Original Article

Comparison of face-to-face Education of Caregivers and Hospitalized Elderlies with COPD and Its Impact on the Elderlies' Self-care

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Key words:
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ABSTRACT

BACKGROUND: It is widely accepted that family members play a vital role in the health of patients with chronic diseases and promotion of healthy behaviors. This study aimed to compare face-to-face education to caregivers and elderlies with chronic obstructive pulmonary disease (COPD) and its impact on the self-care of the elderlies. **MATERIALS AND METHODS:** This interventional study was carried out on 58 elderlies with COPD, who referred to a Hospital in Esfarayen, Iran from January 10, 2019 to August 30, 2019. The subjects were divided into two groups of elderly and caregiver education by random allocation. Self-care was taught to all participants individually by the researcher over four sessions. In addition, COOPDSC, CAT, and MNA questionnaires were completed by the subjects before the intervention, during discharge, and one month after the intervention. **RESULTS:** In this study, comparison of mean self-care scores of the two groups revealed no significant difference before the intervention (P=0.06) and during discharge (P=0.12). However, there was a significant increase in the mean self-care score of the subjects in the group of education to the caregivers and elderlies, compared to the group of education to the elderlies (P=0.01). **CONCLUSION:** According to the results, self-care education of elderlies and caregivers increased the level of self-care in patients. Therefore, it is recommended that the education provided by the health care providers be performed in the presence of the patient's caregiver in order to improve the patients' self-care.
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INTRODUCTION

Patients with Chronic Obstructive Pulmonary Disease (COPD) suffer from many problems, such as shortness of breath, intolerance, lack of proper air-

way clearance, lack of effective breathing patterns, cough and sputum, social isolation, and depression[1-3]. Due to the debilitating nature of COPD, costs that directly caused by health care or indirectly imposed on family and society due to absence from work, causes a great socioeconomic burden on the individual and the healthcare system[4,5]. The valuable and beneficial effects of patient education have been repeatedly stated in various studies[6]. This will increase client satisfaction, improve quality of life, ensure continuity of care, alleviate patient anxiety, reduce the incidence of complications, increase participation in health care programs, and achieve client independence in daily living activities[7,8]. Self-care is defined as activities individuals undertake with the intention of enhancing health, preventing disease, limiting illness, and restoring health[9]. Lack of knowledge of self-care is the main cause of re-hospitalization of patients with chronic diseases such as COPD that can be avoided by training[10]. In addition, education of self-care leads to increased quality of life, ensuring of continued care, decreased anxiety, less emergence of complications, increased cooperation in care programs, increased independence of patients in performing their daily activities and decreased costs[11,12]. Self-care in chronic illnesses implies monitoring and controlling the symptoms of the disease, adherence to treatment, maintaining a healthy lifestyle, controlling the disease, daily functioning, emotions and social relationships[13,14]. Many studies have been done on the methods of teaching the COPD patients. For example, Bourne and colleagues compared face-to-face versus online lung rehabilitation with six training sessions and found that the online method could be as effective as face-to-face in lung rehabilitation[15,16]. Doğan and colleagues studied COPD patients' continuing health education by nurses and found that these trainings have had a significant improvement in PaO_2, $PaCO_2$, FEV_1 and SaO_2 patients[17].

Despite investigating the efficacy of multiple education methods on empowering COPD patients, there was no study found in searches, comparing face-to-face education of two groups of elderly patients and their caregivers, and its effect on elderly self-care. And considering the fact that most elderly people with COPD referred to Iranian hospital centers are illiterate, their self-care measures include medication adherence, avoidance of environmental contaminants and allergens, pulmonary rehabilitation therapies, needs more attention. Perhaps the caregivers' education, in addition to elders' education with a face to face method may improve patients' ability to self-care. Therefore, the present study aimed to compare of Face-to-face Education of Caregivers and Hospitalized Elderlies with COPD and Its Impact on the Elderlies' Self-care.

MATERIALS AND METHODS

Design and participants

This double-blind (patients-statistician) clinical trial was conducted on 58 elderlies who referred to Imam Khomeini Hospital in Esfarayen, Iran from January 10, 2019 to August 30, 2019. Inclusion criteria included: age above 60 years, diagnosis of COPD, lack of blindness or deafness, residing in Esfarayen, lack of severe chronic disease (any type of chronic disease, including CVA, paraplegia, epilepsy, and seizures), and no psychological diseases. Exclusion criteria were: lack of completing the post-test questionnaire, death during the study, and discharge from hospital in less than five days. Inclusion criteria of the caregivers was age of 18 years to take care of the elderly, being literate, and being responsible for the elderly most of the times. Exclusion criteria of these individuals included absence from two or more face-to-face training sessions and delivering elder care to another person. The CONSORT checklist was used for report of study[18].

Intervention

Due to a lack of similar research, 10 individuals were selected as a pilot group. The sample size was determined at 25. After receiving permissions from North Khorasan University of Medical Sciences, the permission letter was taken to Imam Khomeini Hospital from the head of the hospital. Participants were selected by convenience sampling based on inclusion and exclusion criteria and using the random allocation with permuted block method, according to sample size[60], 30 individual assigned to the group of education of the elderly and 30 individual assigned to the group of education of both elderly and caregivers. While 30 elderlies were selected for each group, two of the subjects died during the research, which resulted in a decrease in the number of samples to 29 in each group.

Research objectives and methodology were explained to all participants prior to the research. At first, followed by a pre-test including chronic obstructive pulmonary disease self-care behavior inventory (COPDSC), which was formerly validated by Abedi et al[19] and its validity and reliability were confirmed. In the present research, the reliability of the mentioned tool was confirmed at the Cronbach's alpha of 0.72. The content of the educa-

tional program was collected from nursing and medical resources, and educational classes were held in the form of four sessions every other day. The caregivers received the educational content similar to the elderlies.

The duration of each session was 20-30 minutes for each caregiver and elderly individually, and educational content was taught in both groups by the researcher face-to-face, using educational images and films. During the study, none of the elderly people from the two different groups were admitted to the same room to prevent information exchange between the participants. Education was provided to the elderly in the clinic or educational classes (both locations were equipped with a monitor to display the movie) depending on the conditions of the subjects. On the other hand, the caregivers received education in classes in the absence of the elderlies. COPDSC inventory was completed immediately after discharge and four weeks after the discharge.

Data Analysis

Data were analyzed using Statistical Package for Social Sciences SPSS v22 (version 22.0, SPSS Inc., Chicago, IL, USA). To describe the demographic characteristics, descriptive tests (percentage, frequency and mean) were used. Kolmogorov-Smirnov test was used to investigate the normal distribution of data. Mann–Whitney U test, T test, Chi square test, and Fisher exact test used to analyze disease related information difference between two groups. In order to determine the differences between the intra-group and the inter-group in the distribution of measured variables, Independent T-Test and Friedman test were used. P-value <0.05 was considered as a significance level.

Ethical consideration

The study was approved by the Institutional Ethics Committee of North Khorasan University of Medical Sciences (approval number: IR.NKUMS.REC.1395.29, approval date: 15 November 2018)) and all participants gave written informed consent. The clinical trial was approved by the Iranian Registry of Clinical Trials (IRCT) under No: IRCT20181001031199N1. The patients' information remained confidential throughout the study. The aims of the study were explained in detail to the participants. Participation in this study was completely voluntarily and free from any obligation to the physician, nursing staff, or researchers.

RESULTS

Among the elderlies, 27 (46.6%) were male and 31 (53.4%) were female. The mean age of the intervention (Elderly and care giver education) and control group (Education to the Elderly) was 69.39±8.23 and 70.56±6.57 years, respectively. Other demographic characteristics of the subjects are shown in the related table based on the group. According to the results, no significant difference was observed between the groups in terms of gender, level of education, smoking status, disease duration, monthly income level, type of disease, allergen exposure, marital status, occupational status, place of residence, and drug consumption (P>0.05) (Table 1 and Figure 1).

On the other hand, statistical analysis results were indicative of a significant difference between the self-care scores of the elderly teaching group before the intervention, during discharge, and one month after the intervention (P<0.001). Given the significance of Friedman's test, we used the post hoc tests with Bonferroni correction factor to evaluate the in-group differences of self-care status. In the elderly teaching group, a significant difference was detected between the times of before and during the intervention (P<0.001) and before and one month after the intervention (P<0.001). However, no significant difference was observed between during discharge and one month after the intervention (P>0.99) in this regard.

According to Table 2, while the mean score of the elderly education group was lower at all stages, no significant difference was observed in mean self-care score of both groups before the intervention (P=0.067) and during discharge (P=0.127). However, the mean self-care score significantly increased in the elderly and caregiver education groups one month after the intervention, compared to the elderly education group (P=0.015) (Table 2). The results also demonstrated a significant difference between self-care score in the elderly and caregiver education group before the intervention, during discharge and one month after the intervention (P<0.001). After the post hoc tests along with Bonferroni correction factor to assess the inner-group differences, there was a significant difference in the self-care status of the elderly and caregiver education group between the times of before the intervention and during discharge (P<0.001) and before and one month after the intervention (P<0.001). Nevertheless, no significant difference was observed between during discharge and one month after the intervention (P>0.637) (Table 2).

TABLE 1. Characteristics of the patients in the intervention (Elderly and care giver education) and control groups (Education to the Elderly)

Group Variables		**Intervention (n=29) (Elderly and care giver education)**	**Control (n=29) (Education to the Elderly)**	**P**
		Mean (SD)	**Mean (SD)**	0.863*
Age (Year)		69.39 (8.23)	70.56 (6.57)	
		(%) r	**(%) Nr**	
Gender	Male	17 (58.3%)	15 (51.7%)	0.559***
	Female	12 (41.7%)	14 (48.3%)	
Duration of illness	Less than 1 year	5 (21.2%)	11 (42.3%)	0.482***
	1-2 years	12 (36.8%)	6 (15.4%)	
	2-3 years	2 (10.5%)	4 (11.5%)	
	More than 3 years	10 (31.6)	8 (30.8%)	
Level of education	Illiterate	12 (41.4%)	13 (44.8%)	0.661****
	Under the diploma	13 (44.8%)	14 (48.3%)	
	Above the diploma	3 (10.3%)	3 (10.3%)	
Status of marriage	Married	16 (55.2%)	19 (65.5%)	0.42****
	Divorced and deceased spouse	13 (44.8%)	10 (34.5%)	
Cigarette Smoking	Yes	20 (69)	22 (75.9)	0.34***
	No	9 (31)	7 (24.1)	
Location	City	11 (31%)	9 (37%)	0.31***
	Village	20 (69%)	18 (63%)	
Job	Employee	2 (6.9%)	2 (6.9%)	0.44****
	housewife	14 (48.3%)	9 (31%)	
	Free	13 (48.8%)	18 (62.1%)	
Income	Low	19 (65.5%)	21 (73.5%)	0.6****
	Medium	4 (13.8%)	5 (17.2%)	
	High	6 (20.7%)	3 (10.3%)	
Exposure to allergens	Food, fruits, dust and pollen	15 (51.7%)	11 (37.09%)	0.56***
	Tobacco smoke, pollutants, Bakeries smoke	6 (20.7%)	5 (17.2%)	
	Washers	1 (3.4%)	1 (3.4%)	
	Animal wool and hair	7 (24.1%)	12 (41.4%)	
Medication used	Yes	28 (96.6%)	23 (79.3%)	0.11****
	No	1 (3.4%)	6 (20.7%)	

*Mann–Whitney U test; **Degrees of freedom; ***Chi square test; ****Fisher exact test

DISCUSSION

The present research was performed to compare face-to-face education of caregivers and hospitalized elderlies with COPD and its impact on the elderly self-care. According to the results, there was a significant difference in the self-care score of the elderly education group before the intervention and during discharge and before and one

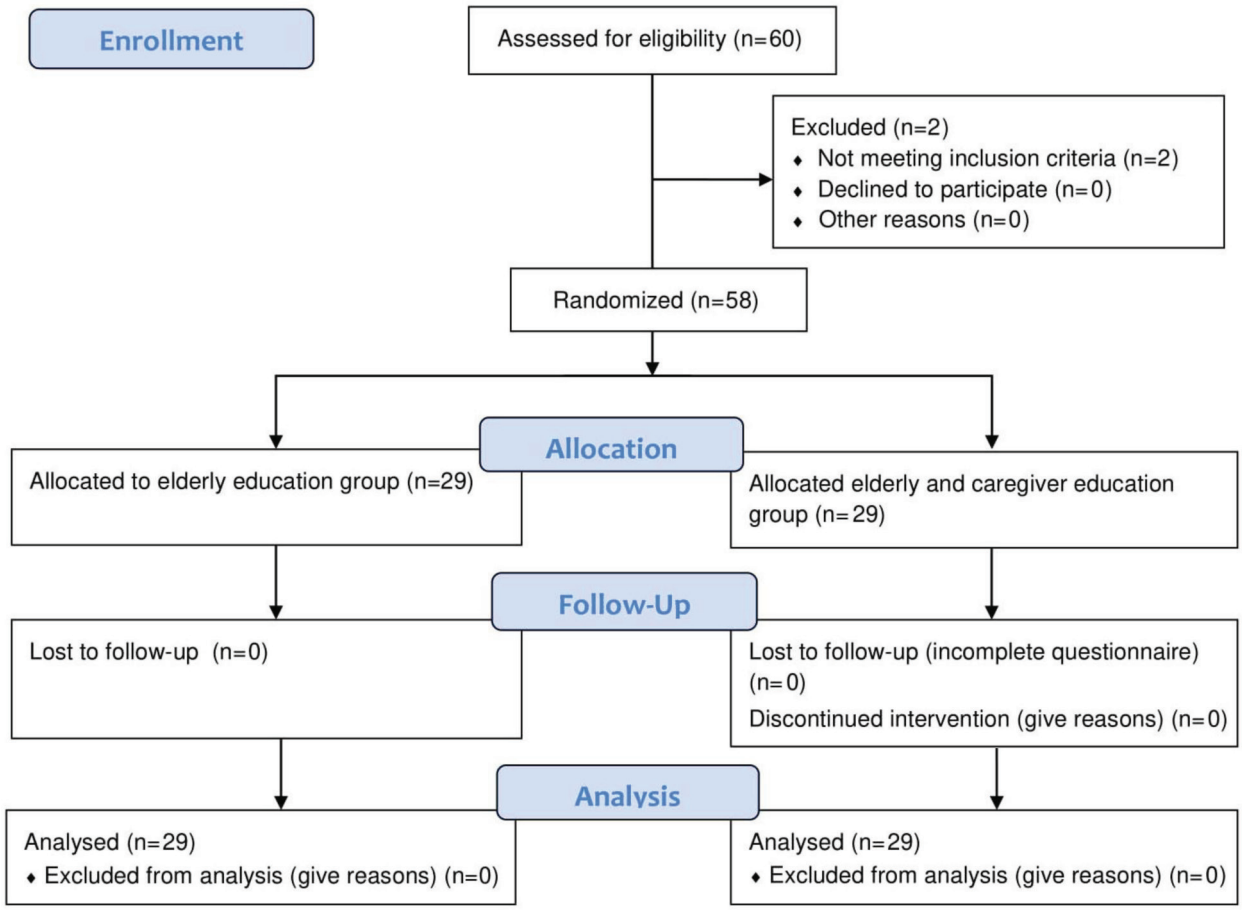

FIGURE 1. Study frow diagram.

TABLE 2. Comparison of mean and standard deviation of self-care in two groups before intervention, during discharge and one month after intervention

Groups	Before intervention Mean (SD***)	Discharge Mean (SD)	One month after intervention Mean (SD)	chi-square	P-value *
Education to the Elderly	101.62 (16.08)	111.58 (17.62)	110.37 (16.11)	33.18	0.001
Elderly and care giver education	108.7 (13.89)	118.55 (13.56)	119.96 (12.77)	36.77	0.001
P-value**	0.067	0.127	0.015		

*Friedman test was used; **Mann Whitney test was used; ***Standard deviation

month after the intervention. However, no significant difference was observed in the self-care score of the elderlies during discharge and one month after the intervention. Therefore, it seems that self-care education was effective and stable after one month. In the elderly and caregiver education group, there was a significant difference in the self-care score of the subjects before the intervention and during discharge and before and one month after the intervention. However, no significant difference was observed during discharge and one month after discharge, which means that self-care education was effective and stable after one month. Despite the significant difference in the self-care score of the two groups, one month after the intervention, self-care score was more stable in the elderly and caregiver group. Moreover, the presence of a caregiver had an apparent effect on increased mean of

self-care in the education process from discharge to one month after that period. In a research by Alhani et al (2013), there was a significant difference in mean score of adhering to self-care behaviors based on diagnosis of COPD, and 94% of patients had poor and moderate self-care[20]. While the results of the mentioned study are in line with our findings, the majority of the patients had good self-care score and the process was improving until the end.

Results obtained by Etemadi Sanandaji et al, showed the higher effectiveness of face-to-face education, compared to the use of guidance booklets, for COPD patients. Therefore, it is suggested that nurses use this type of training for COPD patients to play a valuable role in the improvement of their respiratory self-efficacy and enhancement of their life quality[21]. In fact, the results showed that face-to-face education can positively increase self-care ability in the elderly with COPD. Dalwand et al introduced family-centered approach as an effective method for children, parents, families and healthcare providers, one that improves healthcare services and increases the satisfaction of families with health-related facilities[22]. In addition, Asgari reported an improvement in laboratory indices of patients with myocardial infarction following the use of family-centered educational model[23].

In a research by Abdi, self-care in most elderly was recognized as a depending need, and self-care ability was shown at a high level[19]. In the current research, while there was an increase in self-care scores of both groups, the presence of a caregiver increased the stability of the intervention. Chaoyan Wang found a positive correlation between self-care behavior in patients and duration of care for the family member. In the current research, self-care score increased in the elderly in the group of elderly and caregiver at the end of the research, compared to before the intervention. However, the research groups were homogeneous in terms of the marital status of the participants, and 79.3% of the subjects' caregivers were their children, which might be due to high age, illness, or death of spouse. In a research to describe family support, perception of self-efficacy, and self-care behavior in patients with COPD and to determine the relationship between the variables, Kara Kaşıkç et al, reported a significant, positive relationship between family support and self-care behavior[24]. The results of the aforementioned research are congruent with findings since evaluation of self-care scores revealed a higher increase in the scores of the subjects in the elderly and caregiver group, compared to the other group.

One of the major drawbacks of the research was the excessive dependency of some of the elderlies to their caregivers, which inhibited their use in the study. Another limitation was lack of entering all elderlies with COPD at the sampling time due to comorbidities such as pneumonia, which may have prolonged the sampling process. Also another limitation of present study was low sample size of study that lead to reduce the generalization of study results.

CONCLUSION

According to the results of the present research, self-care education to the elderly and caregivers increased self-care ability in the elderly with COPD. It could be expressed that increasing the knowledge of caregivers and elderlies with COPD improved the self-care ability in the latter. Our findings can be exploited by nurses, healthcare centers and the welfare organization to be implemented for caregivers and elderlies in order to improve the patients' self-care.

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CONFLICTS OF INTEREST

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