ORIGINAL RESEARCH ORİJİNAL ARAŞTIRMA

DOI: 10.5336/nurses.2022-94887

The Relationship Between Dyspnea Severity, COVID-19 Fear, and Death Anxiety Levels in COPD Patients Admitted to the Emergency Department: Descriptive and Relationship-Seeking Study

Acil Servise Başvuran KOAH Hastalarının Dispne Şiddeti ile COVID-19 Korkusu ve Ölüm Kaygısı Düzeyi Arasındaki İlişki: Tanımlayıcı-İlişki Arayıcı Çalışma

Şeyma GÖRPÜZ[a], Aygül KISSAL[b]

[a]Tokat Gaziosmanpaşa University Institute of Graduate Studies, Department of Emergency Medicine Nursing, Tokat, Türkiye
[b]Tokat Gaziosmanpaşa University Faculty of Health Science, Department of Nursing, Division of Public Health Nursing, Tokat, Türkiye

This study was presented as an oral presentation at International Congress Reflections of Pandemic on Mental Health and Psychosocial Care, June 24-25, 2021, Online.

ABSTRACT Objective: This study was conducted to evaluate the association between dyspnea severity, COVID-19 fear, and death anxiety levels in individuals diagnosed with chronic obstructive pulmonary disease (COPD). **Material and Methods:** This descriptive relationship-seeking study was conducted with 144 patients aged 40 years and older who were admitted to a state hospital emergency department with a diagnosis of COPD. The data were collected using a personal information form, the Medical Research Council (MRC) dyspnea scale, COPD assessment Test-CAT, Death Anxiety Scale (DAS), and Coronavirus Fear Scale (FCV-19S). **Results:** The mean age of the individuals was 66.39 ± 9.72. The fear of death was severe in 52 patients (36.1%) and mild in 48 patients (33.3%). The difference between DAS and FCV-19S was statistically significant according to the severity of COPD, frequency of admission to hospital, presence of other chronic diseases, ability to meet physical needs, diagnosis of COVID-19, and anxiety levels related to COVID-19 transmission ($p<0.05$). DAS and FCV-19S increased in accordance with the severity of dyspnea. As the level of death anxiety increased from mild to severe, the mean score of the FCV-19S increased accordingly. **Conclusion:** The majority of COPD patients (69.4%) experience moderate or higher fear of death and their COVID-19 fear levels are at high levels. COPD patients with severe dyspnea, female patients, and those with additional chronic diseases should be evaluated in terms of death anxiety and fear of COVID-19. Additionally, they should be provided with the necessary psychological support.

Keywords: Chronic obstructive pulmonary disease; attitude to death; fear; COVID-19

ÖZET Amaç: Bu çalışma KOAH tanısı alan bireylerde dispne şiddeti ile COVID-19 korkusu ve ölüm kaygısı düzeyleri arasındaki ilişkinin değerlendirilmesi amacıyla yapılmıştır. **Materyal ve Metod:** Tanımlayıcı-ilişki arayıcı nitelikteki bu araştırma bir devlet Hastanesinin acil servisine KOAH tanısı ile başvuran 40 yaş ve üzeri 144 hasta ile yürütülmüştür. Veriler kişisel bilgi formu, Medical Research Council (MRC) Dispne Skalası, KOAH Değerlendirme Testi-CAT, Ölüm Kaygısı Ölçeği ve Koronavirüs Korku Ölçeği ile toplanmıştır. **Bulgular:** Bireylerin yaş ortalaması 66.39 ± 9.72'dir. Çalışmada 52 hastanın (%36.1) ölüm korkusu düzeyinin şiddetli, 48 hastanın (%33.3) ise hafif düzeyde olduğu tespit edilmiştir. KOAH derecesi, hastaneye başvuru sıklığı, başka kronik bir hastalığın varlığı, fiziksel ihtiyaçlarını karşılayabilme durumu, COVID-19 tanısı alma ve COVID-19 bulaşması ile ilgili kaygı düzeylerine göre ölüm kaygısı ve COVID-19 korkusu puanları arasındaki fark istatiksel olarak anlamlı bulunmuştur ($p<0.05$). Dispne şiddetine göre ölüm kaygısı ve COVID-19 korkusu puanları artış göstermiştir. Ölüm kaygısı düzeyi arttıkça (hafiften ağıra doğru) COVID-19 korkusu ölçeği puan ortalaması artmıştır. **Sonuç:** KOAH hastalarının çoğunluğu (%69.4) orta düzey ve üzeri ölüm korkusu yaşamaktadır. COVID-19 korku düzeyleri yüksektir. Dispne şiddeti yüksek, kadın ve ek kronik hastalığı olan KOAH'lı hastaların ölüm kaygısı ve COVID-19 korkusu yönünden değerlendirilmesi, bu gruba gerekli ruhsal desteğin sağlanması önerilmektedir.

Anahtar Kelimeler: Kronik obstrüktif akciğer hastalığı; ölüm düşüncesi; korku; COVID-19

TO CITE THIS ARTICLE:
Görpüz Ş, Kıssal A. The relationship between dyspnea severity, COVID-19 fear, and death anxiety levels in COPD patients admitted to the emergency department: Descriptive and relationship-seeking study. Turkiye Klinikleri J Nurs Sci. 2024;16(1):247-56.

Correspondence: Aygül KISSAL
Tokat Gaziosmanpaşa University Faculty of Health Science, Department of Nursing, Division of Public Health Nursing, Tokat, Türkiye
E-mail: aygul.kissal@gmail.com

Peer review under responsibility of Turkiye Klinikleri Journal of Nursing Sciences.

Received: 14 Dec 2022 ***Received in revised form:*** 30 Nov 2023 ***Accepted:*** 02 Jan 2024 ***Available online:*** 01 Feb 2024

Although chronic obstructive pulmonary disease (COPD) is a very common disease with progressive inflammation in the lungs, it is preventable and treatable if diagnosed early.[1] Studies have reported that the prevalence of COPD in adults over 40 years of age in developed countries ranges between 10% and 12%. Around the world, the prevalence of COPD varies greatly depending on the country and geographical region, ranging from 3% to 21%.[2] COPD, among the top three causes of death worldwide, has a mortality rate of 90% in low and middle-income countries.[1] While the rate of deaths due to respiratory diseases among all deaths in Türkiye was 8.3% in 2010, this was 12.9% in 2019. Out of this rate, 5.4% is attributed to COPD and bronchiectasis-related deaths.[3]

Coronavirus disease-2019 (COVID-19) is characterized as a fatal disease, especially targeting the respiratory system, ranging from the common cold to severe acute respiratory syndromes.[4,5] Individuals over 60 years of age with severe chronic medical conditions have been more affected by COVID-19.[6,7] In a study, 53 (4.96%) of 1,069 COVID-19 patients hospitalized in Türkiye were diagnosed with COPD.[8] Numerous studies have reported mortality rates around 9-11% in COPD patients contracted with COVID-19.[9]

One of the important problems encountered in this process is death anxiety. Individuals with COPD face problems such as progressive physical strength loss due to chronic dyspnea and hypoxia, interpersonal relationships, social activities and difficulties in professional life. Furthermore, their inability to develop self-efficacy further increases death anxiety by decreasing their self-esteem and self-confidence.[10-12] Individuals with COPD who constantly face the disease and its associated symptoms, complications, and attacks may experience severe death anxiety.[4,13-15] It is important to understand the effects of pandemics on individuals and how they affect them. The findings of this study can shed light on taking precautions for COPD patients in potential future pandemics and setting strategies to combat them. The study was conducted to examine the association between dyspnea severity, COVID-19 fear and death anxiety levels in individuals diagnosed with COPD.

Research questions:

1. What is the level of death anxiety in individuals with COPD?

2. What is the level of fear of COVID-19 in individuals with COPD?

3. Is there an association between dyspnea severity, death anxiety, and the fear of COVID-19 in individuals with COPD?

MATERIAL AND METHODS

This is a descriptive and relationship-seeking study. It was conducted with patients who applied to the emergency department of a state hospital in Türkiye between February 15, 2021 and April 1, 2021. Its population consisted of individuals aged 40 years and over who were admitted to the emergency department of a state hospital with a diagnosis of COPD. The sample size was calculated using G-Power (V.3.1.9.2) (Heinrich Heine, Düsseldorf University, Düsseldorf, Germany), employing the correlation approach. Accordingly, the minimum sample size required to achieve an effect size of 0.263, a power of 0.80 and a Type I error of 0.05 (α error probability) was determined to be 144 individuals.

The study sample consisted of individuals, who were aged over 40 years with moderate, severe, and very severe COPD according to the Global Initiative for Chronic Obstructive Lung Disease criteria for at least 6 months, and did not have severe cardiac, malignant, psychiatric, orthopedic, neurological, or communication problems, nor did they have alcohol/substance dependence. The study did not include individuals with cognitive dysfunction and lung diseases other than COPD.

Data were collected using a personal information form, the Medical Research Council (MRC) Dyspnea Scale, COPD Assessment Test (CAT), Death Anxiety Scale (DAS), and Fear of COVID-19 Scale (FCV-19S).

PERSONAL INFORMATION FORM

The questionnaire form created by the researcher consists of 34 questions including socio-demographic characteristics and disease characteristics of the patients (age, body mass index, sex, marital/educa-

tional/income status, frequency of hospital admission in the last year, the presence of any chronic disease other than COPD, a history of coronavirus diagnosis, etc.).[5,14,16]

MRC Dyspnea Scale

This scale, employed by Fletcher compares the severity of dyspnea during activity in individuals with and without lung disease. It provides information about the degree of dyspnea and patients' perception of the disease. In this scale, scores range between 0 and 4, with 0 defining the best condition (no dyspnea), and 4 defining very severe dyspnea. Higher scores indicate that the perception of dyspnea is more severe. Although a validity and reliability study of the scale was not conducted, it was associated with arterial blood gas and lung function tests, suggesting that it can be used safely in the evaluation of dyspnea.[17] In our study, the Cronbach alpha value was 0.70.

CAT

Turkish validity and reliability study of this test, developed by Jones et al., was conducted by Yorgancıoğlu et al., with a Cronbach's alpha coefficient value of 0.91. The test consists of eight questions, each scored between 1 and 5 (0: no symptoms, 5: severe symptoms). Lower scores show less disease severity and better health status. An excellent health status corresponds to 0 points (minimum score), while the worst health status corresponds to 40 points (maximum score).[18,19] In the present study, the total scale Cronbach's alpha was 0.95.

DAS

This scale was developed by Templer in 1970. Its Turkish validity and reliability was conducted by Şenol in 1989. It consists of 15 items, each answered as true or false. The highest obtainable score from the test is 15 and death anxiety is interpreted as: 0-4 points "mild", 5-9 points "moderate", 10-14 points "severe", and 15 points "severe". Cronbach's alpha value of the scale was 0.83.[20] In our study, the Cronbach's alpha value was 0.87.

Fear of COVID-19 Scale (FCV-19S)

The Fear of COVID-19 Scale (FCV-19S) consists of seven items and is a 5-point Likert-type scale ranging from "strongly agree" to "strongly disagree", and one-dimensional format designed in 2020 by Ahorsu et al. Higher scores refer to greater fear of coronavirus-19.[21] This current study used the Turkish version of FCV-19S adapted by Satici et al. The total scale reliability coefficient was reported to be 0.84.[22] In the present study, the Cronbach's alpha value was 0.95.

DATA COLLECTION METHOD AND PROCESS

Individuals who met the study criteria were interviewed after the initial evaluation and stabilization. Questionnaires were collected from the patients who willingness to participated in the study in the emergency department observation room of the hospital. Adequate ventilation was provided by opening the windows of the room and measures were taken to prevent patient falls. The questionnaires were administered by interviewing each patient face-to-face. The interviews took approximately 15-20 minutes to complete. The data were collected one week during the day and one week at night. Forty-eight patients exhibiting agitation, cognitive impairment due to high pCO_2 value, severe psychological disorders, inability to leave the BBAP device, significant speech difficulties, and declining the interview were not included in the study.

DATA ANALYSIS

The data were analyzed using SPSS software, version 22. The normality of the data distribution was tested using the Kolmogorov-Smirnov test and the skewness-kurtosis coefficients. Descriptive statistics (number, percentage and mean±standard deviation), student's t-test, chi-square test, analysis of variance test and Kruskal-Wallis tests were used for group comparisons. In the analyses, the data were evaluated at a 95% confidence interval and 0.05 statistical significance level.

ETHICAL CONSIDERATIONS

Permissions were obtained from the Scientific Research Platform of the Ministry of Health and the Social and Human Sciences Research Ethics Committee of a Tokat Gaziosmanpaşa University (date: February 05, 2021, no: 01-18) and Provincial Health Directorate (26.01.2021/02/01). Verbal and

written consent was obtained from the patients who accepted to participate in the study. The data were collected face-to-face interviews with individuals who agreed to participate in the study. This research was conducted in accordance with the Declaration of Helsinki.

RESULTS

The mean age of the individuals was 66.39±9.72 years, with 35.4% in the 60-69 age group. Of them, 50% were overweight, 59.7% were male, 79% were married, 11.1% were high school graduates or higher, and 41% were retired. Of them, 98.6% had children, 61.8% had income equal to their expenses, 8.3% lived alone, and only 15.3% smoked (Table 1).

The present study found that the death fear level of 52 patients (36.1%) was severe as indicated by the DAS. Of the participants, 48 (33.3%) had a mild fear of death. Female patients had a higher death anxiety than males ($p<0.05$). There was no significant difference between the DAS scores and the age group, marital status, educational status, income status and the number of people lived together ($p>0.05$). The total mean score of the patients on the 7-item FCV-19S was 16.92±6.36. The mean FCV-19S score of women (19.22±6.32) was higher than that of men (15.37±5.93) ($p<0.05$). There was no significant difference between age, marital status, educational status, income status, people lived together and FCV-19S mean scores ($p>0.05$).

Table 2 shows the comparison of DAS and FCV-19S scores according to COPD characteristics and other diseases. There was a significant difference between the duration and severity of COPD, the frequency of admission to hospital in one year, and the death anxiety score ($p<0.05$). In addition, a significant association was found between death anxiety scores according to the presence of other chronic diseases ($p<0.05$). The death anxiety scores of the patients who were able to partially meet their physical needs and those who were not diagnosed with COVID-19 were higher ($p<0.05$). The fear of death scores of those with high COVID-19 anxiety levels were significant compared to those with moderate anxiety levels ($p<0.05$). There was no significant association between the diagnosis of COVID-19 in the first-degree relatives and death anxiety scores ($p>0.05$). As the severity of COPD increased, the fear of COVID-19 significantly increased ($p<0.001$). The COVID-19 fear was significantly higher in patients who had frequent hospital admissions within the last year ($p<0.001$). Those with additional comorbidities including heart disease, diabetes mellitus, hypertension, and thyroid dysfunction had higher COVID-19 fear than those without additional comorbidities

TABLE 1: Distribution of descriptive characteristics of the participants (n=144).

Descriptive characteristics		n	%
Age	40-49 years	6	4.2
$\bar{X}$±SD	50-59 years	32	22.2
(66.39±9.72)	60-69 years	51	35.4
	70-79 years	46	31.9
	80 years and above	9	6.3
Body mass index	18.5 and below: Weak	4	2.8
	18.6-24.9: Normal	32	22.2
	25-29.9: Overweight	72	50.0
	30 and above: Obese	36	25.0
Sex	Female	58	40.3
	Male	86	59.7
Marital status	Married	113	79.0
	Single	31	21.0
Educational status	Illiterate	37	25.7
	Literate	51	35.4
	Primary-secondary school	40	27.8
	High school and higher	16	11.1
Occupation	Housewife	56	38.9
	Officer	9	6.3
	Retired	59	41.0
	Laborer	8	5.6
	Other	12	8.3
Having a child	Yes	142	98.6
	No	2	1.4
Income status	Less income than expenses	32	22.2
	Income expenses equal	89	61.8
	More income than expenses	23	16.0
People lived together	Alone	12	8.3
	With the spouse	75	52.1
	With the spouse and children	28	19.4
	With the children	29	20.1
Smoking status	I smoke	22	15.3
	I quit smoking	62	43.1
	I have never smoked	60	41.7

SD: Standard deviation.

TABLE 2: Comparison of DAS and FCV-19S scores according to COPD and other disease characteristics of the participants (n=144).

		DAS (n: %)				Fear of COVID-19	Statistics
Disease characteristics		**0-4 Low**	**5-9 Moderate**	**10-14 Severe**	**X^2; p**	**$\bar{X}$±SD**	**p**
Duration of COPD	6 months to 5 years	23 (47.9)^{a}	22 (50)^{a}	12 (23.1)^{b}	**11.932; 0.018***	15.91±4.61	F: 2.848; 0.061
	6-10 years	20 (41.7)^{a}	21 (47.7)^{ab}	32 (61.5)^{b}		17.05±6.84	
	11 years and more	5 (10.4)^{ab}	1 (2.3)^{b}	8 (15.4)^{a}		20.36±8.78	
Severity of COPD	Moderate	37 (77.1)^{a}	29 (65.9)^{a}	14 (26.9)^{a}	**30.607; <0.001***	14.91±5.3^{a}	**F: 15.938; <0.001***
	Severe	11 (22.9)^{a}	14 (31.8)^{a}	32 (61.5)^{b}		18.63±6.63^{b}	
	Very severe	0 (0)^{a}	1 (2.3)^{a}	6 (11.5)^{a}		26±2.52^{c}	
Frequency of hospital admission in the last year	1-5 times	14 (29.2)^{a}	17 (38.6)^{a}	4 (7.7)^{b}	**40.606; <0.001***	14.11±4.66^{a}	**F: 30.939; <0.001***
	6-10 times	31 (64.6)^{a}	23 (52.3)^{ab}	21 (40.4)^{b}		15.41±5.65^{a}	
	11-15 Times	3 (6.3)^{a}	4 (9.1)^{a}	27 (51.9)^{b}		23.14±5.26^{b}	
Presence of other chronic diseases	Yes	20 (41.7)^{a}	33 (75)^{b}	44 (84.6)^{b}	**22.623; <0.001***	18.41±6.19	**t: 4.272; <0.001***
	No	28 (58.3)^{a}	11 (25)^{b}	8 (15.4)^{b}		13.85±5.61	
Ability to meet physical needs	I can afford	30 (62.5)^{a}	25 (56.8)^{a}	9 (17.3)^{b}	**24.575; <0.001***	14.98±4.75	**t: 3.391; 0.001***
	I can partially afford	18 (37.5)^{a}	19 (43.2)^{a}	43 (82.7)^{b}		18.47±7.05	
First-degree relative's diagnosis of COVID-19	Yes	42 (87.5)	40 (90.9)	46 (88.5)	0.285; 0.857	16.88±6.33	t: 0.217; 0.829
	No	6 (12.5)	4 (9.1)	6 (11.5)		17.25±6.77	
Diagnosis of COVID-19	Yes	26 (54.2)^{a}	23 (52.3)^{a}	14 (26.9)^{b}	**9.398; 0.009***	15.71±5.69	**t: 2.034; 0.044***
	No	22 (45.8)^{a}	21 (47.7)^{a}	38 (73.1)^{b}		17.86±6.72	
Anxiety level regarding COVID-19 contamination	No	6 (12.5)^{a}	1 (2.3)^{ab}	1 (1.9)^{b}	**89.131; <0.001***	7±0^{a}	**F: 112.802; <0.001**
	Low	15 (31.3)^{a}	4 (9.1)^{b}	0 (0)^{c}		8.95±2.12^{b}	
	Moderate	23 (47.9)^{a}	30 (68.2)^{b}	6 (11.5)^{c}		15.19±3.95^{c}	
	High	4 (8.3)^{a}	9 (20.5)^{a}	45 (86.5)^{b}		22.67±3.53^{d}	

*The p value is significant at the 0.05 level. The common upper index indicates a significant difference; The data are given as n (%). X^2: Chi-square test; t: Independent sample t-test; F: One-way analysis of variance; KW: Kruskal-Wallis analysis of variance; DAS: Death Anxiety Scale; FCV-19S: Fear of COVID-19 Scale; COPD: Chronic obstructive pulmonary disease.

(p<0.05). Patients who partially met their physical needs had higher COVID-19 fear than those who met their physical needs (p<0.05). The mean score of the FCV-19S was significantly higher in patients who were not previously diagnosed with COVID-19 than in those who were previously diagnosed with COVID-19 (p<0.05). As the level of anxiety about COVID-19 transmission increased, the mean score of the FCV-19S (p<0.05). However, there was no significant difference between the duration of COPD, the first-degree relative's having COVID-19, and the fear of COVID-19 (p>0.05).

The results further showed that 49.3% of patients on the MRC Dyspnea Scale assessed their dyspnea severity as "moderate dyspnea". Fifty-seven (39.6%) reported "severe dyspnea", and 14 (9.7%) reported "very severe dyspnea". Two (1.4%) patients had low CAT scores between 0 and 10, and 51 (35.4%) had moderate cat scores between 11 and 20. Fifty-six (38.9%) patients had a high CAT score between 21 and 30, while 35 (24.3%) patients had a very high CAT score between 31 and 40.

Table 3 shows the comparison of DAS and FCV-19S scores of individuals according to the MRC Dyspnea Scale and CAT. The MRC Dyspnea Scale was higher in those with moderate, severe, and very severe death anxiety scores than in those with mild dyspnea. According to the MRC Dyspnea Scale of the individuals, the mean score of the COVID-19 scale was higher in the patients who reported very severe dyspnea than in the patients who reported moderate and severe dyspnea (p<0.05) (Table 3). The mean score of the FCV-19S was higher in the patients with a very high CAT score between 31 and 40 than in the patients with low, moderate and high CAT scores (p<0.001) (Table 3).

According to the comparison of the DAS and the FCV-19S scores, as the level of death anxiety increased (from mild to severe), the mean score of the FCV-19S increased (p<0.001) (Table 4).

TABLE 3: Comparison of death anxiety and FCV-19S scores of the participants based on MRC Dyspnea Scale and CAT (n=144).

Dyspnea Severity Scale	DAS (n, %)	Statistics 0-4 Low	FCV-19S 5-9 Moderate	Statistics 10-14 Severe	X^2; p	$\bar{X}$±SD	KW, p
MRC Dyspnea Scale	Low	2 (4.2)[a]	0 (0)[a]	0 (0)[a]	**48.977; <0.001***	8.00±0.00[a]	**39.445; <0.001***
	Moderate	35 (72.9)[a]	27 (61.4)[a]	9 (17.3)[b]		14.42±5.00[a]	
	Severe	11 (22.9)[a]	16 (36.4)[a]	30 (57.7)[b]		18.47±6.48[b]	
	Very severe	0 (0)[a]	1 (2.3)[a]	13 (25)[b]		24.57±3.06[c]	
CAT score	0-10 (Low)	2 (4.2)[a]	0 (0)[a]	0 (0)[a]	**48.949; <0.001***	8.00±0.00[a]	**43.888; <0.001***
	11-20 (Moderate)	27 (56.3)[a]	18 (40.9)[a]	6 (11.5)[b]		13.78±4.81[a]	
	21-30 (High)	16 (33.3)[a]	22 (50)[a]	18 (34.6)[a]		16.61±5.85[b]	
	31-40 (Very high)	3 (6.3)[a]	4 (9.1)[a]	28 (53.8)[b]		22.51±5.37[c]	

*The p value is significant at the 0.05 level. The common upper index indicates a significant difference. The data are given as n (%). X^2: Chi-square test; KW: Kruskal-Wallis assumption analysis; FCV-19S: Fear of COVID-19 Scale; MRC: Medical Research Council; COPD: Chronic obstructive pulmonary disease; CAT: COPD Assessment Test; SD: Standard deviation.

TABLE 4: Comparison of DAS and FCV-19S scores of the participants (n=144).

		Fear of COVID-19			F
		Mean	SD	Median	p
DAS score	0-4 low[a]	11.35	4.13	11.00	**91.680; <0.001***
	5-9 moderate[b]	16.14	4.31	16.00	
	10-14 severe[c]	22.73	4.24	22.00	

*The p value is significant at the 0.05 level. The common upper index indicates a significant difference. F: One-way analysis of variance; DAS: Death Anxiety Scale; FCV-19S: Fear of COVID-19 Scale; SD: Standard deviation.

DISCUSSION

There are variations in the severity, frequency, and age-related death anxiety levels of individuals with chronic diseases such as COPD.[13,23] The thought of death is a source of stress for some, a way to get rid of stress for others, an extinction for some, and the beginning of an immortal life for others.[24] In cases such as hypoxia, hypercapnia, hyperventilation and respiratory failure, brain functions can be directly affected, causing anxiety, concern and fear in patients with COPD. Anxiety disorders, the most common psychiatric disturbances, can cause more concern and fear by causing hyperventilation and dyspnea.[25] Another study found a mean death anxiety score of 6.96±3.45.[12] The literature suggests that the presence of chronic diseases may increase death anxiety.[4,13,14,23] However, previous studies report that chronic diseases do not always increase death anxiety.[24] Our study found that individuals with additional chronic diseases have higher death anxiety scores ($p<0.05$). In addition, the duration and severity of COPD, as well as the frequency of admission to the hospital in one year increase death anxiety. Based on these findings, the high level of death anxiety in patients who can partially meet their physical needs may increase the death anxiety because individuals with more than one chronic disease may not cope with more symptoms that are complex. In the present study, FCV-19S scores of individuals with additional chronic diseases were found to be higher than those without chronic diseases. Furthermore, those with high DAS scores had higher FCV-19S scores than those without chronic diseases. Similarly, other studies found that the presence of chronic diseases significantly increased the fear of the COVID-19.[26,27] Another study reported that the majority of the patients expressed concerns about COVID-19 transmission and had a fear of death.[4] In particular, it is an anticipated finding that the level of fear in chronic patients has increased even further as the media and scientists announced that the risk level of individuals with chronic diseases was higher.

In the present study, the level of fear of COVID-19 was higher in women than in men. This finding is consistent with various research results showing that women have higher anxiety levels.[2,26,28-30] The reasons for lower death anxiety in men may be because men describe themselves as stronger and want to give the impression that they are not afraid of anything and they are less able to express their feelings than women. In fact, this finding was clarified in studies noting that women can express death anxiety more easily. On the other hand, men are more fatalistic and accept death more easily. In addition, women perceive health risks arising from the environment more, and they code epidemics as more contagious and fatal.[31]

In this sample, DAS and FCV-19S scores did not show significant differences with regard to age group variable. Similar to the results of our study, there was no significant association between age and fear of coronavirus.[28] However, studies have reported that young individuals have more fear of death, which decreases with age.[12,24,32,33] The depression and anxiety levels of people in the low age group were higher than those in the older age group.[30,34] Studies emphasize that not only the current age but also the life history, health status, socioeconomic status, and adaptation to the aging process play a role in determining the level of anxiety.[24] Considering that religiosity tend to increase with age, individuals may seek spiritual support from their beliefs and take refuge in Allah more to overcome a problem.[4,33] Various factors may be effective in the lack of a significant difference between DAS and FCV-19S scores based on the patients' age. In Turkish culture, the fear of death was not common and Turkish people used to easily accept death. Religious belief was not assessed in this study. Although there is a greater tendency towards the spiritual field as people get older, this tendency may also be present in young people. We believe that this result may be influenced by individuals' developmental characteristics, individual differences and culture.

In the present study, there was no significant association between the first-degree relative's diagnosis of COVID-19 and death anxiety scores ($p>0.05$), which is interesting. Our study found similar results between the mean scores of the FCV-19S and those with and without a history of COVID-19 in their first-

degree relatives. Studies have reported that a history of COVID-19 in relatives does not cause significant anxiety in individuals.[30] Consistent with the literature, our findings show that having relatives with a history of COVID-19 does not make a significant difference in terms of anxiety against COVID-19 in individuals with COPD.[30] A study reported that having relatives with a history of COVID-19 caused more tendency to depression in these individuals.[26] However, the present study did not investigate into life-threatening events, admission to the clinic, and severity of COVID-19 disease in the individuals diagnosed. In this study, the absence of a relationship between a first-degree relative's diagnosis of COVID-19 and death anxiety and FCV-19S scores may be attributed to the mild course of cases encountered by the patients and the absence of a life-threatening situation.

The mean score of the FCV-19S was higher in patients with a very high CAT score between 31 and 40 compared to patients with a low, moderate and high CAT score. Considering the MRC Dyspnea Scale, the mean score of the COVID-19 scale was higher in patients who reported "very severe dyspnea" than in patients who reported "moderate and severe dyspnea". In our study, there was a significant difference between the MRC Dyspnea Scale and the DAS score. In terms of the CAT score, there was a significant difference between the CAT score and the DAS score. Similar to our study, the mean scores of COVID-19 Fear, Death Anxiety, CAT and MMRC Scale were at high levels. Contrary to these findings, it was not effective in death anxiety.[27] Considering these differences, it is evident that there is a significant association between disease and dyspnea severity and death anxiety levels of individuals with COPD. Dyspnea is an important marker of mortality, particularly among older individuals with COPD. Considering its effects on sensory, emotional, and daily life, the findings of our study aligned with expectations.

In our study, the mean score of the FCV-19S increased as the level of death anxiety increased (from mild to severe) in individuals diagnosed with COPD. Due to this increase, there is a association between fear of COVID-19 and death anxiety in individuals with COPD. A study revealed that anxiety depression scores of COPD patients increased during the pandemic period.[27,35] COPD patients may have experienced more death anxiety due to the severity of the disease. This elevated anxiety could be attributed their perception of being at a higher risk of contracting COVID-19 disease, their fear of experiencing serious shortness of breath if they become infected, and their perception of COVID-19 life threatening disease.

STUDY LIMITATIONS

Although the study was conducted at a single center and the number of samples was limited due to factors such as the pandemic, it enabled us to obtain important data about dyspnea severity, death anxiety, and fear of COVID-19 in COPD patients.

CONCLUSION

As the duration and severity of COPD, frequency of admission to hospital, presence of an additional chronic disease, partial fulfillment of physical needs, diagnosis of COVID-19, and anxiety level of transmission with COVID-19 increase, death anxiety also increases. The death anxiety levels of women are higher than those of men and the increase in the CAT and MRC scores, which indicate the severity of dyspnea, increases accordingly with the levels of death anxiety and fear of COVID-19. The present study found a significant association between the DAS and the FCV-19S scores of the participants. It addressed the challenges faced by patients with COPD during the pandemic period along with the dimensions of the relationship between the disease, severity of dyspnea, fear of COVID-19 and death anxiety levels. The findings of this study may be valuable for nurses to create care and education plans for potential future pandemics. In the fight against COPD, dyspnea management should be better explained to patients, and women and those with additional chronic diseases should be carefully monitored. Given the relationships between the severity of dyspnea and COVID-19 fear and death anxiety levels, future research should investigate the effective interventions to improve these aspects. While addressing complaints related to COVID-19 in patients diagnosed with COPD within

family medicine, clinics, and emergency departments, it is crucial to consider and evaluate patients holistically in terms of mental health. In addition, individuals in need of support should be identified and offered special solutions, particularly during the pandemic period and the necessary support should be provided.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Aygül Kıssal, Şeyma Görpüz;* ***Design:*** *Aygül Kıssal, Şeyma Görpüz;* ***Control/Supervision:*** *Aygül Kıssal;* ***Data Collection and/or Processing:*** *Şeyma Görpüz;* ***Analysis and/or Interpretation:*** *Şeyma Görpüz;* ***Literature Review:*** *Aygül Kıssal, Şeyma Görpüz;* ***Writing the Article:*** *Aygül Kıssal, Şeyma Görpüz;* ***Critical Review:*** *Aygül Kıssal;* ***References and Fundings:*** *Aygül Kıssal, Şeyma Görpüz;* ***Materials:*** *Aygül Kıssal, Şeyma Görpüz.*

REFERENCES

1. Global Initiative for Chronic Obstructive Lung Disease. Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease 2022 report. [Link]
2. Ruvuna L, Sood A. Epidemiology of chronic obstructive pulmonary disease. Clin Chest Med. 2020;41(3):315-27. [Crossref] [PubMed]
3. Türkiye İstatistik Kurumu [İnternet]. Ölüm ve Ölüm Nedeni İstatistikleri, 2019. Erişim tarihi: 15 Mayıs, 2021 Erişim linki: [Link]
4. Bakan G. COVID-19 pandemi sürecinde KOAH olan bireylerin yaşam deneyimleri: nitel bir çalışma [Life experiences of individuals with COPD during the COVID-19 pandemic: a qualitative study]. Genel Sağlık Bilimleri Dergisi. 2021;3(3):189-99. [Crossref]
5. Zhao S, Lin Q, Ran J, Musa SS, Yang G, Wang W, et al. Preliminary estimation of the basic reproduction number of novel coronavirus (2019-nCoV) in China, from 2019 to 2020: a data-driven analysis in the early phase of the outbreak. Int J Infect Dis. 2020;92:214-7. [Crossref] [PubMed] [PMC]
6. Guan WJ, Ni ZY, Hu Y, Liang WH, Ou CQ, He JX, et al; China Medical Treatment Expert Group for Covid-19. Clinical characteristics of coronavirus disease 2019 in China. N Engl J Med. 2020;382(18):1708-20. [PubMed] [PMC]
7. Turan MO, Balbay EG, Aksu K, Uzaslan E. COVID-19 pandemisinde astım, kronik obstrüktif akciğer hastalığı ve eşlik eden komorbiditelerin yönetimi: sistematik derleme [The management of asthma, chronic obstructive pulmonary diseases and other comorbidities in the COVID-19 pandemic: systematic review]. Turkiye Klinikleri Arch Lung. 2022;21(1):29-38. [Crossref]
8. Turan O, Arpınar Yigitbas B, Turan PA, Mirici A. Clinical characteristics and outcomes of hospitalized COVID-19 patients with COPD. Expert Rev Respir Med. 2021;15(8):1069-76. [Crossref] [PubMed] [PMC]
9. Alqahtani JS, Oyelade T, Aldhahir AM, Alghamdi SM, Almehmadi M, Alqahtani AS, et al. Prevalence, severity and mortality associated with copd and smoking in patients with COVID-19: a rapid systematic review and meta-analysis. PLoS One. 2020;15(5):e0233147. [Crossref] [PubMed] [PMC]
10. Xiang YT, Yang Y, Li W, Zhang L, Zhang Q, Cheung T, et al. Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. Lancet Psychiatry. 2020;7(3):228-9. [Crossref] [PubMed] [PMC]
11. Korkmaz T, Tel H. KOAH'lı hastalarda anksiyete, depresyon ve sosyal destek durumunun belirlenmesi [Determination of the conditions of anxiety, depression and social support among the patients with COPD]. Anadolu Hemşirelik ve Sağlık Bilimleri Dergisi. 2010;13(2):79-86. [Link]
12. Togluk S, Çuhadar D. The effect of death anxiety on psychosocial adjustment in individual with chronic obstructive pulmonary disease. Indian J Palliat Care. 2021;27(3):358-66. [Crossref] [PubMed] [PMC]
13. Ateş T, Önal B, Kaptan D, Kurt Y, Öztürk H. COVID-19 tanısı olan hastanın uluslararası hemşirelik uygulaması sınıflandırma sistemine göre hemşirelik bakımı: olgu sunumu [Nursing care of a patient COVID-19 diagnosis according to international classification for nursing practice system: a case report]. Journal of Current Nursing Research. 2021;1(1):32-43. [Link]
14. Tel Aydın H, Yıldız FT, Karagözoğlu Ş, Özden D. Hastaların bakış açısıyla kronik obstrüktif akciğer hastalığı ile yaşamak: fenomenolojik çalışma [Living with chronic obstructive pulmonary disease from the perspective of patients: a phenomenological study]. Florence Nightingale Journal of Nursing. 2012;20(3):177-83. [Link]
15. Liu Y, Gayle AA, Wilder-Smith A, Rocklöv J. The reproductive number of COVID-19 is higher compared to SARS coronavirus. J Travel Med. 2020;27(2):taaa021. [Crossref] [PubMed] [PMC]
16. Ozoglu Aytac S, Kilic SP, Ovayolu N. Effect of inhaler drug education on fatigue, dyspnea severity, and respiratory function tests in patients with COPD. Patient Educ Couns. 2020;103(4):709-16. [Crossref] [PubMed]
17. Güneş YU, Kara D, Erbağcı A. Dispne yakınması olan hastalarda farklı dispne ölçeklerinin karşılaştırılması [Comparison of the different dyspnea scales in patients with complaints of dyspnea]. DEUHYO ED. 2012;5(2):65-71. [Link]
18. Jones PW, Harding G, Berry P, Wiklund I, Chen WH, Kline Leidy N. Development and first validation of the COPD Assessment Test. Eur Respir J. 2009;34(3):648-54. [Crossref] [PubMed]
19. Yorgancıoğlu A, Polatlı M, Aydemir Ö, Yılmaz Demirci N, Kırkıl G, Naycı Atış S, et al. KOAH değerlendirme testinin Türkçe geçerlilik ve güvenilirliği [Reliability and validity of Turkish version of COPD assessment test]. Tuberk Toraks. 2012;60(4):314-20. [Crossref] [PubMed]
20. Şenol C. Ankara ilinde kurumlarda yaşayan yaşlılarda ölüme ilişkin kaygı ve korkular [Yüksek lisans tezi]. Ankara: Ankara Üniversitesi; 1989. Erişim tarihi: 20 Mayıs 2021 Erişim linki: [Link]
21. Ahorsu DK, Lin CY, Imani V, Saffari M, Griffiths MD, Pakpour AH. The Fear of COVID-19 Scale: development and initial validation. Int J Ment Health Addict. 2022;20(3):1537-45. [Crossref] [PubMed] [PMC]

22. Satici B, Gocet-Tekin E, Deniz ME, Satici SA. Adaptation of the Fear of COVID-19 Scale: its association with psychological distress and life satisfaction in Turkey. Int J Ment Health Addict. 2021;19(6):1980-8. [Crossref] [PubMed] [PMC]

23. Bal Özkaptan B, Kapucu S. Home nursing care with the self-care model improves self-efficacy of patients with chronic obstructive pulmonary disease. Jpn J Nurs Sci. 2016;13(3):365-77. [Crossref] [PubMed]

24. Karakuş G, Öztürk Z, Tamam L. Ölüm ve ölüm kaygısı [Death and death anxiety]. Arşiv Kaynak Tarama Dergisi. 2012;21(1):42-79. [Link]

25. Özdemir Ü, Taşcı S. Kronik hastalıklarda psikososyal sorunlar ve bakım [Psychosocial problems and care of chronic diseases]. Erciyes Üniversitesi Sağlık Bilimleri Fakültesi Dergisi. 2013;1(1):57-72. [Link]

26. Özdin S, Bayrak Özdin Ş. Levels and predictors of anxiety, depression and health anxiety during COVID-19 pandemic in Turkish society: the importance of gender. The International Journal of Social Psychiatry. 2020;66(5):504-11. [Crossref] [PubMed] [PMC]

27. Özdemir N, Enç N. Kronik obstrüktif akciğer hastalarında COVID-19 korkusunun günlük yaşam aktiviteleri, semptom kontrolü ve ölüm kaygısı düzeyine etkisi: kesitsel bir çalışma [The effect of fear of COVID-19 on activities of daily living, symptom control and death anxiety level in chronic obstructive pulmonary patients: a cross-sectional study]. Turkiye Klinikleri Journal of Nursing Sciences. 2022;14(4):1155-65. [Crossref]

28. Bakioğlu F, Korkmaz O, Ercan H. Fear of COVID-19 and positivity: mediating role of intolerance of uncertainty, depression, anxiety, and stress. Int J Ment Health Addict. 2021;19(6):2369-82. [Crossref] [PubMed] [PMC]

29. Ekiz T, Ilıman E, Dönmez E. Bireylerin sağlık anksiyetesi düzeyleri ile Covid-19 salgını kontrol algısının karşılaştırılması [Comparison of health anxiety level and control perception of COVID-19]. Uluslararası Sağlık Yönetimi ve Stratejileri Araştırma Dergisi. 2020;6(1):139-54. [Link]

30. Kurt O, Deveci SE, Oguzoncul AF. Levels of anxiety and depression related to COVID-19 among physicians: an online cross-sectional study from Turkey. Annals of Clinical and Analytical Medicine. 2020;11(Suppl 3): S288-S293. [Crossref]

31. Uçar ME, Konal B, Gündoğdu R. Covit- 19 pandemi döneminde algılanan stres ve ölüm kaygısı arasındaki ilişkiler [Relationships between perceived stress and death anxiety during the Covid-19 pandemic period]. Aksaray Üniversitesi Sosyal Bilimler Enstitüsü Dergisi. 2023;7(1):1-32. [Crossref]

32. Gencer N. Pandemi sürecinde bireylerin koronavirüs (Kovid-19) korkusu: Çorum örneği [Coronavirus (COVID-19) fear of individuals during the pandemia: Çorum sample]. Uluslararası Sosyal Bilimler Akademi Dergisi. 2020;(4):1153-73. [Crossref]

33. Kandemir F. Bazı demografik değişkenler bağlamında COVID-19 pandemi neslinin dindarlık ve ölüm kaygısı ilişkisi üzerine ampirik bir araştırma [In the context of some demographic variables, COVID-19 pandemic generation's relationship of religion and death anxiety is an ampyric study]. Tokat İlmiyat Dergisi. 2020;8(1):99-129. [Link]

34. Huang Y, Zhao N. Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 outbreak in China: a web-based cross-sectional survey. Psychiatry Res. 2020;288:112954. Erratum in: Psychiatry Res. 2021;299:113803. [Crossref] [PubMed] [PMC]

35. Bozkurt N, Bozkurt A. COVID-19 pandemi döneminde kronik obstrüktif akciğer hastalığı olan hastaların anksiyete ve depresyon düzeylerindeki değişim: bir izlem çalışması [The change in anxiety and depression levels of chronic obstructive pulmonary disease patients during the COVID-19 pandemic period: a follow-up study]. Türkiye Klinikleri Akciğer Arşivi. 2022; 21(1):1-8. [Crossref]