Original Article

Investigation of the Effects of Illness Perception on Anxiety and Depression in Patients with COPD

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Abstract

Background : COPD patients experienced intense anxiety and depression in Turkey and perception of disease in COPD patients were examined effect on anxiety and depression.
Objectives: The aim of this descriptive study is to determine the effect of illness perception on anxiety and depression in patients with COPD and the factors affecting anxiety and depression.
Methods: The sample of this study consisted of 200 patients who met the research criteria, agreed to participate in the research and admitted to the clinical of Chest Diseases of a university hospital in Turkey between November 2015 and January 2016. Personal Information Form, Illness Perception Questionnaire (IPQ), and the Hospital Anxiety and Depression Scale (HADS) were used for data collection.
Results: In the study, it was found that there was a positive correlation between the sub-scale consequences of the IPQ and HADS, a negative correlation between the immunization perception and HADS, a positive correlation between the personal control and anxiety (HADS-A), a positive correlation between emotional representations, accidents-chance perception and depression (HADS-D), and a negative correlation between illness perception and HADS-D ($p<0.05$).
Conclusion: It was determined that the illness perception affected anxiety and depression in patients with COPD in many sub-scales.

Keywords: Illness Perception, Nurses, Chronic Obstructive Pulmonary Disease (COPD), Anxiety and Depression

Introduction

Chronic obstructive pulmonary disease (COPD) is a non-fully reversible, progressive, chronic disease, characterized by the restriction of airflow. In 2020 all over the world, COPD is predicted to be the fifth in terms of disease burden and the third in terms of mortality. (Vestbo et al., 2013). COPD is also an important health problem in Turkey and it is the third most common cause of mortality. (Kocabaş, 2010)

COPD is a costly chronic disease in terms of the country's economy, and it also causes many health problems such as shortness of breath in patients (Vestbo et al., 2013). Symptoms such as decreased physical exercise ability, fatigue, persistent coughing and sputum production experienced by the patients with COPD with the onset of shortness of breath affect both physical and mental health of patients and cause a decrease in their daily functions and quality of life (Moy, 2009; Bentsen et al., 2008; Howard et al., 2009; Borge et al., 2014). However, the progression of the disease process in COPD leads

to the dependency of the patients, increased hospitalization, restricted social activities, difficulty in fulfilling their expected roles in the family and society, and an increase in the incidence of anxiety and depression (Howard et al.,2009; Aras & Tel, 2009; Kourlaba et al., 2016).

Previous studies have reported that shortness of breath, coughing, and sputum production cause psychological distress such as anxiety and depression in patients as well as a significant decrease in the quality of life of patients. It has been reported that patients with COPD had more anxiety and depression than healthy individuals, and those with severe COPD had twice as many depressions as those with moderate COPD (Yohannes, Baldwin & Connolly, 2000; Baraniak & Sheffield ,2011; Wagena et al., 2005; Punekar et al., 2007). COPD is a chronic disease, and individuals with this disease have to cope with many physical and psychosocial problems which develop due to the disease process (Taytard & Cousson, 1996). The perceptions of the patients about the disease is an important factor in the increase and decrease of such symptoms.

The illness perception is concerned with the assessment of health problems arising from the illness of the patient, and such perceptions affect well-being and coping with the illness.

Having information about the illness significantly affects patient's reaction to the disease, and having sufficient knowledge about the illness will facilitate coping with it and also positively affect the reactions about the disease-preventing negative thoughts (Morgan et al., 2014). Inadequate information or being uninformed leads to an increase in anxiety and depression levels, which makes it difficult for the patient to adhere to the treatment, and delays the recovery (Morgan et al., 2014; Hagger, & Orbell, 2003).It has been reported in numerous studies that patients with higher illness perception have a higher quality of life and lesser shortness of breath (Hagger, & Orbell, 2003; Kaptein 2008).

Relevant literature revealed that there is a limited number of studies investigating the relationship between illness perception and anxiety and depression in patients with COPD. Therefore, this study was conducted to determine the effect of illness perception on the anxiety and depression in patients with COPD and the factors affecting anxiety and depression

Material and Method

Research type

This study was done as a descriptive.

Research place and time

This descriptive study was carried out at the clinical of Chest Diseases of a university hospital in Turkey. The data of the study were collected between November 2015 and January 2016. The study population consisted of 300 patients with COPD, who admitted to the clinic in the specified dates. And, the sample of the study consisted of 200 patients who were diagnosed with COPD at least 6 months ago, were able to communicate, had no psychiatric disorder, and voluntarily agreed to participate in the study.

Data collection tools

The data of the study were collected using Personal Information Form, which was prepared to determine characteristics of the disease and patients, the Illness Perception Questionnaire (IPQ), and the Hospital Anxiety and Depression Scale (HADS). The data were collected through face-to-face interviews with patients, and the interviews lasted approximately 10 minutes.

Personal Information Form

The questionnaire consists of 19 items prepared based on the literature (age, gender, marital status, educational status, number of children, occupation, income status, family structure, smoking status, health insurance status, presence of COPD, presence of COPD in the family, presence of other diseases, COPD phase, attacks, use of medication related to the disease, the frequency of attacks per year, and the need for daily oxygen support) (Aras &Tel, 2009; Korkmaz & Tel 2010; Turan & Akyıl, 2014)

Illness Perception Questionnaire (IPQ)

The scale was developed by Weinmann in 1996, and revised in 2002 by Moss-Morris et al. (Weinman et al., 1996; Moss-Morris, et al., 2002). The validity and reliability study of the scale in Turkish was carried out by Kocaman et al. in 2007. (Kocaman et al., 2007) IPQ includes symptoms of illness, views about illness and causes of illness dimensions. Symptoms of illness dimension: 14 common symptoms (pain, burning in the throat, nausea, difficulty in breathing, weight loss, fatigue, stiff joints, sore eyes, wheezing, headache, upset stomach, dizziness, sleep difficulties and loss of strength).

For each of these symptoms, the participants were first asked 'whether they had experienced them since the onset of the illness', and then 'whether they considered this related to the illness.' Views about illness dimension: 38 items and the five-point Likert-type scale was used. This dimension includes seven sub-scales. These are named as duration (acute/chronic), consequences, personal control, treatment control, illness coherence, time (cyclic), and emotional representations. Causes of illness dimension: 18 items containing the possible causes in the formation of diseases. The five-point Likert-type scale was used. This dimension investigates the thoughts of a person about possible causes of his/her illness and consists of four sub-scales. In the validity and reliability study of the scale in Turkish, the Cronbach's alpha coefficient of the views about the illness sub-scale was found to be between 0.69 and 0.77, and the Cronbach's alpha coefficient of the causes of illness sub-scale was in the range of 0.25 and 0.72. (Kocaman et al., 2007).

In this study, Cronbach's alpha value was found to be 0.760 for "Symptoms of Disease", 0.790 for "Views about Illness", and 0.750 for "Causes of Illness" sub-scales respectively.

Hospital anxiety and depression scale (HADS)

It was developed by Zigmond and Snaith to determine the anxiety and depression risk and to measure the severity and the level of this risk in individuals with physical illness and admitted to primary care services (Zigmond & Snaith, 1983). It consists of 14 items, seven of which (odd numbers) measure anxiety (HADS-A) and the other seven (even numbers) measure depression (HADS-D). It was used with a 4-point Likert-type scale, and its reliability and validity study in Turkish was carried out by Aydemir (Aydemir et al., 1997).

As a result of the study conducted in Turkey, the cutoff point for the anxiety sub-scale was found to be 10/11, whereas it was found as 7/8 for the depression sub-scale. Accordingly, these scored above these numbers are considered at risk. The lowest and highest scores of the scales were 0 and 21 respectively. HADS was found suitable for those with physical illnesses due to the lack of items related to the physical symptoms.

Data Analysis and Evaluation

The NCSS (Number Cruncher Statistical System) 2018 Statistical Software (Utah, USA) was used for the data analysis. Descriptive statistics (average and standard deviation) were calculated; normally distributed continuous variables were compared between groups with one-way analysis of variance and student's t-test. Normally distributed parameters were tested for two-group correlation by the Pearson correlation coefficient calculation. Results were expressed with their 95% confidence limits; a p-value <0.05 was accepted as significant.

Research Ethics

Before conducting the research, approval from the Ethics Committee of Atatürk University Faculty of Health Sciences as well as written permission from the hospitals were obtained. (dated 09/11/2015 and numbered / 3). Written consents of the patients who met the research inclusion criteria were also obtained after informing them about the purpose of research.

Results

The mean anxiety score of the patients was 11.04±04, and the mean depression score was 10.14±3.21.

The relationship between anxiety and depression scale score averages according to introductory characteristics of patients is shown in Table 1. When the descriptive characteristics of the patients were examined; it was found that 66% were over 60 years of age, 62.5% were male, 77.5% were married, 36.1% had 3-5 children, 64.5% were living in a nuclear family, 36% were housewife, 58.5% had balanced income, 97% had health insurance, and 42% had quit smoking.

When the participants' HADS-A (anxiety) mean scores were examined; the mean scores of HADS-A (anxiety) were statistically significant according to gender, the presence of other patients with COPD in their family, education level, occupation, and smoking status ($p<0.05$). Looking at the mean HADS-D (depression) scores, it was found that the mean HADS-D (depression) scores were statistically significant according to gender, living in an extended family, education level, number of children and occupation ($p <0.05$) (Table 1).

Table 1. The Difference Between Anxiety and Depression Scale Score Mean according to Introductory Characteristics of Patients

			HADS-A				HADS-D			
		%	n	Mean	SD	Significance	n	Mean	SD	Significance
Age	Under 40 years	4.0	8	8.50	3.16	F=1.589 p=0.193	8	8.75	2.66	F=2.380 p=0.071
	41-49 years	9.0	18	10.44	4.31		17	8.88	3.64	
	50-59 years	21.0	42	11.38	3.46		41	9.66	2.72	
	60 years and over	66.0	130	11.17	3.70		132	10.53	3.27	
Gender	Female	37.5	74	12.39	3.79	t=4.013 p=**0.000**	75	11.09	3.33	t=3.362 p=**0.001**
	Male	62.5	124	10.23	3.43		123	9.55	3.00	
Educational level	Illiterate	30.5	60	12.13	4.18	F=5.511 p=**0.001**	61	11.18	3.59	F=3.598 p=**0.015**
	Literate	21.5	42	10.05	3.40		42	10.02	3.50	
	Primary education	34.0	68	11.43	3.04		68	9.63	2.50	
	High school and over	14.0	28	9.25	3.74		27	9.22	2.95	
Marital status	Married	77.5	153	10.92	3.65	0.382	155	10.04	3.19	t=-0.813 p=0.417
	Single	22.5	45	11.47	3.93		43	10.49	3.28	
Number of children	1-3	23.2	45	11.04	4.07	F=0.807 p=0.491	44	10.66	3.65	F=3.018 p=**0.031**
	3-5	36.1	70	10.74	3.86		70	9.29	3.15	
	5-7	20.6	39	11.87	3.17		40	10.95	2.75	
	7-9	20.1	38	10.87	3.71		39	10.41	3.11	
Family type	Nuclear (consists of parents and children)	64.5	128	10.73	3.73	0.108	127	9.68	3.23	t=-2.738 p=**0.007**
	Large(consists of grandfather, grandmother, father, mother, and children)	35.5	70	11.61	3.63		71	10.96	3.02	
Occupation	Housewife	36.0	71	12.39	3.71	F=4.330 p=**0.002**	72	11.25	3.35	F=4.068 p=**0.003**
	Worker	9.0	17	10.35	3.81		18	9.50	2.92	
	Officer	5.0	10	11.50	4.06		10	10.40	3.69	
	Self-employed	16.5	33	10.42	3.86		31	9.84	3.08	
	Retired	33.5	67	10.01	3.19		67	9.21	2.81	
Income status	Income is lower than expenses	30.5	61	10.97	4.01	F=0.078 p=0.925	60	10.53	3.44	F=0.945 p=0.391
	Balanced	58.5	115	11.12	3.78		117	10.05	3.27	
	Income is higher than expenses	11.0	22	10.82	2.36		21	9.48	1.89	
Health insurance	Yes	97.0	192	11.04	3.70	t=0.027 p=0.978	192	10.21	3.21	t=1.796 p=0.074
	No	3.0	6	11.00	4.24		6	7.83	2.32	
Smoking	Non smokee	32.5	65	12.17	3.82	F=6.078 p=**0.003**	65	10.35	3.06	F=1.011 p=0.366
	Quit	42.0	83	10.89	3.83		83	9.76	3.30	
	Daily smoker	25.5	50	9.82	2.91		50	10.48	3.23	

the Hospital Anxiety and Depression Scale-Anxiety (HADS-A) the Hospital Anxiety and Depression Scale-depression (HADS-D), F=One-Way Anova, t=Independent-Samples T test

Table 2. The Difference Between Anxiety and Depression Scale Score Mean According to Disease Characteristics

			HADS-A				HADS-D		
		%	n	Mean SD	Significance	n	Mean SD	Significance
Duration of diagnosis	6 months - 1 year	8.5	17	10.41 2.65		17	9.35 3.26	
	1-10	70.0	139	11.01 3.72	F=0.651 p=0.583	138	10.13 3.05	F=0.771 p=0.512
	10-20	11.5	23	10.87 2.97		23	10.04 2.70	
	20 years and over	10.0	19	12.05 5.13		20	10.95 4.56	
Disease other than COPD	No other illness	26.5	53	9.94 3.09		53	8.68 2.70	
	Hypertension	33.5	66	11.56 3.86		65	10.66 2.99	
	Diabetes	5.5	11	10.73 3.90		11	9.55 3.17	
	Heart diseases	23.5	47	12.34 3.82	F=2.801 p=**0.012**	47	11.45 3.43	F=4.269 p=**0.000**
	Renal diseases	1.0	2	10.00 5.66		2	11.50 2.12	
	Gastrointestinal diseases	6.5	13	9.15 3.26		13	9.92 3.40	
	Other	3.5	6	9.83 2.86		7	8.43 2.88	
COPD stage	Stage 1	47.5	94	10.39 3.54		93	10.04 3.12	
	Stage 2	32.5	65	11.05 3.32	F=5.026 p=**0.007**	65	10.03 2.82	F=0.366 p=0.694
	Stage 3	20.0	39	12.59 4.32		40	10.53 3.98	
Need for daily oxygen support	Yes	58.0	114	11.18 3.81	t=0.634 p=0.527	116	10.30 3.14	t=0.862 p=0.390
	No	42.0	84	10.85 3.58		82	9.90 3.30	
Using medicines related to the disease	Yes	92.0	182	10.96 3.74		182	10.10 3.22	
	No	8.0	16	12.00 3.27	t=-1.080 p=0.232	16	10.56 3.10	t=-0.553 p=0.581
Had an attack	Yes	61.0	120	11.30 3.68	t=1.223 p=0.223	121	10.25 3.17	t=0.613 p=0.541
	No	39.0	78	10.64 3.74		77	9.96 3.28	
Frequency of attacks per year	One or two	58.5	71	10.72 3.28	t=-2.033 p=**0.044**	71	9.46 2.83	t=-3.230 p=**0.002**
	More than two	41.5	50	12.08 4.08		51	11.27 3.34	
Another COPD in the family	Yes	33.0	66	11.82 3.45	t=2.104 p=**0.037**	65	10.62 3.11	t=1.473 p=0.142

the Hospital Anxiety and Depression Scale-Anxiety(HADS-A) the Hospital Anxiety and Depression Scale- depression (HADS-D)

F=One-Way Anova t=Independent-Samples T test

Table 3. The relationship between the Illness Perception Questionnaire (IPQ) Scores and the Hospital Anxiety and Depression Scale Scores

		HADS-AR	HADS-Dr	SD	**Avg.**
1. Symptoms of Disease		-0.010	-0.093	2.77	7.36
2. Views about the Disease	Duration (Acute/Chronic)	0.031	0.072	5.38	21.88
	Conclusions	**0.195****	**0.300****	3.42	20.13
	Personal Control	**0.186****	-0.094	4.64	18.65
	Treatment Control	0.021	0.000	2.97	17.93
	Illness coherence	-0.045	**-0.240****	3.37	16.26
	Time (Cyclic)	-0.091	0.049	2.49	14.18
	Emotional Representations	0.109	**0.204****	4.32	22.33
3. Causes of Disease	Psychological Attributions	-0.080	0.004	4.13	16.39
	Risk Factors	-0.126	-0.119	5.20	19.80
	Immunity	**-0.226****	**-0.164***	2.20	10.27
	Accident or Chance	0.075	**0.155***	1.81	5.26

** P<0.05. **P<0.01 the Hospital Anxiety and Depression Scale-Anxiety (HADS-A) the Hospital Anxiety and Depression Scale- depression (HADS-D)*

An examination of the relationship between the mean anxiety and depression scores according to disease characteristics is given in Table 2. And it was revealed that 70% of the patients were diagnosed within 1-10 years, 33.5% had hypertension outside COPD, 47.5% had a stage 1 COPD, 58% had daily oxygen needs, 92% were using medicine, 61% had attacks, 58.5% had 1-2 attacks per year, and 67% had no other patients with COPD in the family.

Considering the participants' mean HADS-A (anxiety) scores, the mean HADS-A score was found to be statistically significant according to the phase of COPD, the presence of other illnesses other than COPD, and the frequency of attacks per year ($p<0.05$). Considering the participants' mean HADS-D (depression) scores, the mean HADS-D (depression) scores were found to be statistically significant according to the frequency of attacks per year, and presence of other illnesses other than COPD ($p <0.05$) (Table 2).

As shown in Table 3, a positive and significant correlation was found between the HADS-A scale and the consequences and personal control sub-scales of the IPQ ($r=0.195$, $p<0.01$; $r=0.186$ $p<0.05$ respectively). The anxiety score increased with the increasing scores of the consequences and personal control sub-scales. A negative correlation was found between HADS-A and the causes of illness sub-scale ($r=-0.226$, $p<0.01$). The anxiety score decreased with an increasing immunization score.

In addition, a positive correlation was found between HADS-D scale and the consequences and emotional representations sub-scales of the IPQ ($r=-0.204$, $p<0.01$). The depression score increased with the increasing scores of the consequences and emotional representation sub-scales. A negative correlation was found between HADS-D and the illness coherence sub-scale ($r=-0.240$, $p<0.01$). The depression score decreased with the increasing illness coherence score. A negative correlation was also found between HADS-D and the causes of illness sub-scale ($r=-0.164$, $p<0.05$). The depression score decreased with the increasing immunization score. A positive correlation was found between HADS-D and the accident and chance sub-scale ($r=0.155$, $p<0.05$). The depression score increased with the increasing accident and chance score (Table 3).

Discussion

One of the ten most common diseases in the world and in Turkey is COPD. But only one in

ten people is aware of his/her disease (Karakut &Unsal, 2013). In this study, the anxiety and depression rates in patients with COPD were discussed in the light of the literature in order to determine the relationship between sociodemographic characteristics, illness perception and the anxiety and depression.

It is noted in the literature that psycho-social disorders, especially depression and anxiety disorders, are more common in patients with COPD compared to the general population. (Putman-Casdorph & McCrone, 2009 ; Zhang et al., 2011).The results of studies conducted with HADS are similar to those of our studies. In our study, the mean HADS-D score (80.8%) was 10.14±3.21, and the mean HADS-A score (52.5%) was 80.8±52.5. In other studies, the mean HADS-D scores of patients with COPD were between 5.53±3.9 and 8.74±4.44, whereas the mean HADS-A scores were in the range of 5.92±5.1 and 9.4±4.7 (Howard et al., 2009; Karakut &Unsal, 2013; Morgan et al., 2014). In addition, when the previous studies are examined, the depression rates in patients with COPD have been reported to vary from 16% to 84%, whereas the anxiety rates have varied from 10% to 94%. (Yellowlees et al., 1987 ; Putman-Casdorph & McCrone, 2009). It is seen that the rates of anxiety and depression are higher in patients with COPD, similar to our study.

When the factors affecting anxiety and depression in patients with COPD were examined, introductory characteristics such as gender, educational level, occupation, and smoking were found to affect the anxiety risk, and the depression risk was found to be affected by gender, education level, number of children, family type and occupation. The presence of another disease other than COPD, stage of COPD, the frequency of attacks of COPD per year, and the presence of another patient with COPD in the family were found to affect anxiety risk, whereas the depression risk was found to be affected by the presence of another disease other than COPD and the frequency of attacks per year.

In this study, it was found that female patients experienced more anxiety and depression than males. Marco et al. (2006) found in their study that females experienced more anxiety and depression than males (Marco et al., 2006). Another study also found that females had more psychological problems than males (Laurin et al., 2007; Karakut & Unsal, 2013). These results were similar to those of our study. Their study also reported that anxiety and depression disorders were increasing with the increased level of education. Similar results were also found in a study conducted by Borge et al. (2010).(Borge et al.,2010). In a study by Karakut and Unsal (2013), the anxiety and depression disorders were found to have increased with the increased level of education (Karakut & Unsal, 2013).The reason for this difference may be the place of residence, the way of coping and cultural differences.

This study found that daily smokers had more anxiety than non-smokers and quitters. The study by Yohannes et al. (2014) found that smoking increased the risk and severity of COPD, making it difficult for the individual to carry out daily activities, and thus increasing stress, anxiety, and depression. Similar results were also found in a study by Borge et al. (2010). (Borge et al., 2010; Yohannes & Alexopoulos, 2014). Our study also found that smoking was correlated with anxiety disorder, but not with depression.

In our study, people who had no other patients with COPD in their family were found to have experienced more anxiety. This may be due to the individual's lack of knowledge about how to cope with the disease as well as experiencing anxiety caused by an unknown, inexperienced disease. In this study, it was found that people living in large families experienced more depression. In a study by Korkmaz and Tel (2010), it was found that patients who lived in large families experienced more anxiety and depression (Korkmaz & Tel, 2010). This can be attributed to higher responsibilities of the individuals living in a large family, and the inability and inadequacy in coping during this process due to the limitations in fulfilling his/her responsibilities in the course of the disease.

In this study, the presence of an additional disease was found to affect anxiety and depression more. In another study, the psychological problems were also found to be increased with the presence of other illnesses (Korkmaz & Tel, 2010). This result may be due to the difficulty caused by the presence of another chronic disease which makes it difficult for the individual to cope and adapt (Korkmaz & Tel, 2010).

Anxiety was found to increase with the increasing phase of the disease. Marco et al., (2006) study also found an increased anxiety and depression with an increased phase of the

disease. (Marco et al., 2006).Patients experienced more fear and anxiety as their shortness of breath becomes more severe in advanced stages of COPD.

When we investigated the relationship between sub-scales of IPQ and anxiety and depression in patients with COPD in our study, the patients with COPD were found to have the highest score in the emotional representations sub-scale in the illness perception dimension, which had a positive correlation with depression. This result indicated that patients' anxiety about their illness was excessive and adversely affected. In a study by Morgan et al. (2014), it was found that the perception of emotional representations was positively related to anxiety disorder (Morgan et al.,2014). In a study by Bahçecioglu and Akyıl (2013) conducted with patients with asthma, the perception of emotional representation was found to be higher, and having a chronic disease was reported to cause potentially negative feelings such as fear, anxiety, and unhappiness (Bahçecioglu & Akyıl, 2014).When we look at the other studies, it was revealed that shortness of breath, coughing, and sputum production cause psychological distress such as anxiety and depression in patients, and patients with COPD were found to experience more anxiety and depression compared to healthy individuals (Yohannes et al., 2000; Wagena et al., 2005; Punekar et al., 2007; Baraniak & Sheffield ,2011).The result of our study showed similar results with the literature.

In this study, patients' consequences perception and personal control scores were found to be higher, similar to that of emotional representations score, and a positive correlation was found between consequences perception and anxiety and depression disorders as well as a positive correlation between personal control perception and anxiety disorder. When we look at the items about the perception of consequences, patients who stated "My illness has major consequences on my life", "My illness causes difficulties for those who are close to me", "My illness is a serious condition", "My illness has serious financial consequences", "My illness strongly affects the way others see me" were found to be the majority, and a higher score taken in this dimension indicates that the patient believes he/she has a chronic disease (Kocaman et al., 2007). Similar results were also found in a study conducted by Bahçecioglu & Akyıl (2013) (Bahçecioglu & Akyıl, 2014). This result can lead to intense anxiety and depression experienced by individuals. In a study by Morgan et al. (2014), a negative correlation was found between personal control perception and anxiety and depression disorders (Morgan et al., 2014).

Another important finding in this study is that patients' lower illness coherence had a negative correlation with depression disorder. It has been reported in previous studies that coping with the disease becomes easier and the reaction against the disease becomes positive when the individual acknowledges his/her illness and has adequate information about the disease. (Morgan et al., 2014). Inadequate information about the disease has been also reported to increase anxiety and depression disorders, making it difficult for the patient to adhere to the treatment, causing a delay in the recovery (Hagger & Orbell 2003 ; Morgan et al., 2014).

Conclusion and Recommendations

As a result of this study, it was determined that the duration and emotional representation of the illness was high, the time (cyclic) and the perception of illness coherence was low, and risk factors were perceived as the most common cause of illness.

There was a relationship between HADS and patients' sociodemographic characteristics such as gender, educational status, and occupation; and, a correlation was also found between HADS-D and number of children and family type as well as a correlation between HADS-A and smoking and presence of other patients with COPD in the family. There was a relationship between HADS and the introductory characteristics of the disease, such as the number of attacks per year and the presence of other illnesses; and, there was a relationship also between the stage of the disease and HADS-A

It was found that there was a positive correlation between the consequences of the IPQ and HADS sub-scales, a negative correlation between the immunization perception and HADS, a positive correlation between the personal control and HADS-A, a positive correlation between emotional representations, accidents-chance perception and HADS-D, and a negative correlation between illness perception and HADS-D ($p<0.05$).

Based on these results it is believed that there is a need for further studies which will provide a solution to affect patients' adherence to treatment

and disease as well as their coping strategies. In particular, initiatives to understand the disease and to increase the perceptions of personal control may be useful.

Acknowledgment: We are grateful to the individuals who participated in this study. This study did not receive any grants from any commercial funding agency or public or nonprofit actors.

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