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EVALUATING THE EFFECT OF FAMILY-BASED CARE EDUCATION ON QUALITY OF LIFE OF PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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ABSTRACT

Introduction and Objective: Chronic diseases are associated with pathological changes in the body, which are permanent, irreversible, and disabling factors. Chronic obstructive pulmonary disease is a chronic disease, leading to re-hospitalization. The objective of this research was to evaluate the effect of family-based education on the quality of life of patients with chronic obstructive pulmonary disease, who admitted to Urmia educational centers in 2016.

Methodology: This is a clinical trial design, 264 samples were randomly assigned into two groups of intervention (n=132) and control (n=132) based on inclusion criteria in Taleghani and Imam Khomeini educational centers of Urmia. First, the quality of life questionnaire was implemented for two groups as a pretest. Intervention group received three family-based care education based on needs assessment on the first day of admission and the control group received routine care. Three months after discharge, the intervention group was followed up by phone call and the quality of life questionnaire was re-implemented for two groups at the end of the study and the data of the post-test stage were obtained. Data were analyzed using SPSS ver16 software.

Results: The mean score of patients' quality of life was 28.98 ± 1.54 and 1.17 ± 0.331 in the intervention group and the control group, respectively. The results revealed a significant difference between the intervention and control groups three months after the intervention ($P<0.001$).

The research results suggest that family-based care education has affected the quality of life of the research population and improved the quality of life. It is recommended that these types of educations to be used in health centers and to be implemented for other patients to prevent their re-hospitalization and to improve their quality of life.

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Introduction

Chronic obstructive pulmonary disease (COPD) is one of the most common chronic diseases associated with complete, irreversible, and progressive airway restriction [1]. COPD is currently considered as the fourth leading cause of death in the world [2], while it is estimated that this disease to be the third leading cause of death in the world by 2020 and rank fifth in terms of medical costs [3, 4]. Smoking is the most important factor involved in development and exacerbation of this disease [5]. Based on statistics, nearly 10% of Iranians are suffering from COPD [6]. These patients face with problems such as dyspnea, non-tolerance of activity, ineffective respiratory pattern, social isolation, depression, and reduced quality of life [7]. Direct and indirect costs caused by this disease impose social economic burden to patient and the health system [8, 9]. The Global Plan for COPD patients has provided some guidelines and goals to improve quality of life of these patients [10]. As COPD is an untreatable chronic disease, improving the quality of life of these patients is one of the most important goals of disease management [11-13]. Nowadays, increased hospitalization costs, staying away from the family, and the risk of hospital infections have growingly increased the importance of nursing care at home and family-based nursing [14]. Self-

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care education should not only be provided to the patient, but also to his or her family as the main center of care at home and the largest supporting institution [15]. This concept of family-based care education was first used by Karl Rogers in the 1950s. In this approach, families provide the care for patient rather than medical staff [16]. In previous studies, the positive effects of family-based care education on thalassemia [17] and Type II diabetes [18, 19] have been reported. However, no study was found to evaluate the effect of family-based care education on the re-hospitalization of patients with COPD. Thus, given the emphasis of health policies on accelerating the client discharge and reducing patient staying in health institutions and receiving care at the community level, family-based health services have been considered as a caring approach, characterized by ease of access, low cost, client-friendly, and more family participation. The objective of this research was to evaluate the effect of family-based care education on the quality of life of chronic obstructive pulmonary patients in Urmia educational centers

Materials and Procedure

The current research is a pre-test, post-test, clinical trial conducted on patients with chronic obstructive pulmonary disease. Considering the 95% confidence level and 80% power and given the statistics obtained from Imam Khomeini and Ayatollah Taleghani educational centers during 2014, sample size was determined to be about 240 out of 1000 total patients and the rate of re-hospitalization during the first 3 months of 2015 was determined to be 22%, which by considering the probability of 10% drop out, it increased to 264 patients. After obtaining license from the Ethics Committee of Medical Sciences University (IR.UMSU.REC.1395.17) and honorable research deputy, the researcher referred to the research environment and after coordination with the relevant authorities, he selected a sample of 264 eligible subjects using simple random sampling method. The inclusion criteria of research: chronic obstructive pulmonary disease, diagnosed as mild to moderate level based on clinical symptoms and the result of spirometry and documents of the medical file and approval of lung specialist, age range between 40 and 70 years, having at least the literacy of reading and writing, patient ability to speak in Persian language, being accessed within 3 months, the presence of one family member in sessions with education level of high school and higher, lack of studying and working in the medical department, lack of history of receiving education on chronic obstructive pulmonary disease, having the ability and willingness to participate in the research, the ability to make a phone call and living in Urmia city. Exclusion criteria of research included simultaneous participation in another related research project, refusal to participate, non-compliance with the treatment, exacerbating the patient condition or death during the intervention. The tools used in this research to collect the data included Demographic Questionnaire, Care Education Needs Assessment Form, and Care Reporting Checklist.

A) Demographic Questionnaire and Needs Assessment: Information on disease records and demographic characteristics were extracted by researcher using the patient statements and the recording of vital signs and the outcome of the spirometry, based on the patient medical file. It included general condition, medical history, and risk factors of the disease (frequency of hospitalization, spirometry index, examining the patient diet, tobacco use, and medicinal diet). This questionnaire was completed by the researcher during the familiarization session. Moreover, in this session, needs assessment form was completed to determine the educational needs.

B) Care Reporting Checklist: This checklist was completed by the patient's family every day and by the researcher every week during the 3 months after discharge by phone call follow-up. It included compliance with the medicinal diet, the proper use of respiratory techniques, the proper use Oxygen therapy, activity and rest, avoidance of smoking and pollutants, activity and rest, and the use of high-protein diets available.

C) Quality of Life Questionnaire SGRQ-C: St-George quality of life questionnaire was used to measure the quality of life of people in pre-test and post-test stages. Among the specific disease questionnaires, the St. George Respiratory Questionnaire SGRQ is often used to measure the quality of life of patients with pulmonary diseases. SGRQ-C is currently available for patients with COPD [20].

The questionnaire includes 28 questions and measures 8 dimensions of quality of life: physical functioning, restriction in role due to physical problems, restriction in role due to emotional performance problems, social functioning, physical pain, general health evaluation, vitality and wellbeing and mental health.

The mentioned variables are measured by this questionnaire during the past three months. Validity of checklist and quality of life questionnaire was confirmed by 10 professors through content validity and the reliability of the questionnaires was obtained 0.85 and 0.88 for the checklists and the quality of life questionnaire, respectively, using Cronbach's alpha.

After meeting with the selected individuals and introducing themselves to the patient and the family, informed consent was obtained consciously and freely and they were ensured that their information would remained confidential and the results would be published without unanimously. They were also informed that they had freedom to leave the study. Then, the demographic questionnaire of the patients along with the recording of vital signs and the outcome of spirometry was completed by the researcher based on the patient medical file. In the first stage, the quality of life questionnaire was completed by individuals and the data of this stage regarding quality of life were considered as pre-test data.

After performing pre-test, the subjects were randomly assigned to two groups of control (n=132) and intervention (n=132). The researcher announced his contact number for them to have a conversation with the patient's family during the study, coordinate the sessions with them, and follow up the patient condition after discharge, and answer the family's questions and problems. Needs assessment form on family-based care was also completed.

In the intervention group, a family-based care education program was implemented in three sessions based on patient and family tolerance using face-to-face approach, which two sessions were held during the hospitalization and one session was held during discharge. In these sessions, based on the care needs assessment, educations were provided for patients on the way of working with respiratory system, disease and its symptoms, compliance with the medicinal diet (timely use of asthma sprays, especially when symptoms are exacerbated), correct use of respiratory techniques (using much amounts of fluids to dilute secretions, doing chest physiotherapy, using pursued-lips breathing, correctly doing of switching to discharge the secretions and using diaphragmatic breathing), properly use oxygen therapy, especially at night to prevent sleep problems, avoid smoking, hubble-bubble, avoid pollutants and hot and humid air, exercising (starting with walking with rest, then increasing the exercises), using high-protein diet, resting and doing activity (doing personal work for a short time with rest intervals, avoiding high-intense activities increasing the fatigue).

In a session held during the discharge of patients in the intervention group, in addition to care education, the care reporting checklist was given to the family of patients to complete it every day and inform them if they had a problem. Moreover, the researcher completed the care reporting checklist in the intervention group every week until the third month after the discharge by phone call follow-up and responded to family questions. In this research, the control group received routine cares and education. At the end, the quality of life questionnaire was completed by both intervention and control groups and the data of this stage were used as post-test. After completion of the plan, the educations provided to the intervention group were also provided to the control group in the form of an educational booklet. Descriptive and inferential statistics were used to analyze the data. In the descriptive section, mean, standard deviation and variance were used, and the inferential statistics section, covariance test was used (Diagram 1)

Results

In the current pretest-posttest research, 264 people participated and they were assigned into two groups of control and intervention. In the control group, 75% were male and 25% were female, and in intervention group, 67.4% were male and 32.6% were female. The mean and standard deviation of the patients' age in the control group and intervention group were 58.98 ± 9.382 and 59.83 ± 8.159, respectively. Chi-square test showed no significant difference between the two groups in terms of distribution of samples ($P < 0.05$). In other words, the distribution of the samples participated in the two groups of intervention and control was homogeneous in terms of gender, age, education and marriage (Table 1). The results of the current research based on the covariance test showed no significant difference between the two groups in terms of quality of life and its dimensions before the intervention ($P > 0.05$). In other words, both groups were at the same range in terms of the mean scores of quality of life and its dimensions before and after the intervention and they were somehow homogeneous. After intervention and based on the covariance test, it was revealed that there was a significant difference between the two groups in terms of quality of life and its dimensions ($P \leq 0.001$) (Table 2). In other words, family-based care education improved the quality of life in intervention group (Figure 1).

Diagram 1. research procedure

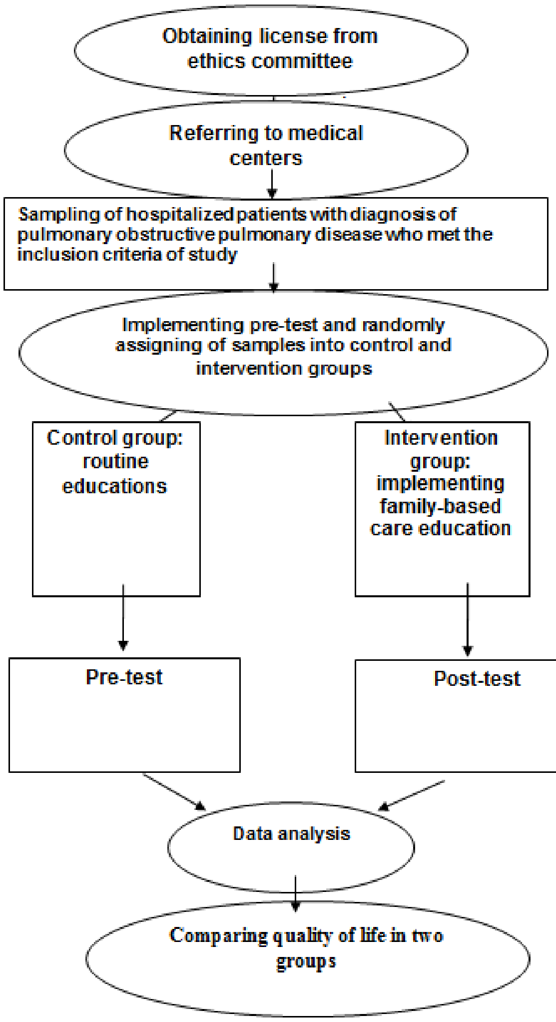

Table 1. Demographic characteristic of intervention and control groups

group	variable	Control		intervention		statistic
		f	%	f	%	
gender	male	99	75	89	67/4	x^2=0/08 df=1 P=0/81
	female	33	25	43	32/6	
education	illiterate	111	84/1	110	83/3	x^2=0/51 df=1 P=0/32
	High school	21	15/9	22	16/7	
Marital status	single	1	0/8	2	1/5	x^2= 0/337 df=1 P= 0/561
	married	131	99/2	130	98/5	
age (mean±SD)		58/99±9/382		59/83±8/159		T=3/312 df=262 P=0/201

Table 2. Comparison the quality of life in patients of control and intervention groups after implementation of family-based care education

group	Test type	mean±SD	Statistic
control	Pre-test	3/17±0/437	x^2=0/183 df=2 P=0/68
	Post-test	1/17±0/331	=1x^2/84 df=2 P=0/08
Intervention	Pre-test	1/36±0/87	x^2=0/674 df=2 P=0/754
	Post-test	28/99±1/54	=8x^2/776 df=2 P=0/749

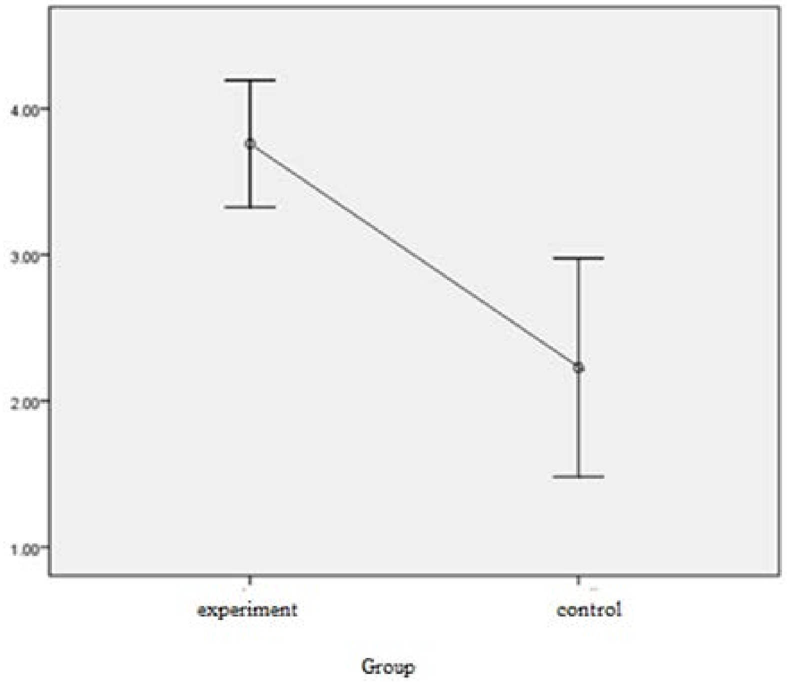

Diagram 1. comparing the effectiveness of quality of life in two control and intervention groups

Discussion and Conclusion

The research results revealed that family-based education increased quality of life of patients with chronic obstructive pulmonary disease significantly. In this research, no significant difference was seen between the two groups in terms of demographic characteristics such as gender, age, education, marital status, and hospitalization days. In other words, the two groups were homogeneous. Thus, significant increase in the dependent variable in the intervention group after the family-based care education was due to the positive effect of this education.

The higher number of male patients in this research can be attributed to the increased prevalence of pulmonary diseases, including chronic obstructive pulmonary disease in males, so that Halvani et al. (2010) in the descriptive study reported that out of 300 studied patients, 81.34% were male [21]. This indicates the relative match of the samples and their distribution to the research population. In the current research, the mean and standard deviation of two groups were close to each other, indicating that the age of the two groups was homogeneous. In the research conducted by Halvani et al. (2010), the highest frequency distribution was seen in the age group of 65-74 years (41.34%) [21]. Alexis Hazira et al reported the highest rate of hospitalization among the patients aged over 65 years, indicating that these patients are hospitalized often after fifth decade of their life [22]. Results of this research are consistent with those of previous studies [23, 24]. These studies indicate the effect of pulmonary rehabilitation program on improving their quality of life. In a quasi-experimental study, Oh showed that the pulmonary rehabilitation program improved dyspnea, increased exercise tolerance, and improved quality of life [25]. Pita et al concluded that the pulmonary rehabilitation program can improve the quality of life of patients [24]. Masrur et al. (2013) concluded that the implementation of the educational program, including performing the activities at the tolerance level, the proper use of drugs and respiratory exercises are needed in order to improve the quality of life of hospitalized patients [26]. Thus, it can be claimed that the family-based care education improves the quality of life of people. In this rehabilitation program, the patient is educated to modify his or her lifestyle and thereby improve his or her health and well-being, leading to improved quality of life. One of the important points of this research is using community-based approach to implement a family-based education program.

This approach makes the educational program recommended in this research to be used as accessible intervention by the client and can be easily be implemented at the lowest cost at the living place of the client. It also realizes the active role of the patient in the educational process through this intervention. The results of this research are also important in strengthening the community-based role of nurses and families of patients. Moreover, as family-based care can be implemented on all social groups, it can be stated that using this strategic approach is effective in development of justice in providing the health services to people.

One limitation of this research included dispersion of medical centers of respiratory disorders and access to the centers, which caused that the samples to be selected from only two centers, and this limited the generalizability of the findings. In addition, due to far distance of medical centers, limited number of clients had access to these centers, which it led to prolonged sampling. As it was not necessary for patients in this research to go out of home in order to receive care and he and she could independently receive the educations, the costs decrease significantly in this approach. The results of this research are consistent with the community-based approach to the role of family of the patients. Given what was sated above, using a family-based education approach can be implemented as an educational program in health centers.

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