Self-Efficacy Level and Patient Satisfaction with Healthcare in Chronic Obstructive Pulmonary Diseases

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ABSTRACT

Background: *Chronic obstructive pulmonary disease (COPD) is a chronic and progressive disease characterized by the deterioration of the lower airways.* **Objective:** *The purpose of this study was to investigate the possible relationships between the satisfaction with healthcare services of the people with COPD and their self-efficacy.* **Methods:** *Participants were patients visiting polyclinics. The patient information form, the patient assessment of chronic illness care, and the chronic obstructive pulmonary disease self-efficacy scale were used for this study. The data was collected by researchers in face-to-face interviews with participants after their medical examination. Spearman correlation test was used for correlation analysis. Student's t-test, one-way ANOVA, the Kruskal-Wallis test, and Mann-Whitney U test were used to analyze scale scores.* **Results:** *Total 62.4% participants were male, and the mean age was 65.19 ± 12.28. It was found that individuals with COPD have a low level of satisfaction with the healthcare services they receive and their self-efficacy level is low.* **Conclusions:** *Patients with COPD reported a low level of satisfaction with healthcare delivery and low self-efficacy. For this reason, there is a need for attempts to promote patient satisfaction with healthcare services and self-efficacy.*

Keywords: COPD, Healthcare, Nursing, Patient satisfaction, Perceived self-efficacy

INTRODUCTION

In parallel to the advances in technology and medicine, there has been an increase in the life expectancy and the incidence of chronic diseases. According to World Health Organization (WHO) statistics, 60% of deaths are associated with chronic illnesses and 80% of these deaths have found to take place in low or middle-income countries. Chronic illnesses can lead to slow and gradual deviations in normal physiological functions and irreversible changes, they span a long time throughout a lifetime and requires continuous medical care and treatment [1,2].

Diseases such as cardiovascular diseases, diabetes, and cancer are among the most prevalent diseases encountered around the world [1-3]. Of these, cardiovascular diseases are the most common cause of death worldwide. As a result of people becoming increasingly removed from healthy life practices and because of the exposure to health risks such as unhealthy diet, lack of physical exercise and smoking such diseases have become common [1,3]. Another major cause of death is a chronic obstructive pulmonary disease (COPD) triggered by increasing smoking practices. COPD is a common, chronic and burdensome condition requiring the individual to engage in a range of self-management strategies. Patients can experience a lack of control over their self-care activities, loss of independence, altered self-image and diminished self-esteem [4,5].

The goal of the chronic disease management is not only to prolong life expectancy but also to enable individuals to

cope with their problems, provide education to enhance self-efficacy and self-care skills, and to improve the quality of life and freedom by empowering their know-how and skills [6-9].

According to Bandura, the strength of individuals' convictions about their ability to produce a specific outcome determines whether or not they attempt to address a difficult situation. Thus self-efficacy judgments play a part in determining which activities or situations a person will perform or avoid [10,11].

Self-efficacy holds great importance in adopting and maintaining the health behaviors in terms of protecting individuals' health against chronic illnesses such as COPD. Individuals with COPD can experience low self-efficacy expectations to manage their respiratory problems while engaging in certain exercises and they find themselves in an acute respiratory health situation. This could lead the individual to impose restrictions on themselves. This situation has a negative impact on an individual's life and undermines the efficiency of healthcare service delivery. Nurses who play an effective role in maintaining and promoting the individuals' health and in managing chronic illnesses should attempt to increase patients' self-efficacy as it improves both the healthcare they receive and their coping skills [9,12-14].

Stuifbergen, et al., found that an increase in specific self-efficacy for health behaviors would result in improved health-promoting behaviors and the quality of life [15]. Johnson suggested that interventions that increase the sense of self-efficacy or competence of the patient might have positive health outcomes [16]. In this respect, it is crucial to analyze the correlation between satisfaction level of people with COPD and their self-efficacy to help health professionals evaluate the healthcare services they provide, to guide these patients and to conduct studies to improve the quality of healthcare.

PATIENTS AND METHODS

Study Design

A descriptive-correlational study with a cross-sectional approach was conducted. The purpose of this study was to investigate the possible relationships between the satisfaction with healthcare services of people with COPD and their level of self-efficacy. The research questions for this study are as follows:

- How satisfied are the patients with COPD with the healthcare services they are provided and what is their level of self-efficacy?

- Is there any correlation between COPD patients' state of satisfaction with healthcare services and their self-efficacy?

- Do COPD patients' socio-demographic characteristics affect their satisfaction with the healthcare services they receive and their level of self-efficacy?

Participant and Settings

The population of the study consisted of all the individuals who visited two Chest Diseases and Chest Surgery Training and Research Hospital polyclinics in Istanbul. The study's sample size of 205 participants was determined by using the probability sampling method. Participants were selected from those who had characteristics required for the study who visited the polyclinics in February 2012 and February 2013. The demographic data were collected by researchers conducting interviews in the polyclinics.

Inclusion Criteria

Patients who were literate, over 18 years of age, diagnosed with COPD for at least 6 months, not having any communication disabilities, and willing to participate were included in the study.

Exclusion Criteria

Individuals with hearing or visual impairments and those with intellectual disabilities were excluded from the study.

Instruments

Patient Information Form: The patient information form consists of information about socio-demographic characteristics such as the patient's age, sex, education, health insurance and additional relevant information.

Patient Assessment of Chronic Illness Care (PACIC): The PACIC is a 5-point Likert-type scale with 20 items

designed by Glasgow, et al., to enable patients with chronic illnesses to analyze the healthcare services they receive. Glasgow, et al., in 2005 identified five subscales under the PACIC:

- Patient activation (3 items)

- Delivery system design/Decision support (3 items)

- Goal setting (5 items)

- Problem solving/Contextual counseling (4 items)

- Follow-up/Coordination (5 items)

The sub-scores for each scale were computed by averaging across items completed within that scale, and the overall PACIC was scored by averaging scores across all subscales. The higher the scale scores, the higher the level of satisfaction patients with chronic diseases have and the higher the efficiency in chronic illness management [17].

The concurrent validity of the PACIC instrument was assessed by correlating its scores with results from other instruments that measure the delivery of primary care. Instrument has high internal consistency ($\alpha=0.93$), test-retest reliability ($r=0.58$) [17].

The Turkish validity and reliability study of this scale was conducted by İncirkuş and Nahçivan (content validity of the instrument was 0.85, alpha reliability was 0.91, item-total correlations were between 0.46 and 0.69, test-retest reliability was high $r=0.93$)[18].

The COPD Self-Efficacy Scale (CSES): The CSES developed by Wigal, et al., in 1991 was used to assess the level of confidence regarding the ability of patients with COPD to manage or avoid breathing difficulty while participating in certain activities [19]. The CSES was adapted for Turkish patients with COPD by Kara and Mirici [9]. The instrument contains 34 items that are divided into five subscales. The factor structure of the five subscales includes negative effect, intense emotional arousal, physical exertion, weather/environment, and behavioral risk factors. The items making up the instrument are prefaced by the statement: "How confident are you that you could manage breathing difficulty or avoid breathing difficulty in [various] situation[s]?") Individuals responded to each item on a 5-point Likert-type scale, which ranged from 5 (very confident) to 1 (not at all confident), that they could manage or avoid breathing difficulty in each situation presented.

The scores for each of the five subscales on the CSES were obtained by adding the respondents' score for each item to obtain a total score. The total score was then divided by the number of items responded to subscale to obtain a mean score. The higher the score, the more confident the individual was in his or her ability to manage or avoid breathing difficulty in the situations presented. A mean of 3 or greater was indicative of some degree of confidence in managing or avoiding the breathing difficulty in that particular category [9].

The CSES has good test-retest reliability ($r=0.77$) and excellent internal consistency (Cronbach's alpha=0.95) [19].

Data Collection

Data were analyzed using SPSS for Windows version 19 (SPSS Inc., 2010). As for the analysis of descriptive data, the number, percentage, mean and standard deviation were used (research question 1). Pearson's correlation coefficient (r) was used for correlation analysis (research question 2). The t-test, one-way ANOVA, Kruskal-Wallis Test, and Mann-Whitney U tests were used to analyze the scale scores and variables (research question 3). The significance level was set at a p-value<0.05.

Ethical Considerations

The study was approved by the Ethics Committee of Turkey. Prior to this study, the patients were informed of the purpose of the research. Informed written consent was received from all the participants. Participants were assured of their right of refusal to participate or to withdraw from the study at any stage. The anonymity and confidentiality of participants were assured.

RESULTS

Sample Characteristics

Of the total participants, 62.4% (n=128) were male and the mean age was 65.19 ± 12.28 (30-90 years). Reported diagnosis duration for COPD was 9.93 ± 8.10 years. Additionally, 48.8% (n=100) suffer from another chronic illness

in addition to COPD and 91.2% (n=187) had ongoing medication due to COPD. It was found that 86.8% (n=178) administered their medicine according to directions, and 57.6% (n=118) received education about COPD (Table 1).

Table 1 Socio-demographics of patients (n=205)

Variables	n	%
Age		
	30-90 years	65.19 ± 12.28
Sex		
Male	128	62.4%
Female	77	37.6%
Education		
Literate	60	29.3%
Primary	97	47.3%
Secondary	12	5.9%
High School	21	10.2%
Higher Education	15	7.3%
Marital Status		
Married	145	70.7%
Single	17	8.3%
Divorced	43	21.0%
Job		
Yes	97	47.3%
No	108	52.7%
Health Insurance		
Yes	187	91.2%
No	18	8.8%
Financial Status		
Ends Meet	135	65.9%
Ends don't meet	70	34.1%
Lung Disease in Family		
Yes	65	31.7%
No	140	68.3%
Smoking		
Yes	32	15.6%
No. never	54	26.3%
Quit	119	58.0%
Chronic Disease		
Yes	100	48.8%
No	105	51.2%
Constant Medication		
Yes	187	91.2%
No	18	8.8%
Taking medicine on time		
Yes	178	86.8%
Sometimes	24	11.7%
No	3	1.5%
COPD Health Education		
Yes	87	42.4%
No	118	57.6%
Health Education Resource		
Doctor	41	47.1%
Nurse	35	40.2%
Media	4	4.6%
Other	7	8.0%

Patients' PACIC and CSES Scores

Patients' average score on the PACIC was 2.43 ± 0.59 (low satisfaction). The average score on the CSES was found to be 2.53 ± 0.62 (moderate self-efficacy) (research question 1).

There was no statistically significant correlation between overall PACIC and CSES scores (p>0.05). A positive correlation at a statistically significant level at the rate of 20.4% was observed between the PACIC goal setting scale and the CSES emotional arousal scale (p<0.05). However, there was a statistically significant negative correlation between the PACIC problem solving subscale and the CSES negative affect subscale at the rate of 13.8%, a negative correlation at the rate of 13.7% with emotional arousal, a negative correlation at the rate of 16.8% with physical exertion, a negative correlation with weather/environment at the rate of 16.7%, and a negative correlation with behavioral risk factor at the rate of 17.5% (p<0.05). The study determined a statistically significant positive correlation between the PACIC follow-up/coordination scale and the CSES emotional arousal scale at the rate of 16.9% and a positive correlation with physical exertion at the rate of 15.0%. Moreover, the PACIC follow-up/coordination scale positively correlates with weather/environment at the rate of 15.3% (p<0.05).

Apart from this, there was no meaningful correlation between the PACIC subscales and those of CSES (p>0.05) (research question 2) (Table 2).

Table 2 Correlation between PACIC subscales and CSES subscales (n=205)

PACIC	Self-efficacy											
	Negative Affect		Emotional Arousal		Physical Exertion		Weather/ Environment		Behavioral Risk		Overall CSES	
	r	p	r	p	r	p	r	p	r	p	r	p
Overall PACIC	-	-	-	-	-	-	-	-	-	-	-0.009	0.9
Patient Activation	0.007	0.916	-0.001	0.989	-0.046	0.511	-0.015	0.829	0.03	0.667	-	-
Decision Support	-0.066	0.347	0.021	0.766	0.002	0.974	-0.032	0.649	-0.028	0.687	-	-
Goal Setting	0.047	0.5	0.204	0.003*	0.13	0.063	0.087	0.214	0.009	0.896	-	-
Problem Solving	-0.138	0.048*	-0.137	0.049*	-0.168	0.016*	-0.167	0.017*	-0.175	0.012*	-	-
Follow-up/ Coordination	-0.004	0.957	0.169	0.015*	0.15	0.032*	0.153	0.028*	0.04	0.566	-	-

r: Spearman Correlation Coefficient; *p<0.05

Differences between the PACIC and the CSES Scores in Terms of Socio-Demographic Factors

No meaningful differences were found for gender in terms of the PACIC and the CSES scores (p<0.05). While there was no statistically significant difference between age and PACIC scores (p>0.05), there was a statistically significant negative relationship with CSES scores at 41.3% (p<0.05). The PACIC scores of the employed patients were statistically at a lower level compared with those who did not work (p<0.05), while their CSES scores were found to be higher (p<0.05). Individuals who were financially stable reported higher scores both on the PACIC and the CSES compared with those who faced financial problems (p<0.05) (Table 3).

Table 3 Comparison of socio-demographic factors and PACIC and CSES scores (n=205)

Variables		PACIC mean ± SD	p	CSES mean ± SD	p
Sex	Male	2.42 ± 0.58	0.644*	2.60 ± 0.61	0.052*
	Female	2.45 ± 0.61		2.42 ± 0.61	
Age	30-90 years	r=-0.060	0.392	r= -0.413	0.001*
Job	Yes	2.32 ± 0.46	0.014*	2.72 ± 0.64	0.001*
	No	2.52 ± 0.68		2.36 ± 0.55	
Financial Status	Ends meet	2.50 ± 0.56	0.027*	2.60 ± 0.60	0.036*
	Ends don't meet	2.30 ± 0.62		2.41 ± 0.64	
Lung Disease in the family	Yes	2.59 ± 0.59	0.008*	2.75 ± 0.56	0.001*
	No	2.36 ± 0.58		2.43 ± 0.62	
Chronic Disease	Yes	2.57 ± 0.61		2.40 ± 0.55	0.003*
	No	2.30 ± 0.55	0.001*	2.66 ± 0.66	

Health Education in COPD	Yes	2.78 ± 0.60		2.55 ± 0.60	0.770*
	No	2.17 ± 0.43	0.001*	2.52 ± 0.63	
Smoking	Yes	2.49 ± 0.51		2.05 ± 0.54	0.071**
	No. never	2.41 ± 0.62	0.806**	2.27 ± 0.52	
	Quit	2.43 ± 0.60		2.51 ± 0.60	
		Min-Max/Median		**Min-Max/Median**	
Education	Literate	1.30-3.85/2.20		1.32-3.53/2.15	
	Primary	1.35-3.90/2.20		1.47-3.68/2.62	
	Secondary	2.00-3.90/2.72	0.001***	1.35-3.97/2.63	0.001***
	High School	1.95-4.00/2.45		1.47-4.03/2.82	
	Higher Education	1.75-3.65/2.80		1.88-4.21/2.76	
Marital Status	Married	1.00-3.00/2.25		1.32-4.03/2.59	
	Single	1.50-3.65/2.30	0.087***	1.56-3.97/3.23	0.001***
	Divorced	1.55-4.00/2.60		1.47-4.21/2.15	
Insurance	Yes	1.30-4.00/2.30	0.074****	1.32-4.21/2.50	0.389****
	No	1.55-3.90/2.55		1.76-3.97/2.44	
Constant Medication	Yes	1.30-4.00/2.30	0.694****	1.32-2.41/2.49	0.004****
	No	1.50-3.05/2.47		2.15-4.03/2.76	
Taking medicine on time	Yes	1.30-4.00/2.35		1.32-4.21/2.50	
	Sometimes	1.50-3.20/2.22	0.034***	1.56-3.68/2.63	0.463***
	No	1.50-2.35/2.00		2.15-2.18/2.18	
*t Student's t-Test; **One-Way ANOVA; ***Kruskal-Wallis Test; ****Mann-Whitney U Test					

In addition, participants with lung disease experiences in the family reported higher scores on the PACIC and CSES compared with those who did not ($p<0.05$), while those with chronic diseases reported higher scores on the PACIC ($p<0.05$) but lower scores on the CSES ($p<0.05$). Those who received health education about COPD had lower scores compared with those who did not ($p<0.05$). As for CSES scores, there was no meaningful difference ($p>0.05$). Smoking was not related to patient satisfaction with health care services and self- efficacy ($p>0.05$) (Table 3).

The study showed that there was a meaningful difference in the PACIC scores in terms of education levels ($p<0.05$). The comparisons indicate that literate and the primary school graduates reported lower scores than those who were in high school and higher education graduates ($p<0.05$). It was found that literate participants reported lower self-efficacy scores than primary, high school and higher education graduates, primary school graduates had lower scores than higher education graduates ($p<0.05$) (Table 3). Divorced participants reported lower CSES scores than married and single ones ($p<0.05$). Having health insurance was not related to patient satisfaction with health care services and self-efficacy ($p>0.05$). However, those who had to take medicine constantly reported lower self-efficacy than non-users ($p<0.05$). Taking medication on time was related to greater their satisfaction with health care services ($p<0.05$), but not self-efficacy ($p>0.05$) (research question 3) (Table 3).

DISCUSSION

Some substantial findings have been found in this study conducted with 205 patients to determine the correlation between the level of satisfaction in patients with COPD have with healthcare service and their self-efficacy level.

Patients' PACIC and CSES Scores

Patients' average score on the PACIC was low (2.43 ± 0.59). This rate is lower than the one found in the study by Aragones, et al., (3.17 ± 0.8), and it is similar to that of Glasgow, et al., (2.60 ± 1.0), Rosemann, et al., (2.44 ± 1.1) and Wensing, et al., (2.30 ± 0.8), whereas it is higher than that of Üstünova's which was carried out in Turkey (1.69 ± 0.4) [3,15,20-22]. Still, it is not at a desirable level. In this respect, it can be said that patients with COPD do not benefit from sufficient support from healthcare services in coping with the disease.

It was found that the highest average score was on the PACIC decision support while the lowest one was on the follow-up/coordination. These findings are in line with those found by others [3,17,18,20,21]. The PACIC is a practical, patient-level assessment of the implementation of chronic care management. It may be an important tool for health systems and other stakeholders to use in assessing and improving the quality of chronic disease care.

Items under decision support reflect the planning of healthcare services and patient participation in decision-making in this planning process. Items under the follow-up/coordination subscale include an individual's check-ups and receiving counseling support by being referred to other healthcare personnel. In this regard, it is gratifying that there are attempts to encourage patients with COPD to participate in the decision-making process concerning healthcare services. However, these attempts are not adequate, and there are many inadequacies in chronic disease follow-up for patients.

Individuals in sample groups' reported CSES score average was moderate (2.53 ± 0.62). The highest average was on the emotional arousal subscale while the lowest was on physical exertion. Emotional arousal measures the level of confidence in managing or avoiding the respiratory problems in case of anger, fear and life-related distress while physical exertion measures situations, such as climbing upstairs rapidly and in a hurry, which can lead to respiratory problems. The study conducted by Kara and Aştı was similar [11]. These responses indicate areas where cognitive-behavioral interventions should focus to enhance the patient self-efficacy, motivation, and behavioral change for improved self-management.

Correlation between PACIC and CSES

In comparing the two scales, it was seen that there was a positive correlation between the PACIC goal setting subscale and CSES emotional arousal subscale, and also between follow-up/coordination and emotional arousal, physical exertion, and weather/environment. Schmittdiel, et al., determined a meaningful correlation between the PACIC score and the quality of life for individuals with chronic diseases [22,23]. Kaşıkçı and Alberto reported a meaningful correlation between COPD patients' self-efficacy and self-care [24]. In line with these results, it can be concluded that patient satisfaction with the healthcare services they receive positively correlate with their self-efficacy levels.

A negative correlation was observed between the PACIC problem-solving subscale and all subscales of the CSES. This result is interesting and it can be interpreted that healthcare personnel does not attempt to encourage patients with a high level of self-efficacy to improve their problem-solving skills.

Differences between the PACIC and the CSES scores in terms of socio-demographic factors

The following groups reported higher average scores on the PACIC, those with higher levels of education, who do not work, those with a stable financial status, somebody having lung disease in the family history, chronic illnesses, who received health training and those who took their medication on time. Rosemann, et al., İncirkuş, et al., and Üstünova observed a meaningful correlation between the PACIC and level of education, while İncirkuş, et al., again found a meaningful correlation between the PACIC and the state of employment [3,18,21]. Nevertheless, Glasgow, et al., and Aragones, et al., didn't determine a meaningful correlation between education and patient satisfaction with chronic illness healthcare service [16,19]. Therefore, correlations between some of the factors and COPD patients' disease management and satisfaction with the services they are provided are controversial.

The available literature emphasizes that factors such as patients' education status, experiences, social support status, health status, and culture matter in regard to self-efficacy level [6,12,25]. It was found in this study that individuals belonging to the following groups reported higher levels of self-efficacy: younger people, those with higher levels of education, single patients, currently employed ones, those with a stable financial status, those who have somebody with lung disease in the family, those with no chronic illness, and those who do not take medication regularly. Keskin and Orgun found that the older patients get, the higher the level of self-efficacy they have [25]. However, Sergek and Sertbaş put forward that age does not have an impact on self-efficacy perception [26]. The opposite result emerged from this study because the majority of the participants were at more advanced ages and had to manage more chronic illnesses.

Jeon, et al., emphasize that financial difficulties cause the self-efficacy level to decrease by limiting access to healthcare service resources while Kılınç and Tezel suggest that patients with low income have a low level of self-efficacy [27,28]. This may be attributed to the concept that having a low income affects cognitive perception by increasing an individual's overall anxiety, thus changing their perception of self-efficacy.

Wang, et al., and Sergek and Sertbaş established that single individuals have a higher level of self-efficacy than married ones [26,29]. A similar result has been found in this study and it is interpreted as follows: married individuals take on more roles and responsibilities in the family and thereby their perceived level of self-efficacy decreases.

CONCLUSION

It was found that individuals with COPD have a low level of satisfaction with the healthcare services they receive and their self-efficacy level is low. A positive correlation was observed between the goal setting scale and the emotional arousal scale, between the follow-up/coordination scale and the emotional arousal scale, between physical exertion and weather/environment. A negative correlation was observed between the problem-solving subscale and negative affect subscale, between emotional arousal and physical exertion, between weather/environment and behavioral risk factor patients' education, employment status, marital status, suffering from a chronic illness, having somebody with a lung disease in the family and the state of using medication regularly were found to have an impact on self-efficacy and satisfaction level.

In line with these findings, it is recommended that:

- Reasons that decrease COPD patients' satisfaction be studied in further studies as well and healthcare professionals take this into consideration

- Attempts are made to diagnose the self-efficacy level of patients with COPD in disease management and empower them

- Patient training programs aiming to enhance disease management by COPD patients are designed.

LIMITATIONS

In this study, a major limitation was the inclusion of only two hospitals in the sample. Additionally, personal characteristics of the individual patients' situation significantly affect their coping abilities.

DECLARATIONS

Conflict of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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