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Effects of Quadriceps Muscle Strength and Kinesiophobia on Health Related Quality of Life in Elderly Women and Men with Chronic Obstructive Pulmonary Disease

ABSTRACT

Objective: The aim of this study was to investigate the effects of quadriceps muscle strength and kinesiophobia on health-related quality of life in elderly women and men with chronic obstructive pulmonary disease.

Methods: After recording the socio-demographic information of individuals, the Visual Analogue Scale (VAS) for pain status, the modified Medical Research Council Scale (mMRCS) for dyspnea, TAMPA Scale for Kinesiophobia (TSK), Saint George Respiratory Questionnaire (SGRQ) for health-related quality of life, and manual dynamometer were used to measure for muscle strength of quadriceps.

Results: Seventeen (37.8%) of the 45 participants were female. The mean age and body mass index of females were 71.59±4.84 years and 28.75±6.71 kg/m^2, respectively. Kinesiophobia averages were 47.47±7.40 and 41.89±7.65 in women and men, respectively, and $SGRQ_{(Symptom)}$ scores were 75.97±15.87 and 63.89±18.54 in women and men, respectively. Statistical analysis showed that there was a significant difference between men and women between kinesiophobia and $SGRQ_{(Symptom)}$ ($p<0.05$). There was a correlation between kinesiophobia and $SGRQ_{(Activity)}$, $SGRQ_{(Symptom)}$ and $SGRQ_{(Total)}$ in females and kinesiophobia and $SGRQ_{(Activity)}$, $SGRQ_{(Impact)}$ and $SGRQ_{(Total)}$ in males ($p<0.05$). The TSK score was found to affect the quality of life, more in women ($p<0.05$). There was no correlation between pain and quadriceps muscle strength and SGRQ parameters in both men and women ($p>0.05$).

Conclusion: In elderly individuals with COPD, kinesiophobia is an important factor affecting the quality of life and is recommended to increase physical activity, and monitor the physiological, emotional well-being in order to improve quality of life.

Keywords: COPD, Elderly, Kinesiophobia, Quadriceps Femoris, Quality of Life

Kronik Obstrüktif Akciğer Hastalığı Olan Yaşlı Kadın ve Erkek Bireylerde Kuadriseps Kas Kuvveti ve Kinezyofobinin Sağlıkla İlgili Yaşam Kalitesi Üzerine Etkisi

ÖZET

Amaç: Kronik obstrüktif akciğer hastalığı olan yaşlı kadın ve erkek bireylerde kuadriseps kas kuvveti ve kinezyofobinin sağlıkla ilgili yaşam kalitesi üzerine etkilerinin incelenmesi amaçlanmıştır.

Gereç ve Yöntem: Bireylerin sosyodemografik bilgileri kaydedildikten sonra, ağrı durumu için Vizüel Analog Skalası (VAS), dispne için modifiye Medical Research Council Skalası (mMRCS), kinezyofobi için TAMPA ölçeği (TKÖ), sağlıkla ilgili yaşam kalitesi için Saint George Solunum Anketi (SGSA) ve quadriceps kas kuvvetini ölçmek için manuel dinamometre kullanıldı.

Bulgular: Kırk beş katılımcının 17'si (37.8%) kadındı. Kadınların yaş ve vücut kütle indeks ortalaması sırasıyla 71.59±4.84 yıl, 28.75±6.71 kg/m^2, erkeklerin yaş ve vücut kütle indeks ortalaması sırasıyla 72.14±5.66 yıl, 26.53±3.91 kg/m^2 idi. Kinezyofobi ortalamaları kadın ve erkelerde sırasıyla 47.47±7.40 ve 41.89±7.65, $SGSA_{(Semptom)}$ skorları kadın ve erkeklerde sırasıyla 75.97±15.87 ve 63.89±18.54 idi. Yapılan istatistik analizde kadın ve erkeklerde, kinezyofobi ve $SGSA_{(Semptom)}$ arasında anlamlı fark olduğu gözlendi ($p<0.05$). Kadınlarda kinezyofobi ile $SGSA_{(Aktivite)}$, $SGSA_{(Semptom)}$, $SGSA_{(toplam)}$ arasında, erkeklerde kinezyofobi ile $SGSA_{(Aktivite)}$, $SGSA_{(Etki)}$, $SGSA_{(Toplam)}$ arasında ilişki bulundu ($p<0.05$). TKÖ skorunun kadınlarda daha fazla olmak üzere yaşam kalitesini etkilediği bulundu ($p<0.05$). Kadın ve erkeklerde ağrı ve quadriceps kas kuvveti ile SGSA parametreleri arasında ilişki gözlenmedi ($p>0.05$). **Sonuç:** KOAH'lı yaşlı bireylerde kinezyofobi yaşam kalitesini etkileyen önemli bir faktör olup, yaşam kalitesini arttırabilmek amacıyla fiziksel aktivitenin arttırılması, fizyolojik, emosyonel iyilik halinin takibi tavsiye edilmektedir.

Anahtar Kelimeler: KOAH, Yaşlı, Kinezyofobi, Quadriseps femoris, Yaşam kalitesi

INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is a preventable and treatable pulmonary disease characterized by progressive airflow limitation in the airways and increased chronic inflammatory response in the airway. COPD is the fourth leading cause of death worldwide (1). Historically, the prevalence and mortality of COPD in men have been significantly greater than in women (2). This difference is largely due to differences in exposure to risk factors. The most well-known risk factor for the development of COPD is the consumption of tobacco products (3). The use of tobacco products is one of the major health problems in the world and in our country. One in four people in our country use tobacco products (4). The use of tobacco products is one of the preventable causes of illness (5).

Studies have emphasized that peripheral muscle weakness frequently occurs in individuals with COPD and that this affects daily life activities and quality of life negatively (6, 7). Systemic factors such as inflammation, hypoxia and nutritional insufficiency decrease the muscle activity level and cause muscle weakness with immobilization. Individuals with COPD are characterized by skeletal muscle weakness, decreased muscle strength, endurance, and is observed in approximately 32% of patients (8). Skeletal muscle weakness may lead to a downregulation in functional capacity, a lower quality of life, an increasement in mortality, and a deterioration in lung function (9). Studies on muscle weakness suggest that the muscle quadriceps femoris weakening most rapidly in the lower extremity and that the quadriceps weakness is mortality-related in these patients (10, 11). Quadriceps muscle weakness can cause physical inactivity, increased risk of falls and fractures (12). In studies with quadriceps muscle strength and associated factors in COPD patients, there was no study investigating the relationship between kinesiophobia, quadriceps muscle strength and quality of life. Kinesiophobia is defined as anxiety about movement due to the sensation of sensitivity to pain (13, 14).

In a previous study, it was reported that in individuals with moderate-to-severe COPD, the quality of life-related factors differed between men and women (15). Women generally have more severe dyspnea symptoms than males and a lower quality of life than lung function at the same level (16). Di Marco et al. (17) reported that female patients had worse quality of life and more anxiety and depressive symptoms associated with symptoms compared to men.

The aim of this study is to examine the effect of quadriceps muscle strength and kinesiophobia on health-related quality of life in elderly women and men with chronic obstructive pulmonary disease.

MATERIAL AND METHODS

The universe of this study was formed by volunteers (n=45) from the Bolu Abant Izzet Baysal University, Chest Diseases Polyclinic. We also did not select the sample. Prior to the study, permission was obtained from the Bolu Abant Izzet Baysal University Clinical Research and Ethics Board (Protocol number: 2016/43).

Data collection methods: Descriptive data were obtained from the Patient Information Form created by the researcher by searching the literature, the modified Medical Research Council Scale (mMRCS) for dyspnea, the Saint (St.) George Respiratory Questionnaire (SGRQ) for the quality of life, the TAMPA Kinesiophobia Scale (TKS) for kinesiophobia, muscle strength was assessed using hand dynamometer. Visual Analogue Scale (VAS) was used for pain. Patient demographic information (age, gender, marital status, educational status and smoking habits) was questioned by the Patient Information Form.

mMRCS: Dyspnea is the most common symptom of COPD failure. The level of dyspnea provides information about the patient's perception of the disease and is a measurable value. The patient expresses the degree of breathlessness between 0 and 4. It is compatible with the mMRCS health status score and other dyspnea scales and is simple to apply (18, 19).

SGRQ: It is a test that evaluates the health-related quality of life of individuals with respiratory diseases. It was developed in 1991 by Jones et al. (20). Polatlı et al. conducted validity and reliability studies in our country (21). It consists of 50 items divided into 3 fields. The symptoms consist of 8 items, the activities are 16 items and the effects of the disease are 26 items. In scoring between 0-100, 100 points to the worst health condition.

TKS: Kinesiophobia is defined as anxiety about movement due to the sensation of sensitivity to pain (13, 14). Developed by Miler in 1991 to measure fear of movement and/or re-injury (22). Yılmaz et al. (23) conducted validity and reliability studies in our country. The questionnaire consists of 17 questions, with a minimum score of 17 and a maximum score of 68. The high score indicates that the patient's fears are high.

Assessment of muscle strength: The quadriceps muscle strength of the individuals participating in the study was assessed using a hand dynamometer (Medical Commander Power Track 2, USA). The measurements were repeated three times for the right and left sides. The highest value was recorded as Newton (N) (24, 25).

VAS: Individuals' pain severity was assessed using VAS. VAS reliability is a demonstrated pain intensity measurement scale (26). Individuals participating in the study were told that they could evaluate their pain from 0 to 10 on a 10 cm line. It was explained that if there was no pain, 0 (the leftmost point), the most severe pain 10

(the rightmost point). According to these explanations, patients were asked to mark their pain intensity on a 10 cm line. On the 10 cm line, the patient's mark was measured with a ruler and the value found was noted as pain intensity (27).

Statistical analysis: Descriptive values, number, and frequencies of the obtained data were tabulated as a mean and standard deviation. The Kolmogorov-Smirnov test was used to examine whether the numerical properties were normal. Relationships between groups with categorical characteristics were examined by chi-square test. Gender differences; When the parametric test assumptions were provided, the difference between the two means was tested by the significance test, and if the assumptions were not met, the Mann Whitney U test was used. In addition, Pearson correlation analysis was used to evaluate the relationship between scale scores in each group. Linear Regression Analysis was used in the analysis of variables with a statistically significant effect on $SGRQ_{(Total)}$ scores. The statistical significance level was $p<0.05$ and SPSS (ver. 18) program was used in the calculations.

RESULTS

Seventeen (37.8%) of the participants were female and 28 (62.2%) were male. The mean age and body mass index (BMI) of the females were 71.59±4.84 years, 28.75±6.71 kg/m^2, and the mean age and BMI of the males were 72.14±5.66 years and 26.53±3.91 kg/m^2, respectively (Table 1). When the smoking status of the participating individuals was examined, 5 (29.4%) of the women and 20 (71.4%) of the men were smoking during a period of their lives. There was a statistically significant difference between male and female subjects in terms of smoking cessation in favor of male subjects ($p<0.05$).

Table 1. Socio-demographic characteristics of the individuals participating in the study.

	Female n=17 (x±SS)	**Male n=28 (x±SS)**	**p**
Age (year)	71.59±4.84	72.14±5.62	0.729
Body mass index (kg/m^2)	28.75±6.71	26.53±3.91	0.232
	n (%)	**n (%)**	
Smoking status	5 (29.4)	20 (71.4)	0.000
Assistive device			
Crutch	1 (5.9)	1 (3.6)	0.274
Walking stick	5 (29.4)	4 (14.3)	
Nothing	11 (64.7)	23 (82.1)	
Marital status			
The married	8 (47.1)	24 (85.7)	0.011
Single	9 (52.9)	4 (14.3)	
Education status			
Not literate	13 (76.5)	5 (17.9)	0.000
Primary school	3 (17.6)	19 (67.9)	
Middle School	-	4 (14.3)	
High school	-	-	
University	1 (5.9)	-	
Number of hospitalizations in the last 3 months	1.60±1.63	1±0.73	0.196
FVC(%)	80.50±24.98	85.22±15.40	0.128
FEV_1(%)	68.56±20.66	70.37±15.40	0.678
FEV_1/FVC	72.25±6.21	71.01±7.23	0.294
PEF(%)	63.50±29.05	69.52±17.13	0.420
FEF_{25-75}(%)	35.18±18.00	35.29±24.19	0.709
mMMRC			
mMRCS 0	1(5.9)	1(3.6)	0.196
mMRCS 1	-	8(28.6)	
mMRCS 2	4(23.5)	7(25)	
mMRCS 3	12(70.6)	12(42.9)	
mMRCS 4	-	-	
Muscle strength (N**)**	115.74±40.27	127.74±54.98	0.513
TKS	47.47±7.40	41.89±7.65	0.021
SGRQ			
Activity			0.263
Impact	72.49±24.79	59.69±32.86	0.146
Symptom	75.97±15.87	63.89±18.54	0.026
Total	76.53±21.18	63.72±30.43	0.104
Pain (VAS) (cm)	3.62±3.47	1.25±0.027	0.027

mMRCS: modified Medical Research Council Scale, **VAS:** Visual Analogue Scale, **TKS:** TAMPA Scale for kinesiophobia, **SGRQ:** St. George Respiratory Questionnaire.

Table 2. The relationship between kinesiophobia, pain, muscle strength and quality of life in female individuals with COPD.

		TKS	VAS	Muscle strength	SGRQ (Activity)	SGRQ (Symptom)	SGRQ (Impact)	SGRQ (Total)	PEF (%)
TKS	r	1	0.249	0.425	0.663	0.638	0.347	0.603	-0.503
	p		0.335	0.254	**0.004**	**0.006**	0.173	**0.010**	**0.047**
VAS	r		1	-0.169	0.263	0.201	0.267	0.310	-0.026
	p			0.663	0.307	0.440	0.300	0.226	0.925
Muscle strength	r			1	-0.820	0.318	-0.379	-.0259	-0.417
	p				0.834	0.405	0.314	0.501	0.304
SGRQ (Activity)	r				1	0.230	0.586	0.864	-0.260
	p					0.374	**0.014**	**0.001**	0.925
SGRQ (Symptom)	r					1	0.068	0.270	-0.608
	p						0.794	0.294	**0.012**
SGRQ (Impact)	r						1	0.903	-0.117
	p							**0.001**	0.667
SGRQ (Total)	r							1	-0.157
	p								0.562
PEF(%)	r								1
	p								

VAS: Visual Analogue Scale, **TKS:** TAMPA Scale for kinesiophobia, **SGRQ:** St. George Respiratory Questionnaire

The $SGRQ_{(Symptom)}$ scores were 75.97±15.87 and 63.89±18.54 in the male and female subjects, respectively, while the TKS averages were 47.47±7.40 and 41.89±7.65, respectively. There was a significant difference between the TKS and $SGRQ_{(Symptom)}$ in both men and women ($p<0.05$). In females there was a moderate correlation between TKS and $SGRQ_{(Activity)}$ ($r=0.663$), $SGRQ_{(Symptom)}$ ($r=0.638$) and $SGRQ_{(Total)}$ ($r=0.603$) ($p<0.05$) (Table 2). Similarly, there was a moderate correlation between TKS and $SGRQ_{(Activity)}$ ($r=0.433$), $SGRQ_{(Impact)}$ ($r=0.475$) and $SGRQ_{(Total)}$ ($r=0.469$) ($p<0.05$) (Table 3).

Table 3. The relationship between kinesiophobia, pain, muscle strength and quality of life in male individuals with COPD.

		TKS	VAS	Muscle strength	SGRQ (Activity)	SGRQ (Symptom)	SGRQ (Impact)	SGRQ (Total)	PEF (%)
TKS	r	1	-0.228	-0.516	0.433	0.321	0.475	0.469	0.028
	p		0.252	**0.017**	**0.021**	0.095	**0.011**	**0.012**	0.899
VAS	r		1	-0.175	-0.097	0.063	0.059	0.008	-0.038
	p			0.460	0.630	0.753	0.770	0.967	0.863
Muscle strength	r			1	-0.335	-.0181	-0.343	-0.346	-0.070
	p				0.137	0.433	0.128	0.125	0.790
SGRQ (Activity)	r				1	0.673	0.876	0.951	-0.038
	p					**0.001**	**0.001**	**0.001**	0.863
SGRQ (Symptom)	r					1	0.686	0.749	-0.331
	p						**0.001**	**0.001**	0.123
SGRQ (Impact)	r						1	0.977	-0.003
	p							**0.001**	0.988
SGRQ (Total)	r							1	-0.040
	p								0.855
PEF(%)	p								1
	r								

VAS: Visual Analogue Scale, **TKS:** TAMPA Scale for kinesiophobia, **SGRQ:** St. George Respiratory Questionnaire.

In our study, the quadriceps muscle forces of female and male individuals were 115.74±40.27 N, 127.74±54.98 N, respectively. Although the muscle strength of male individuals was higher than that of female individuals, there was no difference between muscle strengths ($p>0.05$).

VAS scores were 3.62±3.47 cm in female individuals and 1.25±0.027 cm in male individuals and the difference between the two gender was significant ($p<0.05$). There was no correlation between VAS and quadriceps muscle strength and SGRQ parameters in both male and female subjects ($p>0.05$).

Compared with respiratory function test parameters and mMRCS values, there was no difference between male and female individuals ($p>0.05$). There was a negative moderate ($r=-0.503$) relationship between PEF and TKS in female

individuals, while there was a negative strong correlation between PEF and $SGRQ_{(Symptom)}$ (r=-0.608) ($p<0.05$). FVC, FEV_1/FVC, FEV_1, PEF, FEF_{25-75} values were not correlated with other parameters ($p>0.05$).

According to the regression analysis performed (Table 4), the effect of TKS scores on $SGRQ_{(Total)}$ scores was statistically significant in both genders ($p<0.05$). The increase in TKS score for both genders has a boosting effect on $SGRQ_{(Total)}$ values. This effect is higher in female individuals. The effect of VAS, muscle strength and PEF percentage scores on $SGRQ_{(Total)}$ scores was not statistically significant either in women or men ($p>0.05$).

Table 4. The effect of pain, muscle strength, kinesiophobia and PEF(%) on the quality of life in male and female individuals with COPD.

Female	Std. Beta	t	p	%95 G.A - Lower limit	%95 G.A - Upper limit
Pain (VAS)	0.31	1.264	0.226	-1.297	5.073
Muscle strength (N)	-0.259	-0.709	0.501	-0.234	0.126
TKS	0.603	2.93	0.01*	0.471	2.983
PEF(%)	-0.157	-0.594	0.562	-0.538	0.305
Male	Std. Beta	t	p	%95 G.A - Lower limit	%95 G.A - Upper limit
Pain (VAS)	0.008	0.042	0.967	-4.161	4.332
Muscle strength (N)	-0.346	-1.607	0.125	-0.422	0.055
TKS	0.469	2.709	0.012*	0.45	3.283
PEF(%)	-0.04	-0.185	0.855	-0.879	0.735

*$p<0.05$ statistically significant effect; Linear Regression Analysis (Dependent Variable $SGRQ_{(Total)}$ score); Std.Beta: Standardize Beta Coefficient; 95% G.A: 95% Confidence Interval. **VAS:** Visual Analogue Scale, **TKS:** TAMPA Scale for kinesiophobia, **PEF:** Peak Expiratory Flow.

DISCUSSION

This study has shown that kinesiophobia in individuals with COPD is more prevalent in especially female, and affects the quality of life in both genders, even more in female individuals.

One of the main causes of COPD is smoking. A study conducted in Sweden with 19750 participants found a significant increase in the risk of COPD among smokers aged 40-55 years (28). Similar to developing countries in our country, the usage rates of tobacco products have increased in recent years (29). In 2008, according to World Health Organization data rates of smoking in Turkey, it is 31.2%. In the young population, this rate reaches 40% (4). Approximately 80% of COPD-related deaths result from smoking (30).

Exercise intolerance seen in the progression of the disease is a characteristic feature of COPD (31). The power of the quadriceps femoris muscle is associated with both airflow limitation and exercise capacity (27, 32). Studies have shown that the most rapidly weakening muscle in individuals with COPD is quadriceps (6, 33, 34). Ausin et al. (35) reported that quadriceps muscle strength was lower in women with COPD compared with healthy controls in the study they performed, with greater incidence in women. Another previous study reported that quadriceps muscle endurance was significantly impaired in both genders in individuals with COPD, and muscle strength of male individuals was higher than that of female individuals (36). Hernandez et al. (37) reported that quadriceps muscle strength was positively correlated with the level of physical activity in their study. In our study, it was observed that the muscle strength of male individuals was higher than that of female individuals, but there was no difference between muscle strengths.

Quadriceps muscle strength is an important muscle for mobility and ambulance and has a major role in gaining and maintaining physical performance. In case of weakness, the individual can go to activity restriction due to reasons such as falling anxiety and fatigue, which can adversely affect the individual's social activity participation and quality of life. For this reason, it is considered as a muscle that should be strengthened primarily in physiotherapy and rehabilitation programs. In our study, there was no statistically significant difference, but it was observed that the quadriceps muscle strength of the women was lower than the men as it was in a previous study (35). There was no correlation between quadriceps muscle strength and kinesiophobia in female individuals, but there was a significant correlation in male individuals. Our results suggest that kinesiophobia in individuals with COPD may be affected by many other factors besides muscle strength (eg, dyspnea, pulmonary system problems, etc.).

Improving the quality of life in individuals with COPD by improving the functional level is the main goal of treatment. For this reason, it is important to determine the factors affecting the

quality of life and to treat it. Benton et al. (38) reported that gender differences affect the quality of life associated with social and physical functioning in older individuals with COPD. In another study involving 430 patients, women with COPD were reported to have the significantly lower quality of life scores than men with COPD (39). Haj Ghanbari et al. (40) noted that in individuals with COPD, kinesiophobia has a significant relationship between pain, fear of movement and quality of life in their work to determine the relationship between pain and quality of life, and can also affect physical performance. Lee et al. (41) reported that the finding of pain was associated with dyspnea, fatigue and low quality of life score. The importance of interventions to reduce pain is emphasized in order to prevent negative associations of clinical symptoms in individuals with COPD (34). It has been indicated that the quality of life and functional status are significantly affected in individuals with COPD, the patients should be evaluated with objective tests and the evaluation subheadings of the scales used for evaluation may be an important guide in determining the treatment target (42). In our study, there was a positive correlation between kinesiophobia, activity participation and total quality of life in both male and female individuals, in which the health-related quality of life of the individuals was significantly associated with activity participation, disease effect and symptom and total scores. However, it was found that kinesiophobia scores in both genders affected the quality of life and this effect was higher in female subjects. When we study differently from the above-mentioned studies, no relation between the finding of pain and quality of life has been determined. However, the pain findings of the patients included in the study ranged from 1 to 3 out of 10, which was equivalent to minimal pain. In our study, it was found that the feeling of kinesiophobia was quite high, especially in female individuals. Similar to a previous study (40), it has been observed that increased kinesiophobia in individuals with COPD will affect the quality of life negatively. In another study, it was reported that pain symptoms in individuals with COPD were associated with low functional exercise capacity, decreased physical activity level and high BMI, and significantly reduced the quality of life (43). The BMI of the individuals included in the study was slightly above normal. Overweight can negatively affect the ability of the individual to move. We believe that patient education and rehabilitation programs, which can be done to control the weight of individuals with COPD and reduce the worries of fear of movement that may be experienced, will be important in increasing the quality of life.

Dyspnea, anxiety, and depression which are frequently observed in individuals with COPD can negatively affect the lives of patients. The relationship between physical activity and anxiety in individuals with COPD has been reported in previous studies (44, 45). Anxiety, panic, and depression are common psychological disorders in individuals with COPD. In the studies conducted, the prevalence of anxiety was reported to be 10-30%, the prevalence of panic attacks 0-70% and the prevalence of depression 10-40% in individuals with COPD (24, 46). Miravitlles et al. (47) reported that approximately one in five individuals with COPD were afraid of being disabled or dying because of COPD. Muscle weakness, walking, and balance disorders have been reported to increase the risk of falls 3-4 times (48). Decreased physical performance due to muscle mass loss with aging is more pronounced in chronic disease (49). There are studies in the literature showing that individuals with COPD reduce physical performance, functional capacity, and quality of life because of muscle strength loss (6, 50). These findings may have direct clinical consequences, because respiratory muscles are required for ventilation, while lower extremity muscles are necessary for daily life activities (51). However, other symptoms of the disease, such as sedentary life, pain, are thought to affect kinesiophobia (40).

Although they are at the same ventilatory insufficiency level, women have reported higher rates of dyspnea than men (16). It is also found that there is a higher correlation between dyspnea and depression in women compared to men (42). Previous studies (17, 52) reported that although they were on the same clinical level, women had higher levels of depression and anxiety than men.

In our study, it was observed that women individuals had more intense kinesiophobia than male individuals, although at the same clinical level. In individuals with COPD, physical activity levels due to dyspnea and fatigue conditions will gradually decline and individuals with COPD will increasingly adopt a sedentary lifestyle due to kinesiophobia. Especially in the beginning, out-of-home situations will be limited and over time this will start to affect the daily life activities. In elderly individuals with COPD, kinesiophobia is an important factor affecting the quality of life and is recommended to increase physical activity, physiological and emotional well-being in order to increase the quality of life in elderly individuals with COPD. This study of individuals over 65 years of age with COPD found that kinesiophobia was more prevalent among women and that kinesiophobia affected the quality of life in both sexes, more in female subjects. In this study conducted with elderly individuals with COPD, it was found that kinesiophobia was more intense in women and that kinesiophobia affect the quality of life in both genders, more in female individuals.

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