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The effect of psycho-educational interventions on general health of family caregivers of patients with spinal cord injury: A Randomized Controlled Trial

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Abstract

Introduction: Family caregivers are often responsible for providing significant support to relatives who require care at home. However, evidence suggests that family caregivers have limited information, resources or support to prepare them for such a role. Furthermore, family caregiving can be associated with negative physical and psychosocial outcomes. This study examines the short-term impact of psychoeducational interventions on genera health of family caregivers of patients with spinal cord injury.

Materials & Methods: In this randomized controlled trial 62 caregivers, who had a primary role, participated in this study; these candidates were randomly categorized into intervention (n=33) and control (n=29) groups. Caregivers of the intervention group took part in the training sections, which were held once a week for four successive weeks (each session lasting 90 minutes), while control group received no training. Both groups completed the general health questionnaire (GHQ-28) before the intervention and 2 and 6 weeks after the intervention. A Chi-square test, independent t-tests, fisher exact test and Repeated Measures Analysis of Variance were used with the SPSS program for data analysis.

Results: The results have revealed that all the participants had mental health disorders, in both groups. After the intervention a significant difference was found between the two study groups regarding the mean score of mental health 2 and 6 weeks after the intervention ($p= 0.001$). Similar results were also obtained regarding the domains of mental health ($p<0.05$).

Conclusion: The results revealed the effectiveness of psycho-educational interventions in improving general health among caregivers of patients with spinal cord injury. Designing continual programs along with consultation is essential and beneficial in promoting general health of family caregivers of spinal cord injury patients.

Keyword: Family caregivers, General health, Psycho-educational, Intervention, Spinal cord injury.

Introduction

Spinal cord injury is one of the major health issues ((1), and there are 29 cases affected with SCI in one million every year (2) There is not an accurate number of SCI patients in Iran, yet in Tehran, 2.2 individuals in 10000 people were affected between 2003 and 2008(3) However, this problem certainly does not only affect patients with SCI, but also their family. Many patients with spinal cord injury face challenges regarding their physical, psychological and social functioning and substantial proportion of patients with SCI need support in these areas for the rest of their lives (4) Due to the improvement of the health care systems ((1) and recent developments in medicine, the life expectancy in patients with SCI has increased (5) Most of the SCI survivors live with their parents and spouses who have the leading role in care-giving. Such lesions create incapabilities (6) which can outstandingly change the foundation, roles, and dynamic situation of a family; therefore the family caregivers experience a wide range of changes in their life style (7) such as increasing

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responsibilities, lack of information, change in their health status, emotional issues, disorder in life quality, financial disadvantages, and considerable amount of stress (5). Although some believe religiously that being a caregiver brings about rewards and positive improvements ((8), studies show that based on the varieties and importance of family caregivers' roles, psychological issues might be considered as well (9, 10). It is generally proved that caregivers of the patients with chronic and debilitating disorders, experience high levels of psychological and physical difficulties and family caregivers of patients with SCI are exposed to a higher risk due to facing unique challenges and the fact that they need long-term care(11).Researchers repeatedly report that physical, emotional and mental stress, exhaustion, fury, and depression are in a high level among family caregivers in SCI patients ((12, 13). In another study on the caregivers in England in 2002, it was also proved that they have experienced negative anxiety such as emotional and mental tensions, disappointment, anger, loneliness, guilt feelings, sleep disorders and sad feelings in the caregivers (14). Regarding the fact that living with patients with SCI is a devastating situation, it is necessary for the patients and their family caregivers to have preparation and strength for coping with this condition (15). Caregivers offer valuable services to disabled people in a society, and therefore their health is an important factor for the health-care systems; this is because the health of care receivers depends on their capabilities and qualifications. Their health has attracted more attention nowadays since the number of caregivers is increasing(7). Patient's level of physical and psychological health decreases in case of leaving caregivers without being treated or having interventions ((16) Some treating interventions such as training, supporting and psychological treatments could have outstanding effects on decreasing depression, anxiety, and stress in family caregivers and provide a background for promoting the quality of care giving and the level of physical and mental health (17, 18). Nonetheless there are no studies on the family caregivers of SCI patients and little attention has been paid to them in Iran ((19). Considering the significance of the role of family caregivers and families itself in supporting patients with physical disabilities in Iranian/Islamic culture and lack of appropriate supportive and training systems in our country's health care system, the necessity of performing an interventional study to improve the psychological health of the caregivers is strongly recommended. The aim of our study, therefore, is to evaluate the effect of psycho-educational interventions on the general health of family caregivers in patients with SCI.

This study was to examine the short-term impact of psycho-educational interventions on caregiver's general health. The Family Series Workshop is a four-session, psycho-educational intervention provides vital information to help caregivers improved care for the patient with SCI.

Materials & Methods

In this randomized controlled trial study the intervention was performed through holding a psycho-educational program for the family caregivers of SCI patients who referred to Shiraz welfare organization and a general health questionnaire (GHQ-28) was completed by both the intervention and the control groups before and after the intervention.

Participants were 72 individuals of family caregivers of SCI patients (paraplegia and tetraplegia) who referred to Shiraz welfare organization and had the condition and tendency to enter the study were selected.

The sample size was determined based on similar studies (20) and due to lack of cooperation of family caregivers 36 peoples for each group. Caregivers were defined as family members actively providing day-to-day care for individuals with spinal cord injury.

The inclusion criteria included having the responsibility of taking care of SCI patients over a

year, primary role of a caregiver, and tendency to participate in the study and access to telephone. In cases of having history of identified mental disorders, hospitalization, and using psychotropic drugs, they were excluded from the study.

Participants were randomly divided into two groups of intervention and control based on the block permutations. During the study, 10 candidates were omitted because of insufficient participation or being on a trip. Ultimately, we studied 62 individuals, including 33 candidates in the intervention group and 29 candidates in the control group.

Data collection was done through General Health Questionnaire-28 (GHQ-28) before and after the intervention. Reliability and validity this Questionnaire were assessed in Iran's community in 2002 (21). In this study, reliability coefficient of the questionnaire (test re test method) was 88%.

. This questionnaire includes 28 questions, each one having 4- points based on the Likret scale ranging from 0 to 3. The minimum grade in this questionnaire is 0, and the maximum is 84. The cut-off point of this questionnaire is 23, and gaining a higher grade is a sign of psychological disorder. Grades less than 23 indicate no mental disorder. This questionnaire includes 4 aspects, each one consisting of 7 questions such as: 1 to 7 questions related to Somatic symptoms aspect, 8 to 14 questions related to Anxiety and Insomnia aspect, 15 to 21 questions related to Social dysfunction aspect and 22 to 28 questions related to depression aspect.

The data collection period was from May to August 2012. Before we began collecting data the study was approved by the ethics committee Of Shiraz University of Medical Sciences. Data was collected to measure general characteristics and the general health by GHQ-28.

Data analyses were conducted by using SPSS, version 15.0 (SPSS Inc., Chicago, IL, USA). kolmogorov–smirnov test Determined the data were normally distributed. Descriptive statistics (mean, standard deviations and frequency distributions) were used to describe sociodemographic characteristics of both caregivers. Repeated measures analysis of variance was used in order to compute the mean scores and compare the mental health mean scores before and 2 and 6 weeks after the intervention. Independent t-test was used to compare between the mental health mean scores of caregivers in both groups before the intervention. We also compared demographic characteristics of both groups with chi square, independent t-test and fisher exact test. The confidence interval was 95%. A $p < .05$ was considered statistically significant.

All problems family caregivers of patients with spinal cord injury and education-care needs of patient were determined. Family Caregivers of the intervention group (n=33) took part in the educational program. Educational content of the intervention (2, 11). was designed to increase self-knowledge and self-consciousness of caregivers in order to decrease their individual and environmental stresses, and also to improve their own emotional and general health. In this level, a training courses were provided within 4 sessions in 4 successive weeks, for 90 minutes lectures by the researchers (22); this was done along with discussions, group interaction, and questions and answers in groups of 12 individuals in Shiraz welfare organization. Considering the type and nature of needs and problems of family caregivers of patients with spinal cord injury was carried out. In addition, at the beginning of each session's content Training sessions will be asked of caregivers and researchers to review a summary of previous meetings. The participants in intervention group were informed that they could contact the researcher by phone to receive the answers of probable questions. Meantime, consultations took place daily, weekly and continuously by attending or telephonic contacts proportionate to care requirements.

The training program is shown in Table1.

Table1: Summary of intervention content and topics

Sessions	Educational Content
Session one	- familiarizing members of the group with and with the purposes - group coordination and discussions about life experiences with SCI patients. The importance of group Training, interaction and use of experiences each other
Session two	-Providing information about strategies of coping with stress & depression - teaching relaxation technique. Health effects of stress and depression, emotional effects of stress and depression, care-giving and stress, Strategies for mood management, Importance of engaging in pleasant events. Strategies for relaxation.
Session three	- strategies of coping with crisis. - familiarization with communication principles emphasizing on the appropriate relation with SCI patients. Definition of crisis, Importance of coping with crisis, strategies for crisis management, to provide education relating to psychosocial issues and coping with problems and grief, definition of effective communication , strategies for communication with health care, professionals strategies for communicating with SCI patient, family and friends, good listening skills.ma
Session four	- teaching appropriate methods of physical care for SCI patients. - teaching methods to avoid backaches and appropriate ways of transferring patients from the bed to the wheelchair and vice versa. Provision of educational materials such as bed sore care, urinary catheterization, folly care, prevention of UTI and bed sore, complications of catheterization and immobility. Strategies for avoid of backaches in caregivers include: appropriate positions of sitting, lying, standing and lifting)

Note. SCI = Spinal Cord Injury

Also, a brief account of the training content was available to the caregivers in the intervention group, and the researcher's contact number was given to the participants. Also, at the end of the study, a booklet of educational contents was given to the control group.

Ethical considerations

The present study was approved by the Ethics Committee of Shiraz University of Medical Sciences, Shiraz, Iran and the Shiraz welfare organization authorities' permission was sought as well. Also, the family caregivers expressed their consent to take part in the study. Family caregivers were informed of the purpose of the research prior to the beginning of the study and were assured of their right to refuse to participate or to withdraw from the study at any stage.

Results

Caregivers who participated in the study were mostly women with an average age of 44 years and most of them were parents of SCI patients (51%). They have been doing this for 9 years on average. Furthermore, most of the participants

were married and housewives with an educational level of diploma or lower and took care of paraplegic patients. The independent t-test, Chi square and fisher exact test did not show any significant difference between demographic variables and mental health of caregivers in both groups before the intervention; the results are presented in Table 2.

Table2: Socio - demographic characteristics of family caregivers of patient with SCI (N = 62)

Characteristics	Case n (%)	Control n (%)	p-value
Sex			
Male	2 (6.1)	1 (3.4)	0.632
Female	31(93.9)	28(96.9)	
Marital status			
Married	29 (87.9)	26 (89.7)	1.00
Single	2 (6.1)	1 (3.4)	
Other	2 (6.1)	2 (6.9)	
Education level	11 (33.3)	9 (31)	
Below high school	13 (39.4)	9 (31)	0.646
High school	9 (27.3)	11 (37.9)	
illiterate			
Occupation	1 (3)	0 (0)	
Retired	0 (0)	2 (10.3)	
Retailer	31 (94)	26 (89.7)	0.460
Housemaid	1 (3)	1 (3.4)	
Other			
Type of relationship	17 (51.5)	15 (51.7)	
Parent	12 (36.4)	12 (41.4)	
Wife	2 (6)	2 (6.9)	0.713
Sister	2 (6.1)	0 (0)	
Other			
Type of disability			
Paraplegic	25 (75.8)	23 (79.3)	0.739
Tetraplegic	8 (24.2)	6 (20.7)	
Cause of damage	22 (66.7)	21 (72.4)	
Trauma	9 (27.3)	5 (17.2)	0.646
Congenital	2 (6.1)	3 (10.3)	
disease			
Age Mean(SD)[a]	44.12(12.31)	44.82(12.29)	0.822
Length of times as a caregi (years) Mean(SD)[a]	9.39 (6.68)	9.65(6.74)	0.879

Note. SCI = Spinal Cord Injury
(SD)[a] = Standard deviation

All the participants in this study suffered from mental disorder and the minimum average grade in both groups belonged to the aspect of depression in GHQ-28. No difference was found between the two groups regarding general health mean score before the intervention (Table 3). After the intervention a significant difference was found between the two study groups regarding the mean score of general health 2 weeks and 6 weeks after the intervention. (Fiqure1). Similar results were also obtained regarding the domains of general health ($p<0.05$) (Table 4).

Table 3: comparison of general health scores before the intervention in two groups (N = 62)

Dimensions	Case	Control	p-value
	Mean±SD	Mean±SD	
Somatic symptoms	10.66 ±4.68	11.06± 5.62	0.760
Anxiety and Insomnia	11 ± 4.74	10.82± 5.47	0.913
Social dysfunction	9 ± 3.42	9.27 ± 3.13	0.716
Depression	5.33 ±5.27	7 ± 6.07	0.282
Total score	35.93 ±14.87	38.06 ±16.68	0.60

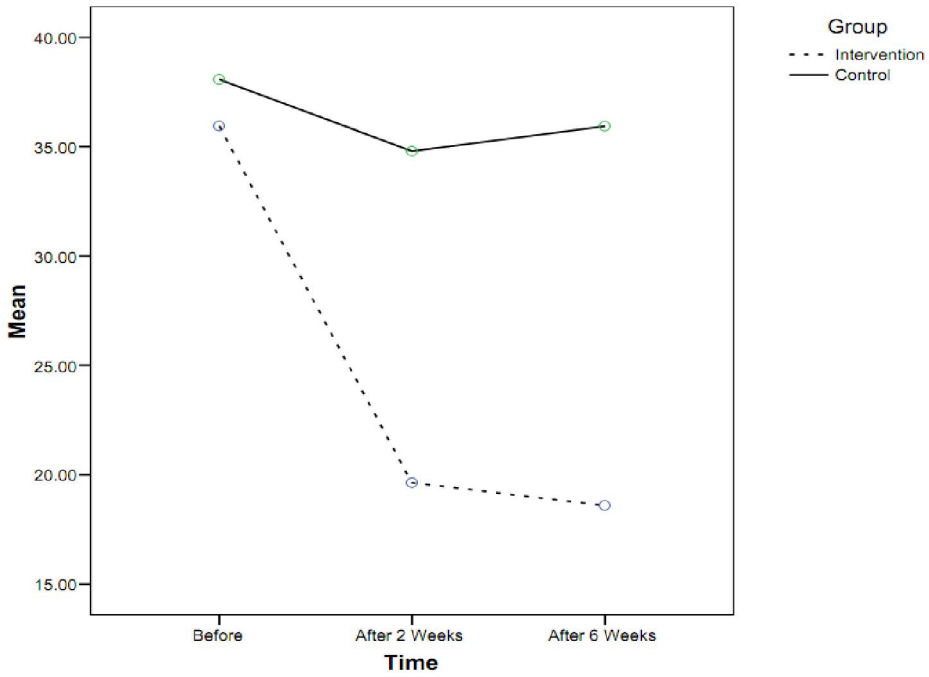

Figure 1: Total mean of general health in intervention and control groups

Table4: Means scores of general health dimensions in groups at Baseline, 2 weeks and 6 weeks after the intervention (N = 62)

Dimensions	Baseline		2 weeks		6 weeks		p-value
	Case	Control	Case	Control	Case	Control	
	Mean±SD		Mean±SD		Mean±SD		
Somatic symptoms	10.66± 4.68	11.06±5.62	6.33±4.44	9.57±3.35	6.39±3.11	10±4.56	0.004*
Anxiety and Insomnia	11± 4.74	10.82±5.47	5.27±4.16	10.13±3.7	5.06±3.84	10.20±4.33	<0.001*
Social dysfunction	9±3.42	9.27±3.13	5.27±2.7	8.34±2.33	5.40±3.12	9.62±3.65	<0.001*
Depression	5.33±5.27	7±6.07	2.75±4.10	6.55±5.15	1.75±2.60	6.13±5.23	0.013*
Total score	35.93±14.87	38.06±16.68	19.63±13.06	34.79±12.04	18.60±10.27	35.93±15.05	0.001*

*$p < 0.05$

Discussion

Based on the results of this study, the most of caregivers are housewife women. In Iranian culture and society, girls and women who are unemployed or not students are in charge of taking care of patients, the elderly and handicaps. And such care is considered as a part of house chores. Other studies also proved that in other societies girls and women generally are as the primary caregivers at home (11, 23).

In our study, psycho-educational intervention could be effective in decreasing psychological issues such as depression, Anxiety and Insomnia, and Social dysfunction and Somatic symptoms among family caregivers of SCI patients. Treatment interventions such as training, psychological treatment and support not only decrease depression and anxiety among family caregivers, but also lead to their psychological and physical health(17, 18) Savundranayagam et al. study also indicates that psycho-educational intervention helps caregivers to recognize stress and manage it.

In this regard, caregivers' stress decreases and leads to their health improvement ((24), Such intervention improves issues such as positive attitude towards caregiving roles, and decreasing depression, anger, and guilt feelings (25) According to the previous studies which proved that physical difficulties of caregivers have a psychosomatic origin ((26), it is indicated that improved Somatic symptoms and social functions of caregivers resulted from the effectiveness of such intervention in order to improve general health. Pahlavanzadeh et al.'s study also proved that psycho-educated family is quite effective in decreasing psychological issues (depression, anxiety and stress) in family caregivers (22).

Similar to the results of this research is Richard Sculz's psycho-educational study in which he found out that in the group with caregivers and SCI patients, both attended at the same time in the training, depression decreased more in comparison to the group with only caregivers (11). This indicates that if patients participate in training sessions with their caregivers better results can be

achieved. Moreover, it should be noted again that the educational plan in our study was presented as lectures and discussions in groups, while it was via Computer-telephone technology in Schulz's study. Three studies described interventions that succeed in improving mental health in subgroups of caregivers of patients with dementia. These interventions were: Minnesota Family Workshop (27), an anger and depression management class (28) , psycho-educational support (29). Our study also proved that psycho-educated family is quite effective on mental health of family caregivers of patients with SCI. studies have shown that multifamily psycho educational interventions groups reduced caregivers stress, with resulted in improved family and child functioning (30). A growing number of psycho-educational interventions have undergone randomized controlled trials and have been found to significantly improve caregiver wellbeing, thereby reducing caregivers' levels of clinical depression (31, 32)

Two National Institute for Nursing Research (NINR) - supported, randomized, controlled trials demonstrated that psycho-educational interventions were effective in reducing caregiver stress (33). Findings from most research studies and this study suggest that psycho-educational interventions are beneficial for caregivers. Such interventions have the potential to prevent caregiver depression, anxiety, stress and to maintain, improve, and optimize their physical health and social function.

One of the limitations of the present study was sampling from one center, which is, of course, the main Center in Shiraz, and therefore the results cannot be generalized to all family caregivers. Another limitation of the study was its small sample size, which was due to the family caregivers' high workload and lack of their cooperation. Authors of this study recommend that more studies with larger sample sizes for a longer period of time.

Finding from this study are encouraging and suggest that interventions, such as the Family Series Workshop, have the potential to improve health outcomes for caregivers of patients with SCI.

Conclusion

The results showed the effectiveness of educational interventions in improving family caregivers' general health in a sample of Iranian society. Performing continuous plans and following them along with educational sessions and consulting are necessary and beneficial for promoting general health of SCI family caregivers.

In this respect, it is essential that officials and designers consider their problems and mental issues more than ever.

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