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Determination of Functional Performance and Self-Care Agency in Patients with Chronic Obstructive Pulmonary Disease

Kronik Obstrüktif Akciğer Hastalığı Olan Hastaların Fonksiyonel Performans ve Öz-Bakım Gücünün Belirlenmesi

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ABSTRACT

Aim: This descriptive study was conducted to determine the functional performance and self-care agency levels of Chronic obstructive pulmonary disease (COPD) patients and associated factors. **Subjects and Method:** The sample of the study included 128 COPD patients who were being treated and followed up as outpatients at the pulmonology outpatient clinic of a research and training hospital. **Results:** The mean functional performance score of the patients was low (1.33±0.60), while their mean self-care agency score was moderate (92.3±22.5). Functional performance and self-care agency levels were found to be significantly lower among the patients who required help in their activities of daily living, those with comorbidities, those who presented to emergency services due to COPD in the last six months, those who were hospitalized, and those who were long-term users of oxygen treatment at home ($p<0.05$). While the functional performance and self-care agency levels of the patients were strongly and negatively correlated with their disease stages and dyspnea severity, these variables were positively correlated with their FEV_1 values. A significant positive relationship was found between the functional performance and self-care agency levels of the patients. **Conclusion**: COPD causes a decrease in functional performance and self-care agency. It is also recommended that nursing care practices are planned by keeping in mind dyspnea severity and disease stage, which are among the significant factors that affect the functional performance and self-care agency of COPD patients.

Keywords: COPD, functional performance, nursing, self-care agency

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ÖZ

Amaç: Araştırma, KOAH'lı bireylerin fonksiyonel performans ve öz-bakım gücünü ve ilişkili faktörleri belirlemek amacıyla tanımlayıcı olarak yapılmıştır. **Örneklem ve Yöntem**: Araştırma örneklemini, bir araştırma hastanesinin göğüs hastalıkları polikliniğinde ayaktan tedavi ve izlemi yapılan 128 KOAH'lı birey oluşturmuştur. **Bulgular:** Hastaların fonksiyonel performans puan ortalaması düşük (1.33±0.60), öz-bakım gücü puan ortalaması orta (92.3±22.5) olarak belirlenmiştir. Günlük yaşam aktivitelerinde yardıma ihtiyaç duyan, komorbiditesi olan, son altı ayda KOAH nedeniyle acil servise başvuran ve hastaneye yatışı olan, evde uzun süreli oksijen tedavisi kullanan hastaların fonksiyonel performans ve öz-bakım gücü puanları istatistiksel olarak anlamlı şekilde düşük bulunmuştur ($p<0.05$). Hastaların fonksiyonel performansı ve öz-bakım gücü ile hastalık evreleri ve dispne şiddetleri arasında negatif yönlü güçlü bir korelasyon bulunurken, FEV_1 değeri pozitif yönlü bir korelasyon göstermiştir. KOAH'lı hastalarda fonksiyonel performans ile öz-bakım gücü arasında anlamlı, pozitif korelasyon olduğu belirlenmiştir. **Sonuç:** KOAH fonksiyonel performans ve öz-bakım gücünde düşmeye neden olur. Hemşirelik bakımını KOAH'lı hastaların fonksiyonel performans ve öz-bakım gücünü etkileyen önemli faktörlerden olan dispne şiddeti ve hastalık evresini dikkate alarak planlamaları önerilmektedir.

Anahtar Kelimeler: KOAH, fonksiyonel performans, hemşirelik, öz-bakım gücü

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Introduction

Chronic Obstructive Pulmonary Disease (COPD) creates a social and economic burden and is a significant cause of mortality and morbidity worldwide. It was reported that the global prevalence of COPD is 11.7%, and 3 million people die due to COPD every year (GOLD, 2022). Epidemiological studies conducted in the provinces of Kocaeli, Zonguldak, and Kayseri in Turkey reported the prevalence of COPD as 13.3%, 11.1%, and 17.6% (Arslan et al., 2013; Örnek et al., 2015; Timur et al., 2020). These rates were similar to the reported global prevalence of COPD.

COPD is a disease that causes dysfunctions by leading to gas exchange impairments (O'Donnell et al., 2020). In COPD, dyspnea is also associated with physical activity levels (Ding et al., 2018). The severity of dyspnea, which occurs as a consequence of gas exchange deficiencies, is a significant determinant of functional performance. Functional performance refers to physical, psychological, social, occupational, and spiritual activities performed by patients in the normal course of their lives to protect their health, maintain their well-being, perform their usual roles, and meet their basic needs (Leidy, 1994). The decrease in functional performance that is seen in COPD patients is accepted as an indicator of mortality risk and COPD exacerbations (Gimeno-Santos et al., 2014; Ding et al., 2018). In this context, it is important for nurses to plan the appropriate nursing care practices by identifying the current functional performance levels of COPD patients, as well as the factors that affect these levels.

The symptoms of COPD patients gradually worsen through the years (Zwerink et al., 2014), and as in the case of functional performance, a reduction is also seen in the self-care agency of these patients (Weldam et al., 2013; Park, 2017; Melhem et al., 2021). A review of the literature in this context has shown that patients with COPD have poor self-care and symptom management skills (Bugajski et al., 2022). A study conducted in Korea founded that patients with COPD exacerbations exhibited lowered self-care abilities (Park, 2017). Research of Kaşıkçı and Alberto is also similar (Kaşıkçı & Alberto, 2007). In the management of COPD, which is a progressive and irreversible disease, it is important for individuals to improve their self-care behaviours (Matarese et al., 2020). Good self-care is important in COPD patients because it can improve their quality of life and lower their rates of repeated hospitalization and incidence of dyspnea (Clari et al., 2017; Bugajski et al., 2022). Therefore, to identify the unmet needs of patients, their self-care requirements should be determined (Zeb et al., 2020). Nurses have important roles in the assessment of the self-care levels of patients, the motivation of patients to self-care, and patient education. The support of patients by nurses in this manner results in better health outcomes (Park, 2017).

Knowing the factors that affect the functional performance and self-care agency of COPD patients will contribute to the maintenance of their independence, their development of symptom management skills, and their satisfaction with life. In this context, this research was conducted to determine the self-care agency and functional performance levels of COPD patients and the relationship between these two variables.

Subjects and Methods

Design, Population and Sample

This is a descriptive study. The population of the study consisted of 210 COPD patients who were presented to the pulmonology outpatient clinic of a research and training hospital in the previous year. However, it has been determined during data collection that patients are recorded in the system with a COPD diagnosis to ensure that the social security institution pays for prescriptions written to treat lung involvement seen in rheumatological diseases. The number of patients

with COPD in the previous year was overestimated due to this situation. The number of patients with COPD in the year of the study was 136. In this study, we calculated the sample size based on the research conducted by Özkan et al. (2007), which determined that the minimum sample size is 46. Considering that this study was a descriptive study, we tried to reach the maximum number of patients who met the inclusion criteria. In this direction, the sample of the study consisted of 128 individuals with COPD. The sample of study included who were 18 years old or older, did not have any sensory loss to a degree that could prevent communication, were able to speak and understand Turkish, did not have a diagnosed mental health problem, were outpatients, and agreed to participate in the study. Those who did not meet the inclusion criteria were excluded from the study.

Data Collection

Research data were collected using a Patient Information Form consisting of 28 questions investigating the sociodemographic and disease-related characteristics of the patients, the Functional Performance Inventory (FPI), and the Self-Care Agency Scale with the face-to-face interview method. Before collecting data, ethics committee approval received, the patients were given explanations about the research, and their written consent was obtained.

Patient Information Form

Patient information form was created by researchers. While creating the form, studies on functional performance, activities of daily living and self-care agency in individuals with COPD were analysed (Kaşıkçı & Alberto, 2007; Özkan et al., 2007; Reishtein, 2005; Yeh et al., 2004). The form includes questions to collect socio-demographic and disease-related data (comorbidities, emergency department visits, number of hospitalisations, long-term oxygen use, etc.). Stages of the diseases were questioned in this form. The staging was performed according to the GOLD guideline, considering the participants' FEV_1 value.

Functional Performance Inventory

The inventory, which was developed by Leidy (1994) to determine the functional performance levels of patients with chronic physical diseases was adapted to Turkish by Özkan (2006). The respondent is given 0 points for their responses of "don't do for health reason/choose not to", 1 point for "much difficulty", 2 points for "some difficulty", and 3 points for "no difficulty". Subscale scores are obtained by summing the scores of all items in the subscale and dividing the result by the number of items in that subscale. The total functional performance score is obtained by summing the scores of all items in the inventory and dividing the result by the total number of items. The range of possible scores is 0-3. Higher scores indicate higher functional performance levels. The Turkish form of the inventory consists of 58 items, and its Cronbach's alpha internal consistency coefficient was reported as 0.87 (Özkan et al., 2007). In this research, the Cronbach's alpha coefficient of FPI was found as 0.93.

Self-Care Agency Scale

The scale was developed by Kearney and Fleischer (1979) and adapted to Turkish by Nahcivan (1993). It consists of 35 items. It is a 5-point Likert-type scale in which each item is scored from 0 to 4. The response options of the items are 0 (very uncharacteristic [of me]), 1 (somewhat uncharacteristic), 2 (no opinion), 3 (somewhat characteristic), and 4 (very characteristic). Eight items on the scale (items 3, 6, 9, 13, 19, 22, 26, and 31) are negatively worded items that are inversely scored. The maximum total score on the scale is 140. Total scores that are lower than 82 are considered to indicate low self-care agency, those in the range of 82-120 are considered to indicate moderate self-care agency, and those higher than 120

are considered to indicate high self-care agency. Cronbach's alpha coefficient of the Turkish form of the scale was found as 0.87 (Nahcivan, 1993). In this research, the Cronbach's alpha coefficient of self-care agency scale was found as 0.77.

Modified Medical Research Council (mMRC) Dyspnea Scale

The original MRC 'Medical Research Council' dyspnea scale was first developed by Fletcher in 1952 (Fletcher, 1952). The scale was later developed and used as the mMRC dyspnea scale. The scale is the most commonly used validated scale to assess dyspnea in daily living in chronic respiratory diseases. mMRC is a five-item scale (Launois et al., 2012). mMRC dyspnea scale items are scored from 0 to 4. The response options of the items are 0 point for "no dyspnea", 1 point for "mild dyspnea", 2 point for "moderate dyspnea", 3 for point "severe dyspnea" and 4 point for "very severe dyspnea".

Statistical Analysis

The data that were collected in the study were analysed using the SPSS 14.00 program. In the comparisons between independent groups, when parametric test conditions were met, Student's t-test was used to compare two groups, while analysis of variance (ANOVA) was used to compare three or more groups. When parametric test conditions were not met, the Mann-Whitney U test was used to compare two groups, while the Kruskal-Wallis test was used to compare three or more groups. Correlation analyses were carried out to identify the relationships between the scale scores of the participants and their age, mMRC dyspnea scores, RFT results, FEV_1 values, disease duration, and disease severity. The level of statistical significance was accepted as 0.05.

Ethical Approval of the Study

The research was conducted in accordance with the Declaration of Helsinki Principles. Ethical approval was obtained from the Clinical Studies Ethics Committee (Decision No: 2012-03/33). Institutional approval was obtained after ethical approval.

Results

The ages of the patients varied in the range of 50-88, and their mean age was 65.04±9.29. It was found that 57.0% of the patients were male, 77.3% were married, 52.3% had primary-secondary school degrees, and 92.2% were living with their family members. While 50.0% of the participants had moderate COPD severity, 43.0% stated that they required assistance while performing their activities of daily living. Almost all participants experienced dyspnea, and according to their mMRC scores, only 32.8% experienced mild levels of dyspnea. 36.7% of the participants stated that they were receiving long-term oxygen treatment at home, and 57.8% reported that they were using their medication regularly. In the last six months, 34.4% of the participants were hospitalized due to COPD, and 46.1% presented to emergency services due to COPD. Overweight participants constituted 43.8% of the sample, and 78.1% of the participants did not have any chronic disease other than COPD.

As seen in Table 1, the functional performance and self-care agency levels of the patients did not differ significantly based on their age, sex, education level, or whether they were living with anyone ($p>0.05$). The functional performance and self-care agency scores of the participants who required assistance in performing their activities of daily living were significantly lower than those who did not require such assistance ($p<0.05$).

Table 1. Functional Performance and Self-Care Agency Scores According to Socio-Demographic Characteristics of the Patients

Properties	Group	Functional performance score Mean± Standard Deviation	Self-care agency scores Mean± Standard Deviation
Age (Year)	50-59	1.39 ± 0.61	93.3± 23.4
	60-69	1.38± 0.59	96.4± 21.8
	70 and over	1.21± 0.61	86.5± 21.9
	f	0.40	2.18
	p	0.688	0.116
Gender	Female	1.35±0.62	91.4± 24.1
	Male	1.31±0.59	93.0± 21.4
	t	0.40	0.39
	p	0.688	0.693
Education level	Illiterate	1.14± 0.64	83.5± 21.4
	Literate	1.25± 0.64	91.4± 21.4
	Elementary education	1.41±0.57	94.8± 22.8
	Secondary education	1.40±0.59	97.6± 22.8
	f	1.40	1.91
	p	0.245	0.130
People lived together	Yes	1.32± 0.60	93.0 ± 22.4
	Not	1.36± 0.61	84.4± 23.9
	p	0.922	0.938
Help needed in day care	Yes	0.87± 0.43	78.6 ± 18.2
	Not	1.67± 0.48	102.6± 20.0
	t	9.71	7.05
	p	0.001*	0.001*

f: ANOVA test, t: t test, *p<0.05

The functional performance and self-care agency scores of the participants were compared based on some of their characteristics (Table 2). Functional performance and self-care agency levels were found to be significantly lower among the participants with comorbidities, those who presented to emergency services due to COPD in the last six months, those who were hospitalized due to COPD in the last six months, and those who were long-term users of oxygen treatment at home ($p<0.05$). The participants who experienced severe dyspnea and those who were at a further stage of the disease had significantly lower functional performance and self-care agency scores ($p<0.05$). The participants who were smokers had lower functional performance and self-care agency scores than those who were non-smokers, but this difference was not statistically significant ($p>0.05$).

Table 2. Functional Performance and Self-Care Scores According to Illness Characteristics of the Patients

Conditions		Functional performance score Mean ± Standard Deviation	Self-care score Mean ± Standard Deviation
Comorbidities	Yes	1.24±0.59	89.2±22.5
	Not	1.63±0.54	103.3±19.3
	t	3.24	3.27
	p	0.002*	0.002*

f: ANOVA test, KW:Kruswall, t: t test, *p<0.05

Table 2. (cont.) Functional Performance and Self-Care Scores According to Illness Characteristics of the Patients

Conditions		Functional performance score Mean ± Standard Deviation	Self-care score Mean ± Standard Deviation
Smoking status	Smokes	0.98±0.47	84.0±18.7
	Does not smoke	1.36 ± 0.60	92.9±22.8
	p	0.055	0.164
Applicant to the emergency in the last 6 months due to COPD	Applicant	0.99±0.52	81.4±21.8
	Don't Applicant	1.61± 0.52	101.6±18.8
	t	6.61	5.53
	p	0.001*	0.001*
Hospitalizasyon in the last 6 months due to COPD	Hospitalizasyon	0.91±0.42	79.3±17.7
	Don't hospitalizasyon	1.54±0.57	99.1±21.9
	t	7.00	5.50
	p	0.001*	0.001*
mMRC dyspnea scale	No dyspnea	1.95±1.08	109.6± 15.0
	Mild dyspnea	1.85±0.38	110.3± 15.2
	Moderate dyspnea	1.41±0.46	91.5± 12.4
	Severe dyspnea	0.95±0.36	82.3± 17.2
	Very severe dyspnea	0.65±0.25	70.1± 12.8
	KW	72.66	54.58
	p	0.001*	0.001*
Disease severity	Mild	1.75± 0.54	112.4± 13.7
	Moderate	1.50± 0.55	97.9± 20.6
	Severe	0.96 ± 0.44	78.9± 17.9
	Very severe	0.77± 0.42	68.7± 13.0
	f	17.23	22.16
	p	0.001*	0.001*
Long-term oxygen therapy	Using	0.81±0.36	76.0±16.3
	Don't use	1.63±0.51	101.7±20.3
	t	10.47	7.84
	p	0.001*	0.001*

f: ANOVA test, KW:Kruswall, t: t test, *p<0.05

Table 3 presents the functional performance and self-care agency scores of the participants. The mean total functional performance score of the participants was found as 1.33±0.60. While the participants had the highest mean score on the body care subscale (2.32±0.65), they had the lowest mean score on the recreation subscale (0.61±0.55). The mean self-care agency score of the participants was 92.3±22.5, which showed moderate levels of self-care agency.

Table 3. Functional Performance and Self-Care Point Average of Patients (n=128)

Scales	Dimensions	Mean ± Standard Deviation	Range (Min-Max)
Functional Performance	Body Care	2.32±0.65	1.00-3.00
	Home maintenance	1.08±0.72	0.05-2.83
	Physical exercise	0.88±0.55	0.00-2.00
	Recreation	0.61±0.55	0.00-2.25

Table 3. (cont.) Functional Performance and Self-Care Point Average of Patients (n=128)

Scales	Dimensions	Mean ± Standard Deviation	Range (Min-Max)
Functional Performance	Spiritual activities	1.49±0.95	0.00-3.00
	Social interaction	1.55±0.70	0.25-3.00
	Total functional performance	1.33 ±0.60	0.31-2.86
Self-Care Agency		92.3±22.5	44-133

Table 4 presents the relationship between mMRC dyspnea scores and FEV1 values with functional performance and self-care agency scores of the patients. While the functional performance and self-care agency levels of the patients were positively correlated with their FEV_1 values (respectively; r = 0.538, r = 0.562), these variables were strongly and negatively correlated with their dyspnea severity (respectively; r = 0.751, r = 0.649).

Table 4. The Correlation Between mMRC Dyspnea Score and FEV_1 Values with Functional Performance and Self-Care Agency Scores of Patients

Scales	FEV_1 Value		mMRC Dyspnea Score	
	r	p	r	p
Total Functional Performance	0.538	0.000*	-0.751	0.000*
Self-Care Agency	0.562	0.000*	-0.649	0.000*

*p<0.05

Table 5 presents the relationship between functional performance total score and sub-dimensions scores with self-care agency of the patients. There was a strong, positive statistically significant correlation between the functional performance and self-care agency levels of the patients (r = 0.749). This relationship is also shown in Figure 1. Accordingly, there was positive statistically correlation between functional performance sub-dimensions and self-care agency levels of the patients.

Table 5. The Correlation Between Functional Performans Invontery and Self-Care Agency Scores of Patients

Scales		Body Care	Home maintenance	Physical exercise	Recreation	Spiritual activities	Social interaction	Total Functional Performance
Self-Care Agency	r	0.676	0.694	0.645	0.582	0.656	0.595	0.749
	p	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*p<0.05

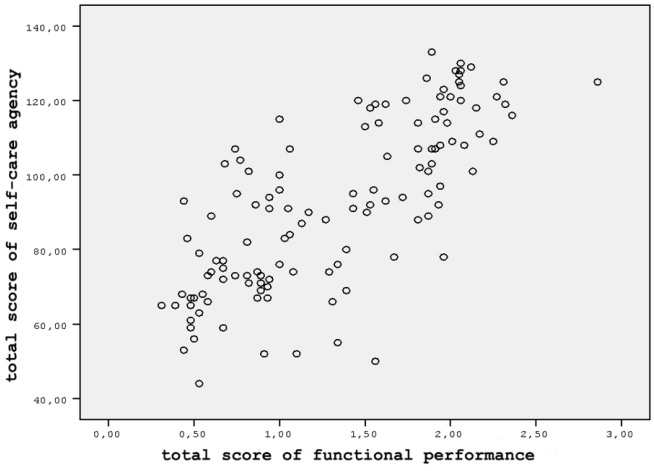

Figure 1. Relationship Between The Agency of Self-Care and Functional Performance

Discussion

Functional performance refers to physical, psychological, occupational, social and spiritual activities performed by patients in the normal course of their lives to protect their health, maintain their well-being, perform their usual roles, and meet their basic needs. These activities are a consequence of the personal preferences of patients regarding their needs and choices (Leidy, 1994).

Studies have shown that COPD reduces the functional performance of patients (Yeh et al., 2004; Park et al., 2012; Weldam et al., 2013). In comparison to previous studies, the functional performance scores of the patients who participated in our study were lower (Table 3). This result is thought to be associated with the family structure and cultural characteristics of society. In the Turkish family structure, it is a normal situation that their children or other family members often undertake the work of the sick family member at home and outside. Faced with such a situation, participants chose the answer "I choose not to" (0 points), which expresses non-health reasons. As a result, the functional performance score of the participants decreased. Lower functional performance is a predictor of COPD exacerbations and mortality. In this sense, functional performance is a clinically important indicator (Melhem et al., 2021). Moreover, lower functional performance associated with lower physical activity levels leads patients to adopt a more sedentary lifestyle and experience health problems related to this lifestyle, such as cardiovascular problems (Kapella et al., 2011).

In this study, among the subscale of FPI, the participants had the highest mean scores on the body care subscale (Table 3). Other studies on this topic in the literature have provided similar results (Leidy et al., 2012; Park et al., 2012; Ding et al., 2018). On the other hand, the participants of our study had the lowest mean score on the recreation subscale of FPI. It was found in our study that as education levels decreased, the recreation subscale scores of the participants also decreased. The participants may have obtained the lowest mean score on the recreation subscale due to the fact that 88.3% of them had low education levels (illiterate, literature with no formal degree, primary-secondary school). Previous studies have reported different subscales of FPI on which participants obtain the lowest mean scores depending on the sociocultural structures of societies and the varying education levels of participants (Guo et al., 2011; Leidy et al., 2012; Park et al., 2012; Ding et al., 2018).

Functional performance covers the self-care behaviours of the individual, but it is not limited to these behaviours (Leidy, 1994; Yeh et al., 2004). Self-care is a broad concept that refers to self-managed activities performed by patients to improve and maintain health, prevent diseases, and cope with diseases and morbidity, regardless of whether the support of healthcare professionals is present or not (Clari et al., 2016). The achievement of self-care by COPD patients improves their health-related quality of life and reduces their hospitalization frequency and dyspnea severity (Zwerink et al., 2014; Zeb et al., 2020;). The result of our study showed that the COPD patients in the sample had moderate self-care agency levels (Table 3). This result was in line with those reported in previous studies (Wang et al., 2012; Park, 2017).

COPD causes respiratory and sleep problems, limits physical and daily life activities and involves frequent exacerbations (Clari et al., 2017). These problems caused by COPD leads to a decrease in both functional performance and self-care agency (Park, 2017; Reishtein, 2005; Weldam et al., 2013). In other words, the alleviation of these problems leads to an increase in functional performance and self-care agency. Thus, as the problems seen in COPD have a similar effect on both, the same directional relationship exists between functional performance and self-care agency. In our study, a strong, positive and significant correlation was identified between the functional performance and self-care agency levels of the participants

(Table 5, Figure 1). Accordingly, one may argue that interventions that protect the functional performance of COPD patients will contribute to an increase in their self-care agency, while such an increase in their self-care agency will contribute to the protection of their functional performance. According to the results of the literature review that was conducted for this study, no previous study investigated both functional performance and self-care agency in COPD patients. Therefore, investigating this result of our study in other studies will contribute to the enrichment of knowledge on this issue in the literature.

The functional performance and self-care agency levels of patients who require assistance in terms of daily care are affected negatively (Table 1). Similar to the case in our study, Wang et al. (2012) found that the self-care behaviours of patients whose primary caregivers were their spouses were positively affected. This finding may be explained by the possibility that a closer patient/caregiver relationship contributes to the reduction of care burden by encouraging a more willing role of the patient in the management of their self-care and more collaboration (Wang et al., 2012). Additionally, their spouse being the primary caregiver of a patient may be interpreted as the preservation of family integrity and spiritual support for the patient.

In COPD cases, comorbidities are frequently encountered issues that negatively affect the daily activities of patients. The sedentary lifestyle that is brought about by this effect leads to an increase in dyspnea severity, a further decrease in exercise capacity, lower quality of life, and the emergence of comorbidities (Kapella et al., 2011; Mcnamara et al., 2014). In this study, it was determined that comorbidities reduced the functional performance and self-care agency levels of the participants (Table 2). The reason for this may be that a higher number of chronic diseases suffered by a person would affect their coping negatively and lead to a more sedentary lifestyle.

In patients diagnosed with COPD, there is a negative relationship between activities of daily living and dyspnea and between dyspnea and functional performance (Guo et al., 2011; Park et al., 2012; Weldam et al., 2013). Many studies examining the relationship between functional performance and dyspnea have shown that dyspnea is a significant determinant of functional performance for COPD patients (Yeh et al., 2004; Reishtein, 2005; Kapella et al., 2011; Park et al., 2012). In our study, a negative correlation was found between the dyspnea severity levels of the participants determined based on their mMRC scores and their functional performance (Table 4). The participants of our study who experienced very severe dyspnea constituted the group with the lowest mean score on the social activities subscale of FPI. This may suggest that the fatigue experienced by patients due to dyspnea reduces their social activity levels. Dyspnea is a symptom that leads patients to experience anxiety. The anxiety experienced by COPD patients has a negative effect on their self-care agency (Park, 2017). In the light of this information, the negative correlation that was found in our study between self-care agency and dyspnea severity was an expected result. This negative correlation was compatible with the result reported by Wang et al. (2012).

Like dyspnea, FEV_1 is an indicator of restricted exercise capacity, deterioration in health status, and exacerbation risk. The FEV_1 value is also used in the grading of COPD (GOLD, 2022). In this study, by considering the FEV_1 values of the participants, staging was performed based on the GOLD guidelines. Low FEV_1 values indicate higher disease severity, which is a significant factor in lower functional performance (Bozkurt et al., 2020). An increase in disease severity increases the number of symptoms experienced by patients, and experiencing more symptoms leads to a reduction in functional performance (Melhem et al., 2021). In our study, predicted FEV_1 values were determined to be positively correlated with functional performance and self-care agency (Table 4). There are other studies showing a positive relationship between

predicted FEV_1 values and functional performance (Ding et al., 2018; Bozkurt et al., 2020). While there is no consensus on this issue, there are also studies showing no significant relationship between disease severity and the functional performance and self-care agency levels of patients (Kapella et al., 2011; Wang et al., 2012). The COPD stages of patients participating in different studies may be determining in the relationship of disease severity with functional performance and self-care agency.

The increase in repeated admissions to the hospital along with increased disease severity affects the frequency of COPD exacerbations, life expectancy, health-related quality of life, functional performance, and self-care agency adversely (Guo et al., 2011; Wang et al., 2012; Smith & Wrobel, 2014; Park, 2017). In our study, the participants who were hospitalized and those who presented to emergency services in the last six months were determined to have significantly lower functional performance and self-care agency scores (Table 2). Hospitalization due to COPD exacerbations lowers the physical activity levels of patients (Pitta et al., 2006; Alahmari et al., 2014). However, physical activity is important for patients with COPD. COPD patients who regularly perform physical activity have less dyspnea and cough, as well as better functionality, exercise capacity and strength during an exacerbation (López-López et al., 2018). Furthermore, COPD exacerbations are associated with anxiety/depression, which is common in patients with COPD (Pumar et al., 2014). Therefore, many aspects of the lives of patients, especially their physical activities, are influenced, and their functional performance and self-care agency levels may be affected negatively as they may become dependent or semi-dependent.

Limitations

The data of the research were obtained from patients who presented to the outpatient clinic of the research and training hospital of a university. The results of the study are valid for the sample and cannot be generalized. Conducting similar studies with larger samples may contribute to the enrichment and dissemination of data on this topic.

Conclusions and Recommendations

According to results of the research; the mean functional performance score of patients was low and their mean self-care agency scores was moderate. Looking at the participants' scores on the Functional Performance Inventory; it was found that the participants scored highest on the body care subscale and lowest on the recreation subscale. A significant positive relationship was found between the functional performance and self-care agency levels of the patients. Functional performance and self-care agency levels were found to be significantly lower among the patients who required help in their activities of daily living, those with comorbidities, those who presented to emergency services due to COPD in the last six months, those who were hospitalized, and those who were long-term users of oxygen treatment at home. While the functional performance and self-care agency levels of the patients were strongly and negatively correlated with dyspnea severity, these variables were positively correlated with their FEV_1 values.

In the assessment of COPD patients, the Functional Performance Inventory and the Self-Care Agency Scale should be included among routine diagnostic tools. In terms of the improvement of health outcomes, it is important for nurses to collect the necessary information regarding functional performance and self-care agency while planning the care process of a COPD patient and make the necessary adjustments in the care plan of the patient accordingly. According to the results of this research; it is recommended to plan nursing interventions to reduce the severity of dyspnea, ensure maximum independence, and support their compliance with long-term oxygen therapy in order to support the increase of the functional performance and self-care agency of COPD patients.

Ethical Approval of the Study

The research was conducted in accordance with the Declaration of Helsinki Principles. Ethical approval was obtained from the Clinical Studies Ethics Committee (Decision No: 2012-03/33). Institutional approval was obtained after ethical approval.

Conflict of Interests

The authors declare that they have no conflicting interests.

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Author Contributions

U.D.: Conceptualization, data collection, data analysis and interpretation, writing the manuscript, contribution of scientific knowledge. H.T.A.: Conceptualization, data analysis and interpretation, writing the manuscript, contribution of scientific knowledge.

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