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Body Awareness in COPD and Its Relation with Patients' Clinic States*

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Abstract: The detection of impairments in body awareness can provide important data for the clinical assessment and treatment planning of patients with COPD. In this study, we aimed to evaluate body awareness in patients with COPD, and to examine its relationship with patients' clinics. A total of 114 subjects were divided into two groups: the COPD group (n:56) and the control group (n:58). Disease severity (COPD Assessment Test), functional capacity (6 Minute Walk Test), dyspnea (Modified Borg Scale), body awareness (Body Awareness Questionnaire), depression (Beck Depression Inventory) and anxiety (Beck Anxiety Inventory) levels of the groups were evaluated. Compared to the control group, the COPD group had lower levels of body awareness and higher levels of anxiety and depression ($p<0.001$). Body awareness in the COPD group was correlated with disease severity, dyspnea, functional capacity, anxiety and depression ($p<0.05$). Patients with COPD show significantly impaired body awareness compared to healthy subjects. In addition, there is an association between the level of body awareness in COPD and clinical parameters.

Keywords: Body Awareness, COPD, Clinic State.

JEL Classification: I1, I12, I19

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KOAH'ta Vücut Farkındalığı ve Hastaların Klinik Durumlarıyla İlişkisi

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Öz: Vücut farkındalığındaki bozuklukların tespiti, KOAH'lı hastaların klinik değerlendirmesi ve tedavi planlaması için önemli bir veri olabilir. Bu çalışmada, KOAH'lı hastalarda vücut farkındalığını değerlendirmeyi ve hastaların kliniği ile ilişkisini incelemeyi amaçladık. 114 denek çalışmaya alındı ve iki gruba ayrıldı: KOAH grubu (n:56) ve kontrol grubu (n:58). Grupların hastalık şiddeti (KOAH Değerlendirme Testi), fonksiyonel kapasite (6 Dakika Yürüme Testi), dispne (Modifiye Borg Ölçeği), vücut farkındalığı (Vücut Farkındalığı Anketi), depresyon (Beck Depresyon Envanteri) ve anksiyete (Beck Anksiyete Envanteri) düzeyleri değerlendirildi. Kontrol grubu ile karşılaştırıldığında, KOAH grubunun vücut farkındalığı seviyesi daha düşük; anksiyete ve depresyon düzeyleri daha yüksekti ($p<0,001$). KOAH grubunda vücut farkındalığı ile hastalık şiddeti, dispne, fonksiyonel kapasite, depresyon ve anksiyete arasında ilişki saptandı ($p<0,05$). KOAH'lı hastalar sağlıklı erişkinlere kıyasla önemli ölçüde bozulmuş vücut farkındalığı göstermektedir. Ayrıca KOAH'ta vücut farkındalığı seviyesi klinik parametrelerle ilişkilidir.

Anahtar Kelimeler: Vücut Farkındalığı, KOAH, Klinik Durum.

JEL Sınıflandırması: I1, I12, I19

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GENİŞLETİLMİŞ ÖZ

Araştırma Problemi

Vücut farkındalığı bireyin vücut parçaları ve süreçleri ile ilgili bilincinin tanımlanmasını, fiziksel ve emosyonel bileşenlerle olan ilişkisinin saptanmasını sağlar. Vücut farkındalığı seviyesindeki değişiklikler hastanın fiziksel ve psikolojik durumunu etkileyebilir; fonksiyonel yeteneklerini tehlikeye atabilir. Bu nedenle, vücut farkındalığındaki bozuklukların tespiti, KOAH'lı hastaların klinik değerlendirmesi ve tedavi planlaması için önemli bir veri olabilir. Çalışmanın amacı KOAH'lı hastalarda vücut farkındalığını değerlendirmek ve hastaların klinikleri ile ilişkisini incelemekti.

Araştırma Soruları

KOAH'ta beden farkındalığı etkilenir mi? KOAH'lı hastalarda vücut farkındalığı düzeyi hastalığın klinik durumu ile ilişkili midir? KOAH'lı hastalarda beden farkındalığı düzeyi sağlıklı bireylere kıyasla azalmış mıdır?

Literatür Taraması

Vücut farkındalığı, son yıllarda sağlık alanında yapılan bilimsel araştırmalarda ilgi çeken konulardan biri olarak görülmektedir. KOAH'lı hastalarda vücut farkındalığını araştıran bir çalışmaya rastlanmamıştır. Vücut farkındalığı, KOAH, fonksiyonel durum ve psikososyal rehabilitasyon anahtar kelimeleri kullanılarak COCHRANE Library (The Cochrane Collaboration), PUBMED, CINAHL (Cumulative Index to Nursing and Allied Health Literature) ve MEDLINE (Medical Literature Analysis and Retrieval System) veri tabanlarında konu taraması yapılmıştır.

Metodoloji

Bu kesitsel çalışmaya göğüs hastalıkları polikliniğinde KOAH tanısı konan hastalar ve benzer demografik özelliklere sahip sağlıklı erişkinler dahil edilmiştir. Denekler KOAH grubu ve kontrol grubu olarak ikiye ayrılmıştır. KOAH grubu için, Kronik Obstrüktif Akciğer Hastalığı Küresel Girişimi (GOLD)'a göre birincil KOAH tanısı ile klinik stabilitesi olan (en az 30 gün boyunca alevlenme veya ilaç değişikliği olmayan) ve oksijen tedavisine ihtiyaç duymayan denekler dahil edildi; kontrol grubu için, spirometriye göre akciğer fonksiyonlarında değişiklik olmayan denekler çalışmaya alındı. KOAH grubunun hastalık şiddeti (KOAH Değerlendirme Testi), fonksiyonel kapasitesi (6 Dakika Yürüme Testi) ve dispne (Modifiye Borg Skalası) düzeyleri ölçüldü. Her iki gruba Vücut Farkındalığı Anketi (VFA), Beck Depresyon Envanteri (BDA) ve anksiyete Beck Anksiyete Envanteri (BAE) anketleri yüz yüze uygulandı.

Bulgular ve Sonuç

Toplam 114 denekle (KOAH grubu=30 erkek, 26 kadın; Kontrol grubuna=30 erkek, 28 kadın) çalışma tamamlandı. KOAH grubunun yaş ortalaması 58.77, kontrol grubunun yaş ortalaması ise 56.18 yıldı. KOAH grubunun vücut farkındalığı kontrol grubuna göre daha düşük, anksiyete ve depresyon düzeyleri ise daha yüksekti ($p<0.001$). KOAH'lı hastaların vücut farkındalığı düzeyi anksiyete, depresyon, hastalık evresi, hastalık şiddeti, dispne skoru ve fonksiyonel durum ile ilişkili bulundu ($p<0.05$).

KOAH'lı hastaların vücut farkındalığı sağlıklı erişkinlere kıyasla önemli ölçüde bozulmuştur. Sonuçlarımız KOAH'ta vücut farkındalığı düzeyinin hastalık şiddeti, dispne, fonksiyonel kapasite, anksiyete ve depresyon gibi çok önemli klinik parametrelerle ilişkili olduğunu göstermektedir. KOAH hastaları için vücut farkındalığı, depresyon ve anksiyete gibi psikososyal parametrelerin karşılıklı ilişkisine dayalı olarak planlanan tedavi programları, hastalık yönteminde olumlu kazanımlara katkıda bulunabilir.

INTRODUCTION

Being aware of normal or abnormal symptoms occurring in the body is one of the basic components of psychosocial health for both healthy individuals and patients (Egan et al., 2008:8). Body awareness, which is defined in the most comprehensive sense as the indicator of the physical and emotional aspect of the individual's total consciousness about body parts and dimensions, becomes an important issue for the organism in health and disease because it develops the ability to recognize normal or abnormal body processes occurring in the body (Mehling et al., 2009:4; Mehling et al., 2011:6).

Body awareness is defined as the ability to comprehend and accept the visual dimension of the body, recognize body reactions, and describe biological and emotional signs (Gard et al., 2020:22). These can be sorted into breathing control, mental control, emotional control, coordination skills, improvement in muscle and joint movements, and response predictions due to changes in the body (Mehling et al., 2011:6). The development of body awareness in individuals is possible by focusing on body symptoms and reactions and being aware of emotions at a high level. Having the ability to perceive one's biological and psychological state in a healthy or sick state is an indicator of body awareness skill (Mehling, 2020:9). Researchs frequently discuss the negative impact in functional and emotional health levels, in chronic patients (Tinetti et al., 2019:14; Hurst et al., 2020:73). As an assessable parameter of biopsychosocial rehabilitation, the level of body awareness can be affected by abnormal chronic physical and psychological processes, chronic diseases, habits, drug use, and lifestyle changes (Gard et al., 2020:22; Mehling, 2020:9).

Chronic diseases can lead to significant negative changes in both functional (reduced exercise capacity, impaired activities of daily living, decreased lung function, frequent exacerbations) and emotional (anxiety and depression, social isolation, frustration and anger, fear of deterioration and death) health levels among patients. These changes can severely impact the quality of life and overall well-being of individuals with chronic conditions. (Bugajski et al., 2023:45). Managing chronic diseases requires a comprehensive approach that addresses both the functional and emotional health changes experienced by patients (Mathews, 2023:68).

Chronic Obstructive Pulmonary Disease (COPD) is a progressive and treatable disease with pulmonary and systemic symptoms (Adeloye et al., 2022:10). The natural course of COPD, physical abnormalities, and lifestyle changes brought about by the development of systemic consequences and comorbidities may affect not only the physical but also the psychosocial well-being of patients (Mathews, 2023:68). Studies have reported that patients with COPD experience loss in terms of quality-of-life level, depression, and social isolation (Mathews, 2023:68; Bugajski et al., 2023:45). Systemic inflammation, chronic hypoxia, and exacerbations occurring in COPD may lead to problems in the psychological status and body perception of patients (Farver et al., 2022:84). This may impair the level of body awareness and psychological well-being of patients (Mathews, 2023:68; Farver et al., 2022:84) and may affect their compliance with rehabilitation and exercise programs.

Recent studies published on the treatment procedures for COPD emphasize the importance of continuing education, empathy, and a comprehensive approach to care, with the responsibility of healthcare professionals not only to recognize and treat COPD but also to support the wider needs of patients living with this chronic condition (Mathews, 2023:68; Farver et al., 2022:84). In this context of novel therapy targets, developing body awareness in patients may contribute clinically to managing both mental and physical well-being in disease control, support in

managing and mitigating the disease impact, and help in self-interpreting bodily signs and symptoms by the patient in disease control. In this way, patients with COPD can benefit significantly from developing a heightened sense of body awareness for several reasons, such as early symptom recognition, effective management of them, adherence to treatment, and psychological well-being (Mehling et al., 2011:6). This statement outlines the objectives of the research study, which focused on exploring various dimensions of body awareness in individuals diagnosed with COPD in comparison to healthy individuals. It also aims to examine the associations between body awareness and several critical aspects of COPD, including disease severity, symptoms of dyspnea (difficulty breathing), functional status, and the levels of depression and anxiety experienced by patients.

2. LITERATURE REVIEW

In this study, the PUBMED, COCHRANE Library (The Cochrane Collaboration), Turkish Scientific and Technical Research Council (TUBITAK) ULAKBIM (Turkish Academic Network and Information Center) and MEDLINE (Medical Literature Analysis and Retrieval System) databases were searched. Body awareness, COPD, biopsychosocial rehabilitation, and psychosocial conditions keywords were used to scan the topic.

3. MATERIALS AND METHODS

3.1. Ethical Aspect

This study was conducted in accordance with the Declaration of Helsinki and approved by Marmara University Faculty of Medicine Ethics Committee (06.12.2019, 09.2019.1031)

Dubjects were informed about the aims and procedures of the study, and informed consent was given after they agreed to participate.

3.2. Participants

The study included patients with COPD diagnosed by the pulmonologist in the chest disease outpatient clinic and healthy participants with similar demographic characteristics who volunteered to participate in the study after a social media invitation. The volunteers were recruited for the study and the volunteers were divided into the COPD group and the control group. For the COPD group, subjects with a primary diagnosis of COPD according to the Global Initiative for Chronic Obstructive Lung Disease (GOLD) and clinical stability (no exacerbations or medication changes for at least 30 days) and no need for oxygen therapy were included; for the control group, subjects with no change in lung function according to spirometry were included. For both groups, participants aged 55 years or older with exercise-limiting health conditions, as well as those who withdrew their consent to participate in the study or did not complete any assessment during the study period were excluded from the analyses.

Sample size was determined by power analysis in the G Power 3.1.9.7 program. Taking the Body Awareness Questionnaire as the primary outcome, it was calculated that 41 subjects for each group and at least 82 subjects in total were needed with a 21-point difference, 5% significance and 80% test power. The developers of the Body Awareness Questionnaire stated that the 21-point difference in the questionnaire was significant (Shields et al., 1989:17).

3.3. Data Collection Tools

For this cross-sectional study, a sociodemographic pre-assessment consisting of an investigation of pre-existing comorbidities and sociodemographic characteristics was performed. Disease severity (COPD Assessment Test),

functional capacity (6 Minute Walk Test), and dyspnea (Modified Borg Scale) levels were measured in the COPD group. Body awareness questionnaire, depression and anxiety questionnaires were administered to the participants face-to-face.

COPD Assessment Test (CAT): It is a short and practical eight-item test that measures the effects of COPD and deterioration in health status. This test reveals the severity of the disease by assessing conditions such as cough, sputum, shortness of breath, fatigue symptoms and leaving home. The CAT assessment test score is evaluated as low impact if 0-10, moderate impact if 11-20, high impact if 21-30, and very high impact if 31-40 (Dodd et al., 2011:66).
6 Minute Walk Test (6MWT): The 6MWT, which standardisation by the American Thoracic Society (ATS), can provide reliable assessment of functional performance in patients with chronic cardiopulmonary disease (ATS Committee, 2002:166). The test involves walking on a flat surface for 6 minutes according to a standardized protocol. It is a self-paced test (unlike the increasing number of brisk walking tests that require intervention) and is reproducible, inexpensive and easy. With this method, parameters such as distance walked in 6 minutes, dyspnea, heart rate and symptoms are evaluated (Jenkins, 2007:93). The tests were performed according to ATS statement (ATS Committee, 2002:166).

Modified Borg Scale (MBS): This scale was developed in 1970 by Borg to measure the effort expended during physical exercise. It is a scale frequently used to evaluate the severity of exertional dyspnea. It consists of ten items describing the severity of dyspnea according to degrees. The fact that dyspnea severity is defined makes it easier for patients to apply. In our study, exertional dyspnea was measured following the 6MWT (Kendrick et al., 2000:26).

Body Awareness Questionnaire (BAQ): I t is a self-report instrument designed to measure an individual's awareness of internal bodily sensations. Developed by Shields et al. to assess the subjective experience of one's body from a psychological perspective, the BAQ focuses on how attentively people perceive and interpret signals from their bodies, such as heart rate, breathing, hunger, and tension. This tool is often used in psychological and health-related research to explore the connection between body awareness and various health outcomes, mental health conditions, and overall well-being. Participants are asked to rate each of the 18 statements on a scale of 1-7 (1= Not true at all for me, 7= Completely true for me). The rating in the questionnaire is done as a total score. The higher the score on the questionnaire, the better the level of body awareness. The BAQ consists of the subgroups of prediction of body reactions, sleep-wake cycle, prediction at the onset of the disease and paying attention to changes in the body process and reactions (Shields et al., 1989:17; Karaca and Bayar, 2021:32).

Beck Depression Inventory (BDI): The scale is used to determine the physical, emotional and cognitive symptoms seen in depression. The scale consists of 21 Likert-type items. The highest score that can be obtained from the scale is 63. A high total score indicates a high level or severity of depression (Hisli, 1988:6).

Beck Anxiety Inventory (BAI): Developed in 1988, the scale is used to determine the frequency of anxiety symptoms. The validity and reliability study of the scale in our country was conducted by Ulusoy et al. in 1998. The scale consists of a total of 21 Likert-type items. The highest score that can be obtained from the scale is 63. A high total score indicates a high level or severity of anxiety (Ulusoy et al., 1998:12).

3.4. Statistical Analysis

The Statistical Package for Social Sciences Version 18.0 software was used for the analysis of the study data.

Conformity of the data to normal distribution was evaluated using the Kolmogorov–Smirnov test. Variables were expressed as mean and SD values, frequency, and percentage. As the data showed normal distribution, the independent samples t-test was used in the comparisons of variables. Associations between the BAQ and the BAI, and the BDI were examined with Pearson's correlation analysis as the data met parametric assumptions. The level of statistical significance was accepted as $p< 0.05$.

4. RESULTS

The subjects were divided into the COPD group (30 males, 26 females) and the control group (30 males, 28 females). The mean age of the COPD group was 58.77 years, and the mean age of the control group was 56.18 years. Table 1 shows the distribution of sociodemographic characteristics of the participants and descriptive statistics about the diseases of the COPD group. The physical and demographic characteristics of both groups were similar in terms of body mass index (BMI) values, duration of education, history of chronic diseases, smoking and history of pain ($p>0.05$).

Table 1. Sociodemographic Characteristics of the Participants

		Groups		
		COPD	**Control**	
		Mean (SD)	**Mean (SD)**	**p-value**
Age (y)		58.77 (3.05)	56.18 (1.96)	0.705
Body Mass Index (kg/m^2)		28.34 (3.18)	26.20 (3.53)	0.345
Duration of Education (y)		12.83 (2.72)	12.16 (2.13)	0.452
CAT Score		26.97(5.25)		
Modified Borg Dyspnea Score		3.75(0.85)		
		n (%)	**n (%)**	**p-value**
Gender	Male	30 (55%)	30 (58%)	0.465
	Female	26 (44%)	28 (42%)	
Past History of Any Chronic Illness	Yes	14 (24%)	11 (20%)	0.596
	No	42 (75%)	47 (80%)	
Smoking	Yes	26 (48%)	22 (44%)	0.644
	No	20 (51%)	26 (56%)	
Pain History	Yes	17 (32%)	14 (24%)	0.336
	No	39 (67%)	42 (76%)	
GOLD Stages	1	19		
	2	22		
	3	15		
Duration of Disease	0-5 years	17		
	5-10 years	27		
	>10 years	12		

CAT; COPD assesment test, SD; standard deviation, GOLD: Global Initiative for Chronic Obstructive Lung Disease, y; years, kg; kilos, m; meters, Data expressed as mean and standard deviation

The body awareness, anxiety and depression levels of the groups and the comparison of body awareness, anxiety and depression scores between the groups are shown in Table 2. The COPD group had lower levels of body awareness ($p<0.001$), and higher levels of anxiety and depression than the control group (see Table 2).

Table 2. Comparison of BAQ, BAI and BDI Scores Between Groups

Parameters	Groups		p-value
	COPD	Control	
	Mean (SD)	Mean (SD)	
BAQ	69.58 (25.78)	101.46 (19.94)	**<0.001**
BAI	32.61 (11.27)	6.18 (2.13)	**0.001**
BDI	19.24 (4.21)	11.01(2.23)	**0.001**

Independent samples t-test, BAQ; Body Awareness Quesitonarre, BAI; Beck Anxiety Inventory BDI; Beck Depression Inventory, SD; Standard Deviation, Bold indicates statistical significance (p < 0.05).

The relationship between body awareness (BAQ), and anxiety (BAI), and depression (BDI) scores of patients with COPD is shown in Table 3. The level of body awareness of patients with COPD was found to be highly positively associated with depression and anxiety (p<0.001).

Table 3. The Correlations Between BAQ and BAI, BDI In Patients with COPD

	BAI	BDI
BAQ	**r=-0.889** **p<0.001**	**r=-0.820** **p<0.001**

Pearson's correlation analysis, BAQ; Body Awareness Quesitonarre, BAI; Beck Anxiety Inventory BDI; Beck Depression Inventor, r;Correlation Coefficient

Table 4 shows the relationship between body awareness (BAQ), and anxiety (BAI), and depression (BDI), and clinical parameters of patients with COPD. Disease stage (GOLD grade), disease severity (CAT), dyspnea score (MBS) and functional status (6MWT) were positively associated with body awareness, depression and anxiety (p<0.05).

Table 4. The Correlation Between Scales and Sociodemographic Characteristics of COPD Group Participants

	BAQ (r)	BAI (r)	BDI (r)
GOLD grade	**0.789****	**0.673***	**0.612***
Duration of disease (y)	0.303	0.294	0.129
CAT	**0.778****	**0.724****	**0.598***
MBS	**0.872****	**0.912****	**0.934****
6MWT (m)	**0.703****	**0.812****	**0.562***

*Pearson's correlation analysis *:p<0.05, **: p<0.001, BAQ; Body Awareness Quesitonarre, BAI; Beck Anxiety Inventory BDI; Beck*

5. CONCLUSION AND DISCUSSION

Our study showed that patients with COPD had lower levels of body awareness than healthy adults and that body awareness levels in COPD patients were associated with disease severity, dyspnea, anxiety, and depression. The COPD group was found to be more anxious and depressed than the healthy control group. In addition, sub-analyses showed that body awareness decreased as COPD stage increased, and subjects with advanced COPD progression exhibited significantly higher levels of anxiety and depression. The study's findings point to a significant role for body awareness in the management of COPD and its associated health issues. By integrating strategies to enhance body awareness into clinical practice, healthcare providers can offer a more holistic approach to COPD care. Further research in this area is crucial for developing targeted interventions that can improve quality of life and outcomes for patients with COPD.

To our knowledge, no study investigating body awareness in patients with COPD has been found in the literature. Due to the complex and chronic progression characteristics of the disease, the biopsychosocial model is

increasingly recognized as important. Current management guidelines emphasise a multimodal approach that holistically addresses the patient experience (Naim et al., 2022:13). Studies in the literature suggest that mind-body based assessments can support the development and maintenance of healthy behaviors and improve health-related quality of life (Liu et al., 2018:15; Li et al., 2020:17). The assessment and development of body awareness in COPD within the scope of mind-body-based assessments is predicted to help patients more easily recognize normal or abnormal body responses throughout the progression of the disease, thus helping them to more easily tolerate the experiences learned about the disease and adapt them to daily life. In addition, mind-body-behavior interactions may help regulate emotional, mental, social and behavioral factors that affect health (Li et al., 2020:17). The findings showed that patients with COPD have lower levels of body awareness than healthy adults, indicating that mind-body-based assessments mentioned in the literature will be important. This study is valuable as it is the first study to investigate the level of body awareness in patients with COPD and compare it with healthy subjects. In addition, this research results opens up a new dimension in understanding and treating COPD, integrating the concept of body awareness into the conversation around patient care. It lays the groundwork for a more nuanced approach to COPD management that could significantly impact patients' lives by addressing the disease's multifaceted nature.

Body awareness is based on the ability to comprehend and accept the visual dimension of one's body, to recognize body reactions, and to describe biological and emotional signs. In this context, it has also been associated with the concept of body perception, which is one of the mind-body based assessment approach, is defined as the mental portrait of body appearance in relation to the attitudes, feelings and personality of the individual (Mehling et al., 2009:4; Freire et al., 2020:14). Mind-body based assessment approaches refer to methods that recognize the interconnectedness of the mind and body in health and well-being. These approaches are grounded in the understanding that psychological factors (thoughts, emotions, attitudes, beliefs) can influence physical health, and conversely, physical states can impact mental well-being. Understanding these approaches, enhanced body awareness in patients with respiratory problems can help develop coping strategies, reduce anxiety related to breathing difficulties, and improve overall quality of life. In addition, body awareness can provide people in identifying and avoiding environmental or lifestyle triggers that may worsen their health. Mind-body based assessment approaches are used in various disciplines, including psychology, psychiatry, physical therapy, and integrative medicine, to evaluate an individual's health status and to guide treatment approaches. Although body perception, is frequently investigated together with body awareness, only two studies have evaluated body perception in patients with COPD (Weisberg et al., 2002:121; Freire et al., 2020:14) and the results of Freire et al. emphasized changes in body perception in subjects with COPD due to cachexia, but no comparison was made with healthy subjects. The results of our study contribute to the literature by showing that body awareness in this patient group is also lower than that in healthy subjects

The study's exploration of the relationship between body awareness and clinical parameters of COPD reveals critical insights into how patients' awareness of their bodily sensations and internal states relates to various aspects of their disease. These relationships can have significant implications for understanding the disease's impact on patients and guiding treatment strategies. Understanding these relationships is crucial for developing interventions that target both the physical and psychological aspects of COPD. For instance, interventions aimed at increasing body awareness could potentially help patients better manage symptoms, recognize early signs of exacerbation, and

implement coping strategies for anxiety and depression associated with their disease. However, it's also important to consider that heightened body awareness might need to be carefully managed to prevent increased distress related to heightened perceptions of symptoms. Therefore, interventions should be designed to enhance constructive awareness and coping mechanisms rather than simply increasing sensitivity to physical sensations. In summary, the relationship between body awareness and clinical parameters of COPD underscore the importance of integrating strategies to enhance body awareness into COPD management plans. Doing so may improve patients' ability to manage their disease, cope with its psychological impacts, and ultimately improve their quality of life.

It is well known that psychosocial factors such as depression, anxiety and social isolation have an important role in clinical functioning and well-being, and there are many studies in the literature, especially on depression and anxiety in patients with COPD (Li et al., 2020:17; Blakemore et al., 2014:9; Yohannes, 2021:15). The most recent and comprehensive network analysis study emphasized the specific associations between COPD symptoms and depression and anxiety, and explained that psychosocial well-being at the symptom level should be taken into account in treatment and that personalized protocols should be supported (Yohannes et al., 2022:198). In a comprehensive meta-analysis, in which they investigated depression, anxiety and mind-body exercises in individuals with COPD and blended the literature, mind-body approach assessment and practices were accepted as a powerful strategy to improve health in patients with COPD (Farver et al., 2022:84). It has been found that depression is very common especially in patients over 70 years of age, in populations experiencing social isolation and not receiving treatment, family or social support; fear and anxiety occur even in the initial stages of the disease, and anxiety increases as progression increases and predisposes to depression. In our findings, subjects with advanced COPD progression showed significantly higher levels of depression and anxiety, and the COPD group was more depressed and anxious than the control group (Average score of BAI for COPD group: 32, for the control group: 6. Average score of BDI for COPD group: 19, for the control group: 11). In addition, in depression and anxiety studies conducted with COPD patients, there are many studies in which the groups have mean scores (BDI score 31-63) that provide a diagnosis of severe depression (Blakemore et al., 2014:9; Yohannes, 2021:15). In our study, the mean score of the BDI was 19, which was clinically defined as depression. Characteristics such as the average age of the COPD group being 58 years, ease of access to hospital and rehabilitation services, and the majority being stage 1 and 2 COPD patients are thought to be the reasons for the lower depression score in our study.

The findings of our study showed that the level of body awareness decreased as the GOLD Grade, CAT and MBS scores increased in COPD patients. As the stage of the disease worsens and the severity of dyspnea increases, symptoms both worsen and differentiate. The resulting increased abnormal reactions in the body can make it difficult for the patient to understand and tolerate the symptoms in daily life. The patient's limited concept of sensitivity to bodily responses related to the disease process, other symptoms of bodily complaints or emotional states and thoughts is one of the main reasons for the decreased level of body awareness. Physical problems such as decreased proprioceptive inputs, weakness in muscle strength, decreased physical activity, impaired breathing patterns, balance and coordination may increase in proportion to the severity of the disease in COPD. These problems may also negatively affect the level of body awareness (Gatti et al., 2023:3; Lin and Shune, 2023:38). According to our results, the positive relationship between body awareness, depression -anxiety scores and clinical parameters of patients with COPD is consistent with the literature. On the other hand, we think that further studies with a larger number of

participants regarding the effect of COPD prognosis on body awareness level are needed.

COPD is consistent with the literature. On the other hand, we think that further studies with a larger number of participants regarding the effect of COPD prognosis on body awareness level are needed. Failure to evaluate respiratory functions in this study can be considered a limitation. Spirometric evaluations were not included in this study since the study was carried out during the pandemic period and there was a risk of transmission.

In conclusion, our results indicate that patients with COPD have significantly impaired body awareness compared to healthy controls. The level of body awareness in COPD is associated with important clinical parameters such as disease severity, dyspnea, functional capacity, anxiety, and depression. Treatment programs designed for COPD patients, based on the interrelationship of psychosocial parameters such as body awareness, depression, and anxiety, may contribute to positive outcomes in disease management and symptom relief.

AUTHOR CONTRIBUTION STATEMENT

All authors contributed equally.

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CONFLICT OF INTEREST STATEMENT

There is no conflict of interest with any institution or person within the scope of the study.

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