups were divided into smaller groups, so that the group discussion group was divided into 3 groups and the workshop group was divided into 2 groups. Six training sessions in the group discussion group were held for 2 h. On the other hand, in the workshop group, 4 sessions of 4 h were held. Considering the presence of the majority of patients, the classes were in the conference hall of Ayatollah Taleghani Hospital. The instructor in the workshop, as well as the group discussion sessions manager were the researchers. There was also a psychic nurse at the sessions. The scientific content of the two programs was the same. These topics were selected after reviewing guidelines, the nursing and scientific books and the relevant articles. The articles were submitted to 3 faculty members of the faculty of Psychiatric Nursing and 2 faculty members of the Department of Clinical Psychology of the University, and a panel was held with the participation of these people, the proposed amendments were collected and approved after applying (Table 1).

**Table 1.** Group discussion and workshop sessions

Group discussion sessions (6 sessions)	First session: Familiarity with the end-stage renal disease	Session 2: Principles of self-care	Session 3: Ways to increase self-confident
	Session 4: Reducing stress, managing time	Session 5: Improving career skills	Session 6: Increasing communication skills
Workshop sessions (4 sessions)	First Session: More familiarity with the end-stage renal disease	Session 2: Principles of self-care, ways to increase self-confident	Session 3: Reducing stress, managing time
	Session 4: Improving career skills, training increased communication skills		

The time of the holding the sessions was coordinated with the caregivers of the patients, one session each week. The arrangement of the chairs of the training session was in accordance with the educational method. In group discussion method, the arrangement was in a circular manner to facilitate the exchange of ideas between the participants and in the workshop group the tables and chairs were arranged unilaterally directed towards the trainer. In group discussion sessions, the researchers initially created a brainstorm in the minds of the audience by asking a question, and then the group discussion lasted for 2 h. In this way, the participants used each other's experiences and ideas. Throughout group discussion the researcher while contributing to the discussion and presentation of his own ideas, also played the role of the group leader, and always tried to articulate the discussion to be proportionate to the discussion subject. In the end, the content was summarized with the help of the participants and the subject of the next session was presented.

The workshop is referred to a specific educational approach in which the formal academic teaching and information provision are minimized and the active learning of the participants is concentrated (32). In this study, each workshop session consisted mainly of three parts: lecture, group discussion and work in small groups, and the third section was the presentation of group work and community participation. In the first stage, the training workshop was started by presenting discussions by the researchers. At this stage, the researchers presented some questions while providing scientific-practical concepts to learners. In the next step, working groups with a maximum membership of 5 people in

each group were formed, and each group was managed by one of the researchers. In the third stage, questions and operational exercises were responded. At the end of the interventions, the severity of burnout was measured in all three groups by post-test (Diagram 1).

The collected data was analyzed by SPSS V.16 using ANOVA for comparing the mean scores of burnout between the three groups after ensuring the normality of the data by Kolmogorov-Smirnov test and confirming the equality of variances by the Levine test and Tukey's post-test was used to compare the pairwise mean care scores between the groups. Comparison of mean scores of care burnout aspects between groups was calculated using the Kruskal-Wallis test and the pairwise mean scores of burnout aspects were compared between the groups using the Mann-Whitney test. It should be noted that P-Value of less than 0.05 was considered as the significance level.

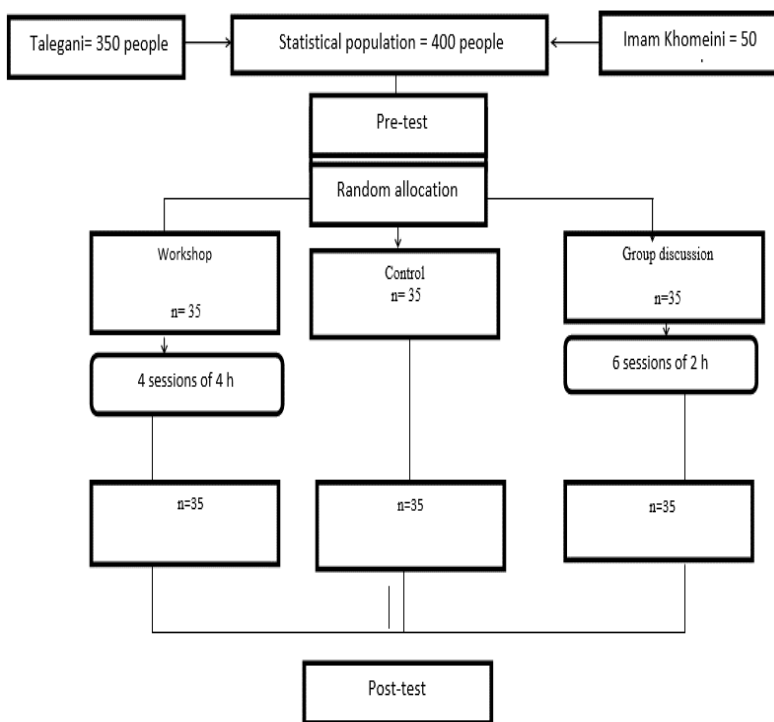


Diagram 1. Method of the research

## Results

In this study, 105 caregivers of patients under hemodialysis participated. Of which 25 (14%) were male and 80 (86%) were female. The mean age was  $11.55 \pm 36.29$  years. The results of the study indicated that there is no

significant statistical difference between intervention and control groups in terms of demographic variables such as gender, age, marital status, educational level, monthly income and duration of care (Table 2).

**Table 2.** Comparison of demographic characteristics between three groups of control, discussion, and workshop

Qualitative variables		Control	Group discussion	Workshop	Chi-square test
		Number (%)	Number (%)	Number (%)	
Gender	Male	10 (28.6)	7(20)	8(22.9)	X <sup>2</sup> = 0.735 P= 0.692
	Female	25 (71.4)	28 (80)	27 (77.1)	
Marital status	Single	10 (28.6)	7 (20)	9 (25.7)	X <sup>2</sup> = 0.716 P= 0.699
	Married	25 (71.4)	28 (80)	26 (74.3)	
Education level	High school	20 (57.1)	18 (51.4)	16 (45.7)	X <sup>2</sup> = 0.915 P= 0.633
	Diploma and high	15 (42.9)	17 (47.6)	19 (54.3)	
Monthly income	Low	22 (62.9)	24 (67.6)	24 (68.6)	P = 0.391
	Moderate	11 (31.4)	11 (31.4)	11 (31.4)	
	High	2 (5.7)	0 (0)	0 (0)	
Relation with the patient	Parent	5 (14.3)	7 (20)	2 (5.7)	X <sup>2</sup> = 3.648 P = 0.724
	Child	12 (34.3)	13 (37.1)	16 (45.7)	
	Spouse	12 (34.3)	10 (28.6)	11 (31.4)	
	Others	6 (17.1)	5 (14.3)	17 (16.2)	
Quantitative variables		Mean± Standard deviation	Mean± Standard deviation	Mean± Standard deviation	ANOVA
Age (year)		36.14± 11.183	36.22 ± 11.671	36.51 ± 11.497	F= 0.011 P = 0.989
Duration of care (month)		46/45 ± 34.526	52.22 ± 32.426	61.14 ± 44.566	F = 1.359 P = 0.262

Based on Kruskal-Wallis statistical test and ANOVA, the results showed that there was no significant statistical difference between the three groups of control, discussion and workshop in terms of mean scores of burnout and its aspects before the intervention ( $P > 0.05$ ).

After the intervention, based on Kruskal-Wallis test and ANOVA, a significant statistical difference was found between the control, the discussion and the workshop

group regarding the mean score of burnout and its aspects, except for the economic aspect ( $P < 0.05$ ) (Table 3).

**Table 3.** Comparison of the mean scores of burnout and its aspects among the three groups of control, discussion, and workshop

Variable		Control	Group discussion (6 sessions)	Workshop (4 sessions)	statistical test
		Average rate	Average rate	Average rate	
<b>Individual aspect</b>	Before intervention	48.56	51.83	58.61	X <sup>2</sup> = 2.017 *P= 0.365
	After the intervention	68.04	41.20	49.76	X <sup>2</sup> = 9.154 *P= 0.0001
<b>Social aspect</b>	Before intervention	48.76	52.09	57.16	X <sup>2</sup> = 1.756 *P= 0.416
	After the intervention	65.40	45.29	48.31	X <sup>2</sup> = 9.212 *P= 0.010
<b>Emotional Aspect</b>	Before intervention	53.97	50.41	54.61	X <sup>2</sup> = 0.392 *P= 0.822
	After the intervention	61.83	42.80	54.37	X <sup>2</sup> = 7.057 *P= 0.029
<b>Economic aspect</b>	Before intervention	49.01	50.09	59.90	X <sup>2</sup> = 2.817 *P= 0.245
	After the intervention	58.34	45.76	54.90	X <sup>2</sup> = 3.324 *P= 0.190
<b>Total burnout</b>	Before intervention	Mean± Standard deviation	Mean± Standard deviation	Mean± Standard deviation	Statistical analysis of variance analysis F= 0.867 **P= 0.432
		36.14 ± 11.183	36.22 ± 11.671	36.51± 11.497	
	After the intervention	46.45 ± 34.526	52.22 ± 32.426	61.14 ± 44.566	F= 9.211 **P= 0.0001

**Table 4.** Pairwise comparison of the mean score of burnout and its aspects between the three groups after intervention

Aspect	group	Control	Group discussion
Individual	Group discussion	*P= 0.0001	-
	Workshop	*P= 0.012	P= 0.419
Social	Group discussion	*P= 0.08	-
	Workshop	*P= 0.012	P= 0.579
Emotional	Group discussion	*P= 0.01	-
	Workshop	*P= 0.279	P= 0.079
Total burnout	Group discussion	**P= 0.0001	-
	Workshop	**P= 0.033	P= 0.204

\* Mann-Whitney statistical test \*\* P Tukey's post-test

The pairwise comparison of the mean scores of burnout and its aspects after the

intervention, Mann-Whitney test, and Tukey's post-test indicated no significant statistical

difference between the control and group discussion ( $P < 0.05$ ), as well as control and

workshop groups except for the emotional aspect ( $P < 0.05$ ). There was no difference between the two groups of the group discussion and the workshop in terms of burnout and its aspects ( $P < 0.05$ ) (Table 4).

## **Discussion**

The results of this study showed that the number of female caregivers in the present study was higher in all three groups than the male caregivers, which is consistent to the previous studies (8, 13, 33). Among caregivers, the women accounted for the most important group, 75% of the family caregivers (34). More than 84% of non-professional caregivers are women (35). Most of the caregivers of patients with chronic diseases are women (36). Perhaps this is due to the existence of this culture in the Iranian society that care of patients is more often than on women and girls shoulders, as part of their home affairs and tasks.

In the present study, in terms of the relationship with the patient, most of the research samples were the child, the spouse, and the parents, respectively, which is similar to the results of the study of Karahan et al. (2014) (38). On the other hand, in the study of Molaoglu et al. (2013), the responsibility of caring the patient was mostly on the shoulders of the patient's wife (13). Of course, in the present study, after the children, the spouses took care of the patients.

In terms of education, the majority of subjects had a post-graduate degree, which is similar to the results of the Kaharan et al. (2014) and Talebi et al. (2016) studies (38, 39). Perhaps this is due to the fact that as a result of employment and having different roles in

people with high education, the role of caring for the family is for a person with a lower education. The results of this study showed that the monthly income of the majority of the samples was low in all three groups, which is consistent with the study of Ho et al. (2016) (37).

The results of this study showed that after the intervention, the mean scores of burnout in intervention groups (group discussion and workshop) were significantly lower than the control group. This finding is consistent with the results of two other meta-analyses on the impact of psychological training programs on reducing the burnout of patients' caregiver (40, 41). In the study of Farahani et al. (2017), group discussion and role-play training methods for caregivers of hemodialysis patients were associated with positive results (27). In the study of Molaoglu et al. (2013), training home-based care was effective on reducing the burnout of caregivers of hemodialysis patients (13). Providing educational and psychological programs for caregivers is effective. The most important advantages of such facilities are reducing the burden of care, increasing the feeling of comfort, reducing stress and reducing the negative effects of care on the affected person. The most important advantages of such programs are reducing the burnout, increasing the feeling of comfort, reducing stress and reducing the negative effects of care on the affected person.

Several studies conducted on caregivers of patients with mental disorders, cancer and dementia, and their findings suggest that training can significantly reduce their burnout (42-44). For example, the findings of Etemadifar et al. (2014) and Navidian et al. (2012) indicated that educational-supportive interventions and psychological programs



were effective in reducing the caregivers' burnout, increasing the perceived health and improving patient care (45, 46). On the other hand, McMillan et al. (2013) in a study that aimed to determine the effectiveness of control-based interventions on caregivers of patients with heart failure, reported no significant reduction in caregivers' burnout (47). This can be attributed to the fact that the sample of this study included the caregivers of patients with heart failure who had passed the final stages of their lives in care centers and had no proper health status.

Moreover, the results of the present study showed that after the intervention the caregivers' burnout scores in all aspects were significant except for the economic aspect in intervention groups (group discussion and workshop) than the control group. Accordingly, it can be concluded that the educational support program was effective in all aspects of burnout, except for the economic aspect. Perhaps this is as a result of the fact that the education and support alone can not solve the economic problems of hemodialysis patients' families, and health systems need to make more effort in financial support of these families. In the study of Ghane et al., a supportive educational program was effective on the caring pressure of family caregivers in hemodialysis patients in terms of evolutionary, physical, emotional, social and time-dependent aspects (28).

The results of this study showed that the participation in both educational-support programs reduced the caregivers' burnout in both groups after the intervention, however, no significant statistical difference was found between the two groups after the intervention, which could indicate almost the same effect of both types of training. This can indicate that different educational methods such as a

workshop can be used to train caregivers of hemodialysis patients.

During the study, the awareness level of the research samples could be influenced by various educational programs (radio, television, newspaper, etc.). Another limitation of our study was a relatively short follow-up time after the intervention. Therefore, it is recommended to repeat this study with long follow-up periods to identify the long-term effects of the intervention.

Since most of the caregivers in this study were female, further research is recommended on various aspects of health and its promotion in female caregivers. Since nurses as health educators can increase the awareness and support of caregivers in order to increase the quality of patient care as well as the general health of caregivers at optimal levels.

## **Conclusion**

Several studies showed that educational-supportive interventions could reduce caregiving burden. Based on the results of this study, it can be concluded that holding classes through group discussion and workshop lead to a decrease in the intensity of caregiving burden. It is recommended to consider the role of family members in the care of these patients in systemic therapeutic programs. In addition, the use of educational methods such as training the patients and their caregiver, counseling, family-based therapy, supporting groups and referral services are recommended to reduce caregiving burden. Accordingly, the quality of patient care and the physical and mental health of both patients and caregivers are assured.

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