Araştırma Sunumu / Research Article

The Effect of Respiratory Exercise and Inhaler Usage Training on Some Symptoms and Psychosocial Parameters in COPD Individuals / *KOAH'lı Bireylerde Solunum Egzersiz Ve İnhaler Cihaz Kullanım Eğitiminin Bazı Semptomlar Ve Psikososyal Parametrelere Etkisi*

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Abstract

Introduction: Chronic obstructive pulmonary disease(COPD) is a highly prevalent and persistent host for the population. Aim: This study was conducted to examine the effects of diaphragmatic, pursed lip respiratory exercise and inhaler device use training on dyspnea, quality of life, anxiety, and depression in individuals with COPD. Material and Methods: Study was conducted in a single group, pre-test-post-test order, with 30 adult patients diagnosed with COPD as quasi-experimental. The data were collected by face-to-face interview method. After hospitalization of individuals with COPD, diaphragmatic and pursed lip respiratory and inhaler device usage training was given by a specialist nurse and doctor. Diaphragmatic and pursed lip respiratory exercises were performed by the patients 3 times a day. The use of inhaler devices was also checked at each use and feedback was given. Descriptive statistical, parametric and non-parametric tests were used in the evaluation of the data. For statistical significance, $p<0.05$ significance was accepted. Results: CAT scores ($p<0.01$) were statistically significant, dyspnea decreased MRC and MBS, there was no statistical significance in drug compliance scale scores(pre-educational =3.97, post-training= 4.67), and while there was no statistical significance in the depression scale score ($p>0.05$), a significant decrease was obtained in the anxiety score ($p<0.01$). Conclusion: It is important for the management of the disease to provide training by specialist nurses and doctors to develop breathing exercises and correct inhaler drug use in home care services in clinics where COPD patients are present.

Keywords: *COPD, Respiratory Exercise, Inhaler Device Use.*

Öz

Giriş: Kronik obstrüktif akciğer hastalığı(KOAH), toplum için yüksek oranda görülen ve süreğenlik gösteren önemli bir hastalıktır. Amaç: KOAH olan bireylerde diyafragmatik, pursed lip solunum egzersiz ve inhaler cihaz kullanım eğitimleri sonrasında dispne, yaşam kalitesi, anksiyete, depresyon üzerine etkisini incelemek amacı ile yapılmıştır. Gereç ve

Yöntem: Çalışma tek grup, ön test-son test düzeninde, yarı deneysel olarak 30 KOAH tanılı yetişkin hasta ile yapılmıştır. Verileri yüz yüze görüşme yöntemi ile toplanmıştır. KOAH'lı bireylerin hastaneye yatışları sonrasında diyafragmatik ve pursed lip solunum ve inhaler cihaz kullanım eğitimi uzman hemşire ve doktor tarafından verilmiştir. Diyafragmatik ve pursed lip solunum egzersizleri günde 3 kez hastalara yaptırılmıştır. İnhaler cihaz kullanımları da her kullanımda kontrol edilip geri dönütler verilmiştir. Verilerin değerlendirilmesinde tanımlayıcı istatistiksel, parametrik ve non parametrik testler kullanılmıştır. İstatistiksel anlamlılık için $p<0.05$ anlamlı kabul edilmiştir. Bulgular: KOAH'lı hastalarda düzenli olarak yaptırılan diyafragmatik ve pursed lip solunum egzersiz ve inhaler ilaç uyum eğitimleri sonrasında öksürük, balgam, nefes darlığı, yorgunluk semptomlarında ve evden ayrılma durumlarında CAT puanları ($p<0.01$) istatistiksel olarak anlamlı, dispnenin azalmıştır. ilaç uyumlarında istatistiksel bir anlamlılık olmamıştır ama ilaç uyum ölçek puanlarında (eğitim öncesi=3.97, eğitim sonrası= 4.67) yükseliş elde edilmiştir ve depresyon ölçek puanında ($p>0.05$) istatistiksel olarak bir anlamlılık olmaz iken anksiyete puanında ($p<0.01$) anlamlı bir düşüş elde edilmiştir Sonuç: KOAH'lıların bulunduğu kliniklerde, evde bakım hizmetleri içerisinde solunum egzersizleri ve doğru inhaler ilaç kullanımının geliştirilmesi için uzman hemşireler ve doktorlar tarafından eğitimlerin verilmesi hastalığın yönetimi açısından önemlidir.

Anahtar kelimeler: *KOAH, Solunum Egzersizi, İnhaler Cihaz Kullanımı.*

1. Introduction

Chronic obstructive pulmonary disease (COPD) is a common, preventable, and curable chronic disease characterized by persistent airflow limitation and respiratory symptoms usually arising from airway and/or alveolar abnormalities due to severe exposure to harmful particles or gases (Köktürk N et al., 2017).In 2012, the World Health Organization reported that approximately 3 million people worldwide die from COPD each year. Smoking gradually becomes widespread in developing countries and the population in developed countries is growing older. Therefore, it is predicted that the prevalence of COPD will increase in the next 30 years and COPD-associated deaths will exceed 4.5 million per year till 2030 (Köktürk N et al., 2017). The Turkish Statistical Institute (TurkStat) reported that 24,029 out of 392,429 deaths in 2015 were due to COPD and that the prevalence of the disease was 19.2% (TurkStat 2018, Death Causes Statistics). Individuals with COPD have symptoms such as dyspnea, chronic cough, wheezing, and phlegm. Due to these symptoms, the quality of life deteriorates; problems such as loss of appetite, weight loss, weakness, fatigue, and sleep disturbance increase the level of anxiety and depression. Physio-pathological changes in patients alter the respiratory function test (PFT) and blood gas results (Özkaptan&Kapucu, 2015). Therefore, breathing exercises help clear the airways, increase the strength of the respiratory muscles, increase and maintain the gas volume in the lungs. In addition, the correct and adequate use of breathing exercises and inhalers has an important role in the treatment of COPD (YıldızeliTopçu, 2016). This study was conducted to examine the effects of diaphragmatic and pursed lip respiratory exercise and inhaler device use training on dyspnea, quality of life, anxiety, and depression in individuals with chronic obstructive pulmonary disease.

2. Material and Methods

2.1. Type of Research

This study has a single group quasi-experimental design with pretest-posttest.

2.2. Research Population and Sample

The population of the study consists of patients with a diagnosis of COPD who applied to the Chest Diseases Outpatient Clinic of a district public hospital between 1 May and 30 June 2017. Patients who were diagnosed with COPD according to GOLD spirometric criteria and were in a stable period (patients with no COPD exacerbation in the last six weeks) were included in the study. Individuals with hearing, visual impairment, dementia, Alzheimer's diagnosis, and low standardized mini mental test scores were not included in the study. Our study was conducted with 30 patients who met the inclusion criteria of our study.

2.3. Data Collection Tools

COPD Patient Identification and Follow-up Form: The questionnaire was prepared by the researchers in line with the literature.

Standardized Mini-Mental Test (SMMT): The Mini-Mental Test was developed by Folstein et al. in 1975 separately for educated and uneducated individuals. It is used for the evaluation of cognitive disorders. The total score is 30 points and each question in the test is scored one point. It was adapted to Turkish by Güngen in 2002. It was found that the test is valid and reliable in the diagnosis of mild dementia in the Turkish population and that the ideal threshold value is 23/24 (Güngen et al., 2002).

The COPD Assessment Test (CAT): It is an eight-item test that measures the health status in COPD. Its validity and reliability were ensured in many languages and it is being used worldwide. The Turkish validity and reliability study of the test was conducted by Yorgancıoğlu et al. in 2012 (Yorgancıoğlu et al., 2012). It reveals the severity of the disease that individuals with COPD experience when coughing, sputum, shortness of breath, fatigue symptoms and leaving home. CAT evaluation test score; If it is 0-10, it is considered as low-impact, 11-20 as medium-impact, 21-30 as high-impact, and 31-40 as very high-impact (Tüllüce et al., 2016).

The Morisky Medication Adherence Scale (MMAS-8): In their study, Oğuzülgen et al. (2014) reported that the Turkish version of the eight-item Morisky scale can be safely used in patients diagnosed with asthma and COPD in the management of chronic respiratory diseases (Oğuzülgen et al., 2014). The scale consists of eight questions. A total of 8 points obtained from the scale: high compliance, 6-7 points: medium compliance, and less than 6 points indicate low compliance (Kara et al., 2019).

Modified Borg Scale (MBS): The scale was developed by Borg to measure effort spent during physical exercise and mostly evaluates the severity of effort dyspnea and rest dyspnea. The scale consists of ten items defining the severity of dyspnea based on their degrees (Borg, 1982). 0 nothing, 0.5 barely noticeable, 1 very mild, 2 mild, 3 moderate, 4

slightly severe, 5 severe, 6 5-7 7 very severe, 8 7-9 9 very very severe, 10 maximum severity refers to dyspnea (Biber, 2019).

Medical Research Council (MRC) Scale: The five-item scale was prepared based on physical activities that cause dyspnea. Patients are expected to rank the activity level that causes dyspnea (Bestall et al., 1999; Fletcher et al., 1959). 1 means no dyspnea, 2 is mild dyspnea, 3 is moderate, 4 is severe, and 5 is very severe (Kara and Yıldız, 2013).

SF-36 Scale: The scale was developed and put into use by Rand Corporation in 1992 (Ware &Sherbourne, 1992). There liability and validity study of the Turkish version of SF-36 was done by Koçyiğit et al (1999). The SF-36 (Short Form) scale consists of 8 sub-dimensions and 36 items measuring quality of life.Sub-dimensions: Bodily Pain (BP), General Perception of Health (GH), Mental Health (MH), Physical Functioning (PF), Role Limitation Due to Emotional Problems (RE), Role Limitation Due to Physical Problems (RP), Social Functioning (SF) and Energy and Vitality (VT). The scale is scored between 0 and 100. The higher the score, the higher the quality of life (Soyyiğit et al., 2006; Ware &Sherbourne, 1992, Demiral et al., 2006).

The Hospital Anxiety and Depression Scale (HADS): The scale was developed by Zigmond (1983) and its validity and reliability study was performed by Aydemir et al. (1997). It consists of 14 questions in total: seven of them measure anxiety and the rest seven measure depression. As a result of the validity and reliability study conducted by Aydemir et al., the cut-off point was determined to be 10 for the anxiety subscale (HADS-A) and 7 for the depression subscale (HADS-D) (Aydemir et al., 1997). Those who score above these scores on the scale are considered at risk.

2.4. Data Collection

For our study, approval of the interventional ethics committee was obtained and the institutional permit was taken from the district public hospital. The data were collected by the researcher using the face-to-face interview method. The individuals with COPD were informed about the purpose of the study and their informed consent was taken regarding their acceptance to the study. The data were collected using the data collection tools (SMMT, patient diagnosis form for sociodemographic characteristics, MRC dyspnea scale and modified Borg scale, CAT for COPD assessment, MMAS-8 for medication, SF-36 for quality of life, HADS for anxiety and depression). After hospitalization of individuals with COPD, training on diaphragmatic and pursed lip breathing and inhaler device use was given by a specialist nurse and doctor. The patients were given diaphragmatic and pursed lip breathing exercises 3 times a day, and they were given feedback on the correctness of each exercise. The use of inhaler devices was also checked at each use and feedback was given. While the patients were discharged, the MRC dyspnea scale, modified borg scale, MMAS-8 for drug use, CAT for COPD assessment, SF36, HAD questionnaires for anxiety and depression were applied to the patient as a post-test to measure the severity of dyspnea, and the data were compared before and after.

2.5. Statistical Analysis

The SPSS 20 (Statistical Package for Social Sciences) package program was used for the analysis of the research data. Descriptive statistics (number, percentage, mean, median, minimum and maximum values) and parametric and non-parametric tests were used for the evaluation of the data. The statistical significance was taken as $p<0.05$, $p<0.01$ and $p<0.001$.

2.6. Ethical Considerations

The research was conducted in line with the principles of the Helsinki Declaration. To conduct the study, permission was taken from Düzce University Faculty of Medicine Non-Invasive Health Research Ethics Committee (decision number:2018/119) and the institutional permit was obtained from the General Secretariat of the Provincial Public Hospital Association (protocol number: 2016/604.02.01). Furthermore, the written consent of the patients was taken and they were informed that they could withdraw from the study at any time.

3. Results

Table 1 shows the information regarding the sociodemographic characteristics of the patients participating in the study. The study was conducted with a total of 30 participants, 8 female and 22 male patients aged between 55 and 93 (Mean=71.78; SD=10.06) 6 of them have low educational and income levels (Table 1).

Table 1. Sociodemographic Characteristics of Participants

Sociodemographic Characteristics	n	%
Gender		
Female	8	26.7
Male	22	73.3
Economical Status		
Bad	13	43.3
Normal	14	46.7
Good	3	10.0
Educational Status		
Primary School	20	66.7
Middle School	6	20.0
Illiterate	4	13.3
Age		
Mean	71.78	
SD	10.06	
Min.	55	
Max.	93	

SD: Standard Deviation, Min: Minimum, Max: Maximum

Table 2 shows the patients' knowledge about flu and pneumonia vaccines and their vaccination status. 63.3% of the patients did not know about the flu vaccine and only 10% had the flu vaccine. 90% of the patients were also unaware of the pneumonia vaccine and none of them had ever been vaccinated against pneumonia (Table 2).

Table 2. Analysis Results of About Flu and Pneumonia Vaccine of Participants

	Yes		No	
	n	%	n	%
Being aware of the flu vaccine	11	36.7	19	63.3
Do You Get Regular Flu Vaccines?	3	10	27	90
Being aware of the Pneumonia Vaccine	3	10	27	90
Do You Get Regular Pneumonia Vaccine?	0	0	30	100

SMMT was applied to the participants before the application used in the study to increase its effectiveness and get correct answers from the participants. The SMMT scores of the participants ranged between 24 and 30, indicating that all of the participants had a normal cognitive function and that they could participate in the application (Mean=25.37, SD=1.90) (Table3).

Table 3. Standardized Mini Mental Test Scores of Patients

	$\overline{X}$	SS	Min	Max
Standardized Mini Mental Test	25.37	1.90	24	30

$\overline{X}$: Mean, SD: Standard Deviation, Min: Minimum, Max: Maximum

Table 4 showed, MBS and MRC scores were statistically significant between pre-training (Mean=6.20, SD=2.69; Mean=4.13, SD=1.17) and post-training (Mean=3.33, SD=2.76; Mean=2.40, SD=1.45) ($p<0.001$). When the CAT scores of the participants were evaluated, it was seen that their post-training scores (Mean=19.10, SD=8.71) were statistically significantly lower than their pre-training scores (Mean=24.37, SD=9.66) ($p<0.01$). This result shows that the training had a positive effect on the participants. When the MMAS-8 scores of the participants were examined, it was seen that the pre-training scores (Mean=3.97, SD=1.79) were lower than their post-training scores (Mean=4.67, SD=1.44); however, there was no statistical significance ($p>0.05$). When the HADS depression and anxiety subscale scores were examined, no statistically significant result was determined between the pre-training (Mean=8.77, SD=3.51) and post-training scores (Mean=8.33, SD=3.66) on the depression subscale ($p>0.05$). However, the anxiety subscale post-training score (Mean=8.40, SD=3.17) of the participants was statistically significantly lower than their pre-training score (Mean=10.40, SD=4.54) ($p<0.01$). The training provided significantly reduced the anxiety levels of the participants (Table 4).

Table 4. Analysis Results of MBS, MRC, CAT, MMAS-8 and HADS Scores in Pre and Post Training

Scales		Pre-test (n=30)		Post-test (n=30)		P
		Mean	SD	Mean	SD	
MBS		4.13	1.17	2.40	1.45	**<0.001**
MRC		6.20	2.69	3.33	2.76	**<0.001**
CAT		24.37	9.66	19.10	8.71	**<0.01**
MMAS-8		3.97	1.79	4.67	1.44	.065
HADS Scale	HADS-D	8.77	3.51	8.33	3.66	.227
	HADS-A	10.40	4.54	8.40	3.17	**<0.01**

CAT:COPD Assessment Test, MMAS-8:The Morisky Medication Adherence Scale, HADS:Hospital Anxiety and Depression Scale, HADS-A:Hospital Anxiety Scale, HADS-D: Hospital Depression Scale, SD: Standard Deviation

There was a weak, negative significant relationship between depression (HADS-D) with physical function (PF) (r=-0.575, p<0.01) and general perception of health (GH) (r=-0.419, p<0.05), positive significant relationship between depression (HADS-D) with anxiety (HADS-A) (r=-0.387, p<0.05). Accordingly, depression decreased as physical function and general perception of health increased. Depression increased as anxiety increased. There was a weak, negative significant relationship between anxiety (HADS-A) with bodily pain (BP) (r=-0.438, p<0.05), social functioning (SF) (r=-0.377, p<0.05) and general perception of health (GH) (r=-0.593, p<0.01). Anxiety decreased as bodily pain, social functioning and general perception of health increased. A weak, negative significant relationship was found between the CAT and the physical function (PF) (r=-0.445, p<0.05), energy and vitality (VT) (r=-0.422, p<0.05), bodily pain (BP) (r=-0.464, p<0.01), social function (SF) (r=-0.461, p<0.01), and general perception and health (GH) (r=-0.408, p<0.05) and a positive significant relationship was determined between the CAT and depression (HADS-D) (r=0.558, p<0.01). Accordingly, physical function (PF), energy and vitality (VT), bodily pain (BP), social function (SF), and general perception of health (GH) decreased as the symptoms of COPD increased. A moderate, positive significant relationship was determined between the CAT and the HADS depression subscale (r=0.558, p<0.01). As the COPD symptoms increased, depression increased as well. There was a weak, negative significant relationship between MMAS-8 with energy and vitality (VT) (r=-0.368, p<0.05) and mental health (MH) (r=-0.433, p<0.05). MMAS-8 increased as energy, vitality, mental health decreased. A strong, positive significant relationship was found between MRC with depression (HADS-D) (r=0.656, p<0.001) and CAT (r=0.723, p<0.001). A strong, positive significant relationship was found between MBS with depression (HADS-D) (r=0.615, p<0.001), CAT (r=0.761, p<0.001) and MRC (r=0.807, p<0.001). A weak, negative significant relationship was found between hospitalization period (HP) and bodily pain (BP) (r=-0.472, p<0.01). A weak, positive significant relationship was found between number of attacks (NA) and role limitation due to emotional problems (Table 5).

Table 5. Results of the Correlation Between Hospitalization Period (HP), Number of Attacks (NA), Number of Hospitalization in the Past Year (NHPY), Total Number of Hospitalization Period (TNHP), MRC, MBS, HADS, CAT, MMAS-8 and SF-36 Sub-Scales

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. PF	-																	
2. RP	**.481[b]**	-																
3. RE	.280	**.405[a]**	-															
4. VT	**.479[b]**	.272	-.106	-														
5. MH	.320	.120	-.004	**.741[c]**	-													
6. BP	**.637[c]**	.309	.073	**.529[b]**	**.371[a]**	-												
7. SF	.298	.256	-.098	**.482[b]**	**.431[a]**	**.679[c]**	-											
8. GH	**.687[c]**	**.524[b]**	.348	**.448[a]**	.196	**.564[c]**	**.458[a]**	-										
9. HADS-A	-.226	-.354	-.257	-.144	-.134	**-.438[a]**	**-.377[a]**	**-.593[b]**	-									
10. HADS-D	**-.575[b]**	-.192	-.082	-.286	-.263	-.352	-.202	**-.419[a]**	**.387[a]**	-								
11. CAT	**-.445[a]**	-.112	-.154	**-.422[a]**	-.149	**-.464[b]**	**-.461[b]**	**-.408[a]**	.206	**.558[b]**	-							
12. MMAS-8	-.190	.100	-.147	**-.368[a]**	**-.433[a]**	.135	-.012	-.134	-.246	-.184	.129	-						
13. MRC	-.289	-.188	-.229	-.202	-.138	-.157	-.207	-.202	.134	**.656[c]**	**.723[c]**	.083	-					
14. MBS	-.342	-.132	-.028	-.280	-.141	-.264	-.349	-.225	.172	**.615[c]**	**.761[c]**	-.048	**.807[c]**	-				
15. HP	-.312	-.066	-.114	-.211	-.064	**-.472[b]**	-.339	-.196	.072	.092	.344	-.248	.196	.291	-			
16. NA	.130	.183	**.387[a]**	-.054	.140	-.053	-.106	-.050	.091	.154	.180	-.126	.040	.155	-.147	-		
17. NHPY	-.149	.044	.239	-.107	-.063	-.323	-.187	-.205	.266	.068	-.001	-.136	-.073	.067	.138	**.421[a]**	-	
18. TNHP	-.104	.004	.159	-.241	-.127	-.288	-.127	-.054	.191	.175	.108	-.337	.163	.219	**.515[b]**	.180	**.702[c]**	-

SD: Standard Deviation,CAT:COPD Assessment Test, MMAS-8:The Morisky Medication Adherence Scale, HADS-A:Hospital Anxiety Scale, HADS-D: Hospital Depression Scale, PF: Physical Functioning, RP: Role Limitation Due to Physical Problems, RE: Role Limitation Due to Emotional Problems, VT: Energy and Vitality, MH: Mental Health, BP: Bodily Pain, SF: Social Functioning, GH: General Perception of Health, MBS: Modified Borg Scale,MRC: Medical Research Council, HP: Hospitalization Period, NA: Number of Attacks, NHPY: Number of Hospitalization in the Past Year, TNHP: Total Number of Hospitalization Period, [a]: $p<0.05$, [b]: $p<0.01$, [c]: $p<0.001$

No statistically significant difference was found between the participants' age, gender, income status and their SF-36 subscale scores ($p>0.05$).

4. Discussion

In the study of Erer et al., the rate of knowing the influenza and pneumococcal vaccines of individuals with COPD was found to be 49% and 12%, respectively, 40% and 10%. In the study of Akoğlu et al., it was determined that a large group did not know the vaccines required for COPD and did not receive any vaccines. Also in our study 63.3% of the patients did not know about the flu vaccine and only 10% had the flu vaccine. 90% of the patients were also unaware of the pneumonia vaccine and none of them had ever been vaccinated against pneumonia. As it is understood from here, the awareness of vaccination is low in individuals with COPD and regular trainings are required to raise this awareness.

In the study conducted by Aydemir, it was found that the correct use rate of the patients increased significantly ($p<0.001$) after inhaler device training. Şahin et al. (2014) found that the training given to the experimental group patients regarding the use of the inhalers improved the correct use. Çörtük and Kiraz (2014) emphasized that medication training is quite important for patients receiving inhaler treatment. It was stated that medication training had a significant effect on the correct use, especially for Turbuhaler. In our study, an increase in the MMAS-8 scale score was obtained after the trainings.

Tülüce et al. (2016) reported that the patient coaching approach reduced symptoms such as phlegm, cough, and dyspnea in the chronic obstructive pulmonary disease assessment test. Likewise, in our study, it was seen that the pre- and post-training CAT scores were statistically significantly lower.

Airway obstruction in COPD causes many pathologies in the respiratory tract; therefore, many factors such as decreased oxygen levels lead to dyspnea. Dyspnea negatively affects the quality of life based on the severity of the disease (Demir et al., 2003). Yenilmez et al. (2018) reached similar results with our study regarding the decrease in physical function with the increasing severity of the disease in individuals with COPD. In the study of Gökçek et al. in 2019, in which they examined the effect of dyspnea on anxiety and quality of life in individuals with COPD, it was observed that individuals with severe COPD levels were more depressed than individuals with mild COPD, and the quality of life of individuals was negatively affected as the level of dyspnea increased. In our study, a low but negative correlation was observed between the COPD assessment test and the physical function, energy and vitality, social function and general health perception scales of SF-36, and a positive and significant relationship with the pain scale. Accordingly, as COPD symptoms increase, physical function, energy and vitality, social function and general health perception decrease, and pain increases.

In our study, a moderate, positive significant relationship was found between the CAT and the HADS depression subscale. It was determined that depression symptoms increased as the symptoms of COPD increased. Yıldız et al. (2016) emphasized in their study that the effect of depression and anxiety symptoms on quality of life, dyspnea, and emotional disorder was not significant regardless of the severity of the disease and age whereas the

stage of the disease could be a determinant in the relationship between depression and anxiety symptoms and dyspnea.

Lolak et al. (2008) found that anxiety and depression levels decreased in patients with chronic pulmonary disease after eight-week pulmonary rehabilitation interventions. Similarly, in our study when the HADS depression and anxiety scores were examined, no statistically significant result was found between the pre-training and post-training depression subscale scores; however, the post-training anxiety subscale score was statistically significantly lower than the pre-training score. Accordingly, the training provided significantly reduced the participants' anxiety levels.

5. Conclusion and Recommendations

According to the results obtained from the research, we concluded that diaphragmatic and pursed-lip breathing exercises, which are regularly performed in patients with COPD, can reduce dyspnea, increase health perception, reduce anxiety perception, and reduce COPD symptoms. Therefore, it is important to support patients to eliminate the need for information, lack of self-care practices, lack of motivation and ensure self-care and self-efficacy in COPD patients. Thereby, training to be given by specialist physicians and nurses to improve breathing exercises and correct use of inhalers both in clinics and home care services is important for disease management.

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