Original Article

Self-Efficacy Levels of Individuals with Chronic Obstructive Pulmonary Disease and Investıgation of Caregiver Burden

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Abstract

Objectives: Chronic Obstructive Pulmonary Disease (COPD) is a progressive airway disease. It leads to cognitive and physical limitations, makes the patient dependent on others and eventually causes him/her to lose self-confidence. One of the main problems suffered by caregivers is caregiver burden. In this context, the objective of the study is to investigate the relationship between caregiver burden and self-efficacy levels of COPD patients who need care support.
Methods: The study was designed as a descriptive and cross-sectional one. The study sample comprised 78 COPD patients who were treated in the chest clinic of a university hospital between January 2013 and August 2013 and had no communication problem and caregivers of these patients. The data were collected through face-to-face interviews. The following were used as data collection tools: "Patient's Socio-Demographic Characteristics Questionnaire", "Self-Efficacy Questionnaire", "Caregiver's Socio-Demographic Characteristics Questionnaire" and "Caregiver Burden Scale". To analyze the data, Descriptive Statistics, T-Test, Analysis Of Variance (ANOVA) And Pearson's Correlation Test were used
Results: The mean total self-efficacy score of the patients was 90.53 ± 26.88 whereas the mean caregiver burden score of the caregivers was 26.98. A statistically significant, moderate negative linear relationship was determined between caregiver burden scores of the caregivers and self-efficacy scores of the patients.
Conclusions: It was determined that as the COPD patients' self-efficacy score decreased, so did caregiver burden scores of the caregivers increase.

Key Words: Self-Efficacy, Chronic Obstructive Pulmonary Disease Caregiver Burden.

Introduction

Chronic Obstructive Pulmonary Disease (COPD) is an airway disease characterized by slowly progressing, irreversible airway obstruction induced by chronic bronchitis, chronic asthma, and emphysema (http://goldcopd.org , 2011). It is stated that more than 2.5 million people develop COPD worldwide each year (Wouters, 2007). In order to find out the prevalence of the disease in the community, the studies titled as PLATINO "Proyecto Latinoamericano de Investigación en Obstrucción Pulmonar" and BOLD "Burden of Obstructive Lung Disease"

were conducted. The studies revealed that the prevalence of COPD was around 20 %. It is reported that the prevalence of the disease increases with age and smoking intensity, and the prevalence among males is similar to that in females in developed countries but higher among males in developing countries due to smoking intensity. "According to the WHO, COPD is the fourth most common cause of death worldwide at present and is expected to be the third by 2030.") (www. goldcopd.org.2011). On the other hand, it is reported that there are about 2.5-3 million COPD patients in Turkey (Erdinc et al., 2010). The BOLD study conducted in 2004 emphasizes that more than 19.6% of the adults aged 40 and over (28% of the males , 10.3% of the females) had COPD, COPD is the third cause of death, and 26,000 people die of COPD each year (www. saglik@saglik.gov.tr).

Analysis of COPD-related data revealed that the disease is not well known, not diagnosed at an early stage and not adequately treated both in Turkey and in the world. In the BOLD study conducted in the province of Adana, it was determined that 87.7% of the COPD patients did not take their medicine effectively (comply with their medication regimen appropriately), and that 38.1% of them continued smoking (www.saglik@saglik.gov.tr). Therefore, patients suffered from exacerbations of the disease once or twice a year (Donaldson et al., 2002), developed cognitive and physical limitations with the progression (in the further stages) of the disease and had difficulty meeting their self-care needs (Unsal et al., 2004, Pinto et al., 2007).

Patients need caregiver support to meet their self-care needs. Caregivers who help with the care of patients can be either a family member or an employed person. Caregiver burden is especially important for family caregivers. Studies on caregivers of patients with a diagnosis of COPD have revealed that caregivers suffer from psychological, physiological, sociological and economic burden (Pinto 2007, Yasa 2008). Caregiver burden is directly related to the limitations and self-care of a person to whom care is given (Yasa 2008). Therefore, the improvement of the patient's self-care plays an important role in reducing caregiver burden.

Self-efficacy is one of the decisive factors in the development of self-care (Stuifbergen et al., 2000).Self- efficacy is defined as an individual's belief in being able to perform activities in order to interfere with the events related to his/her life and to achieve the desired results.

According to Bandura (1989), the level of an individual's faith in his/her ability to achieve a specific result is a decisive factor in attempts to deal with a difficult situation (Bandura, 1989). Self-efficacy indicated to be useful in a several health behaviors such as quitting smoking, abstinence from alcohol, weight control, nutrition, exercise, diabetes, AIDS prevention and preparation for parenting is also extremely important in learning self-care activities related to the management of chronic diseases such as COPD and in facilitating coping with the impact of the disease (Murdock et al., 1995).

Knowing the self-efficacy level of a patient may contribute to the establishment of specific therapeutic interventions and care likely to enhance self-efficacy. It may also help a patient to initiate activities related to his/her own life, and thus it reduces caregiver burden.

Aims: The aim of the study is to investigate the relationship between caregiver burden and self-efficacy levels of COPD patients.

The study questions are:

"Is there a significant difference between self-efficacy scores of patients with COPD in terms of their socio-demographic characteristics?"

"Is there a significant relationship between self-efficacy scores of patients with COPD and caregiver burden?".

Methodology

A descriptive design was used in this study.

Participants

The study was conducted in the Chest Clinic of Dokuz Eylul University Faculty of Medicine. In the clinic, approximately 150 COPD patients, including repeatedly hospitalized ones, are being treated. Of the COPD patients hospitalized between January 2013 and August 2013 and their caregivers, those who met the inclusion criteria were included in the study. Of the COPD patients, those included in the sample during the study process, those hospitalized repeatedly later in the process and their caregivers were not included in the study for the second time.

Inclusion criteria for the patients were as follows: being a stage II-III COPD patient, having no mental or other problems likely to prevent communication and willing to (volunteering to)

participate in the study. *Inclusion criteria for the caregivers were as follows*: Being over 18 years of age, being the primary caregiver of the COPD patient and willing to (volunteering to) participate in the study. Seventy-eight patients fulfilling the inclusion criteria and their 78 caregivers comprised the study sample.

Instruments

To collect the study data "Patient's Socio-Demographic Characteristics Questionnaire", "Self-Efficacy Questionnaire", "Caregiver's Socio-Demographic Characteristics Questionnaire" and "Caregiver Burden Scale" were used.

Patient's Socio-Demographic Characteristics Questionnaire. The questionnaire prepared by the researchers was based on Bandura's self-efficacy theory. The questionnaire includes questions on the patient's socio-demographic and disease-related characteristics (age, gender, marital status, educational status, employment status, habits, duration of the disease, presence of respiratory distress, presence of coughing, the number of hospitalizations due to complaints and the stage of COPD) (Raiders MP ., 2008; Ozdemir E., 2008, Bandura A., 1997).

COPD Self-Efficacy Scale: In the study, to measure the patient's self-efficacy level, the COPD Self-Efficacy Scale was used. The scale was developed by Wigal et al. (1991). The validity and reliability study of the Turkish version of the scale was conducted by Kara (2002). The scale includes 34 items and 5 subscales (negative effect, intense emotional arousal, physical exertion, weather/environmental, and behavioral risk factors) questioning the confidence level of a patient regarding the management or avoidance of breathing difficulty while he/she is participating in certain activities.

While the negative effect subscale measures the confidence level of a patient regarding the management or avoidance of breathing difficulty in stressful situations such as helplessness, incompetence and deprivation, the emotional state (Intense Emotional Arousal) subscale measures the confidence level of a patient regarding the management or avoidance of breathing difficulty in distress-related situations such as anger and suffering from fear. While physical exertion sub-scale is used to determine conditions such as climbing stairs very fast and hurriedly, which could cause breathing difficulties; weather / environment effect refers to the management or avoidance of breathing difficulties in unfavorable weather conditions such as humidity and cold. Behavioral risk factors subscale is associated with behaviors such as improper diet, improper breathing techniques. The scale is a 5-point Likert-type scale, and the items are scored from 5 (very confident) to 1 (not at all confident). Wigal et al. (1991) identified the test-retest reliability of the scale as r = 0.77 and the internal consistency (Cronbach's alpha) as 0.95.

The Turkish version of the COPD Self-Efficacy Scale has a good test-retest reliability (r = 0.89) and excellent internal consistency (Cronbach's alpha = 0.94) (Kara, 2002). In this present study, the total Cronbach's alpha coefficient of the scale was found to be 0.98. The score of each of the five subscales of the scale is calculated by adding up the scores of the responses used to detect the total score. To determine the overall score, the total score is divided by the number of the items constituting the sub-scale. Higher scores are interpreted as increased confidence level in the management or avoidance of breathing difficulties (Kara et al., 2002).

Caregiver's Socio-Demographic Characteristics Questionnaire: The questionnaire prepared by the researchers by reviewing the pertinent literature includes questions on the caregiver's socio-demographic and disease-management characteristics (age, gender, marital status, educational status, employment status, health insurance, income status, receiving education about the disease and receiving help in patient care).

Caregiver Burden Scale: In the study, the Burden Interview developed by Zarit et al. (1980) was used. The scale is used to assess the level of stress suffered by caregivers who provide care for patients or the elderly who need care. The 22-item scale is a Likert-type scale. The scoring ranges from "0" to "4" (0=never, 1=occasionally, 2=sometimes, 3= often, 4=nearly always) (Zarit & Zarit, 1990). While the possible minimum score to be obtained from the scale is 0 points, the possible maximum score is 88 points. The items in the scale are usually related to social and emotional areas. The higher the score is, the greater the difficulties suffered are. (Zarit & Zarit, 1990; Inci, 2006). The validity and reliability study of the Turkish version of the Caregiver Burden Scale was conducted in 2006 by Inci. The internal consistency coefficient of

the scale ranged between 0.87 and 0.94, whereas its test-retest reliability was 0.71. In this present study, the scale's alpha value was determined as 0.79.

Statistical Analysis

The data obtained in this study were evaluated with the SPSS program. For the distribution of descriptive (socio-demographic) characteristics of patients with COPD and their caregivers, number and percentages were used. To investigate the difference between self-efficacy scores of COPD patients in terms of their descriptive (socio-demographic) characteristics, the t test and analysis of variance (ANOVA) were used. The relationship between COPD patients' self-efficacy scores and their caregivers' caregiver burden scores was analyzed with Pearson's correlation statistical analysis. In the study, the statistical significance level was set at 0.05.

Ethical considerations

To conduct the study, necessary permissions were obtained from Dokuz Eylul University, Department of Chest Diseases and the hospital management. Dokuz Eylul University Non-interventional Research Ethics Committee approved the reliability and validity of the scale. Prior to the implementation of the questionnaires and scales, the patients and their primary caregivers were informed of the purpose of the study. Then, their informed consents were obtained to participate in the study. Before starting the study, the purpose of the study was explained to COPD patients and their caregivers planned to be included in the sample, and of them, those who agreed to participate in the study filled in the forms under the supervision of the researchers.

Results

Of the COPD patients included in the study, 37.2% were in the 60-74 age group, 74.4% were male, 71.8% were married, 56.4% were primary school graduates, 65.4% were retired, 82.1% were not smokers, 44.9% had had the disease for 1-5 years, 84.6% experienced respiratory distress and 76.9% had the coughing problem. The mean number of hospitalizations was 11 ($\bar{x}$:10.60 ± 14.71) The mean age of the caregivers participated in the study was 53.76 ± 13:36. Of them, 74.4% were female, 79.5% were married, 38.5% were primary school graduates, 71.8% were employed, 57.7% had social security under Social Insurance Institution (SSI), 56.4% had income equal to expenses, 16.7% had training on COPD, 52.6% did not receive help in caregiving and 92.3% were relatives. The results of the study are given in Table 1 and Table 2. No significant difference was determined between the self-efficacy behavior scores of the patients participating in the study in terms of their age, gender, marital status, educational status, employment status, smoking status, duration of the disease and presence of coughing ($p > 0.05$).

Self-efficacy behavior scores of the patients with respiratory distress were lower than were those of the patients without respiratory distress, and the difference was statistically significant ($p < 0.001$) (Table 1). The mean self-efficacy behavior score of the COPD patients participating in the study was found to be 90.5385. Subscale scores of the self-efficacy scale were as follows: 32.8205 for the negative effect, 22.9231 for the emotional state (intense emotional arousal), 11.2692 for the physical exertion, 14.7436 for the weather / environmental effects and 8.7821 for the behavioral risk factors. The mean caregiver burden score of the caregivers was 26.98. The comparison of self-efficacy scores of COPD patients and the caregiver burden scores of the caregivers revealed a statistically significant negative correlation ($p < .001$) (Table 2).

Discussion

The study planned to investigate the relationship between the self-efficacy levels of individuals with COPD and caregiver burden revealed that the characteristics of the patients, except for the respiratory distress, did not affect their self-efficacy scores. It was also determined that as the self-efficacy scores of the patients increased, so did caregiver burden scores of the caregivers decrease. In the study planned to investigate the relationship between the self-efficacy levels of individuals with COPD and caregiver burden, it was found that as the self-efficacy scores of the patients increased, so did caregiver burden scores of the caregivers decrease. It was also found that characteristics of the patients, except for the respiratory distress, did not affect their self-efficacy scores. In the study, a statistically significant negative correlation was determined between the self-efficacy scores of COPD patients and the mean caregiver burden scores of the caregivers. It was observed that the caregivers' caregiver burden scores increased as the patients' self-efficacy levels decreased.

Table 1: The relationship between the self-efficacy behavior scores of the COPD patients and their descriptive characteristics

Patients' descriptive characteristics (n=78)	Self-Efficacy Behavior Scores			
	Number (n)	Percentage (%)	X±SD	Significance Level
Age Groups*				
36-59	18	23.1	2.83±.70	F=.527
60- 74	29	37.2	2.59± .77	p=.592
≥75	31	39.7	2.62± .86	
Gender				
Female	20	25.6	2.58± .63	t= -.516
Male	58	74.4	2.69± .83	p= .607
Marital Status				
Married	56	71.8	2.61± .81	t= -.776
Single	22	28.2	2.77± .72	p= .440
Educational Status				
Illiterate	9	11.5	2.43± 1.12	F= 2.471
Primary school	44	56.4	2.59 ± .78	p= .068
High school	18	23.1	3.07± .54	
University	7	9	2.34± .60	
Employment Status				
Retired	51	65.4	2.69± .88	t= .436
Employed	27	34.6	2.60± .59	p=.664
Habits (smoking)				
Yes	14	17.9	2.94± .77	t= -1.476
No	64	82.1	2.60± .78	p=.144
Duration of the Disease				
1-5 years	35	44.9	2.83± .72	F= 2.667
6- 10 years	23	29.5	2.75± .91	p=.054
11- 15 years	9	11.5	2.28± .74	
16 years or more	11	14.1	2.21± .54	
Respiratory Distress				
Yes	66	84.6	2.50± .75	t= -4.513
No	12	15.4	3.50 .20	**p=.001**
Coughing				
Yes	60	76.9	2.63± .82	t= -.630
No	18	23.1	2.76± .67	p=.530
Total	78	100.0	2.66± .79	

Table 2. The relationship between COPD patients' self-efficacy behavior scores and their caregivers' caregiver burden scores

Subscales of the Self-Efficacy Scale and Total Points	Caregivers' Caregiver Burden Score	
	r	P
Negative effect	-.326	.001
Intense Emotional Arousal	-.292	.005
Physical Exertion	-.291	.005
Weather / Environmental Effects	-.293	.005
Behavioral Risk Factors	-.355	.001
Total	-.323	.001

This result supports the findings of previous studies conducted on the caregiver burden of the caregivers of COPD patients. Kanervisto et al. (2007) indicated that more than half of the caregivers of COPD patients' caregiver burden increased when the patient was not able to fulfill his / her functions independently or when his / her health deteriorated. Simpson et al. (2010) emphasized that caregiver burden of the caregivers of COPD patients increased with the worsening of the patient's health, increased dyspnea, immobility, negative changes in self-esteem and decrease in participation in social-based activities.

Respiratory distress is the most important symptom experienced by patients with COPD (Williams et al., 2007). Respiratory distress brings about such symptoms as fatigue and insomnia, and individuals suffer serious limitations in performing activities of daily living (Katz et al. 2005, Kasikci et al. 2007). In her phenomenological study conducted with patients with COPD, Barnett (2005) reported that the patients identified respiratory distress as the most bothersome symptom causing anxiety, panic and fear. In her study, the patients also stated that they felt frustrated and tired because of respiratory distress, which caused them to participate in social activities less and less often. According to Maslow's Hierarchy of Needs Theory, each behavior is intended to satisfy a particular need, and breathing is the most basic human need.

A person who cannot meet his/her basic need cannot fulfil his/her higher level needs (Green, 2000). Respiratory distress in patients with COPD makes it difficult to meet other needs. Oksel, Gunduzoglu and Fadıloglu (2008) determined that respiratory distress caused fatigue in patients with COPD, increased their dependence on others and led to loss of social activity. Owen et al. (1998) reported that there was a negative correlation between self-care, self-efficacy and emotional changes and a positive correlation between quality of life and self-efficacy. Since all the self-efficacy scores of the patients with respiratory distress were low, it can be said that the results of this present study support those of previous studies. Therefore, respiratory distress can be said to be one of the most important factors affecting patients' self-efficacy if weather conditions are unfavorable or when they are stressed, have negative emotions, have to fulfil heavy physical activities or do not comply with their diet. Therefore, in order to enhance self-efficacy of patients with COPD, they should be provided support to prevent or at least to reduce respiratory distress they suffer.

Limitations

The researchers recommend that in future studies to be conducted to investigate the relationship between the self-efficacy of COPD patients and caregivers' caregiver burden, researchers should analyze this relationship by including a larger number of participants in the study sample and by staging the patient.

Conclusions

Nurses providing care for patients with COPD should know the patient's self-efficacy level,

should plan initiatives that will improve the patient's self-care behaviors, and should support the patient to initiate activities related to his/her own life. A patient's and his/her family's being informed of the disease to this extent will gain the patient positive health behaviors and will enhance his/her quality of life and self-efficacy, which, in return, will prevent repeated hospitalizations and will contribute to the reduction in caregiver burden of caregivers.

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