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The Effect of Symptoms Seen in Inpatients Receiving Treatment Due to a Diagnosis of COVID-19 on Functional Independence Status and Anxiety Levels: A Descriptive Study

COVID-19 Tanısı ile Hastanede Yatarak Tedavi Uygulanan Hastalarda Görülen Semptomların Fonksiyonel Bağımsızlık Durumuna ve Anksiyete Düzeyine Etkisi: Tanımlayıcı Bir Çalışma

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ABSTRACT

Objective: The aim of this research is to determine the effects of symptoms seen in inpatients receiving treatment due to a diagnosis of coronavirus disease 2019 (COVID-19) on functional independence status and anxiety levels.

Methods: This research was conducted as a descriptive study between July 2021 and April 2022. It included 150 patients diagnosed with COVID-19. Data were collected using a Personal Information Form, the Modified Barthel Index, the Beck Anxiety Inventory, and the Coronavirus Anxiety Scale. Percentage calculations, Kruskal-Wallis Analysis of Variance, and the Mann-Whitney U test were used in data analysis.

Results: The mean age of the participants was 52.3 ± 13.18, 55.3% were male, 80% were married, 32% were university graduates, and 72.7% had at least one accompanying disease. The most common symptoms on admission to the hospital and during the hospital stay were dyspnea (63.3%, 64%), cough (58.7%, 46%), fever (56%, 32%), and fatigue (40.7%, 22.7%), respectively. It was determined that participants were slightly functionally dependent (95.7±8.98), most of them had high levels of anxiety (82%), and about half of them had COVID-19-related dysfunctional anxiety (46%).

ÖZ

Amaç: Bu araştırmanın amacı, koronavirüs hastalığı 2019 (COVID-19) tanısı ile hastanede yatarak tedavi uygulanan hastalarda görülen belirtilerin fonksiyonel bağımsızlık durumuna ve anksiyete düzeyine etkisinin belirlenmesidir.

Yöntemler: Bu araştırma tanımlayıcı bir çalışma olarak Temmuz 2021-Nisan 2022 tarihleri arasında yürütüldü. Çalışma COVID-19 tanısı olan 150 hasta ile gerçekleştirildi. Veriler, Kişisel Bilgi Formu, Modifiye Barthel İndeksi, Beck Anksiyete Envanteri ve Koronavirüs Anksiyete Ölçeği kullanılarak toplandı. Verilerin analizinde yüzdelik hesaplamaları, Kruskal-Wallis Varyans Analizi ve Mann-Whitney U testi kullanıldı.

Bulgular: Katılımcıların %55,3'ünün erkek, %80'inin evli, %32'sinin üniversite mezunu olduğu ve %72,7'sinin en az bir ek hastalığı bulunduğu saptandı. Hastaneye başvuru anında ve hastanede yatarken en sık yaşanan semptomlar sırasıyla nefes darlığı (%63,3; %64), öksürük (%58,7; %46), ateş (%56; %32) ve yorgunluktu (%40,7; %22,7). Katılımcıların fonksiyonel yönden hafif derecede (95,7 ± 8,98) bağımlı olduğu, çoğunun (82%) yüksek düzeyde anksiyete ve yaklaşık yarısının (46%) COVID-19 ilişkili işlevsiz anksiyete yaşadığı saptandı.

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ABSTRACT

CONCLUSION: These findings highlight the importance of early symptom management and anxiety screening in hospitalized COVID-19 patients. Nursing interventions should be individualized and aimed at improving functional independence while reducing anxiety levels. Future nursing practices and healthcare policies should integrate mental health support as a core component of inpatient COVID-19 care.

Keywords: Anxiety, COVID-19, functional independence, nursing, symptom

ÖZ

Sonuç: Elde edilen bulgular, hastanede yatan COVID-19 hastalarında erken semptom yönetimi ve anksiyete taramasının önemini ortaya koymaktadır. Hemşirelik girişimleri bireyselleştirilmiş olmalı; işlevsel bağımsızlığı artırmayı ve anksiyete düzeylerini azaltmayı hedeflemelidir. Gelecekteki hemşirelik uygulamaları ve sağlık politikaları, yatarak tedavi gören COVID-19 hastalarının bakımında ruhsal destek hizmetlerini temel bir bileşen olarak içermelidir.

Anahtar Sözcükler: Anksiyete, COVID-19, fonksiyonel bağımsızlık, hemşirelik, semptom

INTRODUCTION

Coronavirus disease 2019 (COVID-19) was first detected in Wuhan, Hubei province, China, in December 2019 and subsequently spread rapidly throughout China and then worldwide. The World Health Organization (WHO) declared the case a pandemic (1,2). Around 760 million people worldwide have been affected by COVID-19 infection (3).

The physiological impacts of COVID-19, which has high transmissibility and infectivity, are broad and variable. It has been shown that many of the physiological systems and tissues are affected by the virus in individuals who develop symptoms after contacting with the virus (4). Accordingly, these patients develop many symptoms, such as impaired gas exchange, hyperthermia, pain, nausea-vomiting, fluid-electrolyte loss, aspiration risk, activity intolerance, deterioration in sleep patterns, deterioration in skin integrity, anxiety, and hopelessness, and these symptoms lead to increased morbidity and mortality rates (5). Some studies have indicated that individuals experience limitations in daily living activities, such as walking, moving, bathing, dressing, lifting, performing daily routines, and entertainment (6-8). Activities of daily living (ADL) include aspects of individuals' functional independence, such as nutrition, self-care, dressing, bathing, toileting, mobility, hand function, and social perception. Therefore, it has been emphasized that the functional independence status of an individual should be evaluated to determine whether they can perform the ADL (7).

It has been reported that psychological issues like anxiety, depression, and stress have increased as a result of the detrimental impact of COVID-19 pandemic on mental health (1). In addition to medical treatment provided to individuals showing signs of the illness, social isolation is applied. Isolation refers to the separation and restriction of movement of an individual with an infectious disease for protective purposes and is usually carried out in hospital settings (9). Additionally, situations such as excessive information in the media, stigma, and separation from relatives are thought to cause mental problems, such as anxiety and depression.

Recent cohort and rehabilitation studies highlight that maintaining functional independence during and after COVID-19 hospitalization remains a clinically significant concern. Reduced or minimal improvement in Barthel Index (BI) or Modified Barthel Index (MBI) scores during admission has been strongly associated with higher mortality among older adults with COVID-19 pneumonia (10). Observational rehabilitation studies further demonstrate that early, structured inpatient rehabilitation programs substantially improve ADL and mobility performance, although residual deficits frequently persist, particularly among patients recovering from intensive care or with frailty (11,12). These findings underscore the importance of continuous monitoring and tailored rehabilitation strategies to optimize recovery trajectories.

Concurrently, growing evidence indicates that anxiety and other psychological symptoms remain prevalent and persistent among hospitalized and post-acute COVID-19 patients. For instance, Tan et al. (13) reported that 86% of hospitalized patients experienced clinically relevant anxiety levels, while global meta-analyses estimate an anxiety prevalence of approximately 23% among individuals with post-COVID-19 syndrome (14). Longitudinal follow-up studies reveal that psychiatric and cognitive symptoms—including anxiety, depression, and fatigue—can worsen or newly emerge up to 2–3 years after hospital discharge (15). Collectively, these data highlight the dual need to address functional independence and mental health outcomes across the continuum of COVID-19 recovery.

This study was conducted to determine the effects of symptoms observed in inpatients receiving treatment for COVID-19 on their functional independence and anxiety levels.

MATERIALS AND METHODS

Design

A descriptive research design was used. The study was conducted and reported in accordance with the STROBE recommendations.

Participants

The study sample consisted of patients who were hospitalized with a diagnosis of COVID-19 in the pandemic clinics of Akdeniz University Hospital between July 2021 and April 2022. The sample size was calculated to be 150 individuals, based on a statistical power of 80% and a 95% confidence level. Inclusion criteria identified patients who were aged ≥18 years, were literate, had a positive polymerase chain reaction (PCR) test or were COVID-19 positive as shown by computerized tomography, knew their diagnosis and could express it verbally, had no communication barriers (hearing and speaking), had no psychosomatic disorder according to their self-reports, had no physical, cognitive, or mental disability in answering questions, could use a smartphone with an Internet connection, could use the WhatsApp application, and gave consent to participate in the study. An informative message about the purpose of the study and the research team was sent to the phones of the patients who met the inclusion criteria. The infection physician, infection nurse, and COVID-19 clinical nurse on the research team determined which

patients were eligible to participate in the study. Consent of the patients who agreed to participate in the study was obtained online. Questionnaires were sent to the patients' phones via Google Forms. Patients filled out the forms online. Twenty-five patients refused to participate in the study because of fatigue and reluctance.

Data Collection

A Personal Information Form, the MBI, the Beck Anxiety Inventory (BAI), and the Coronavirus Anxiety Scale (CAS) were used to collect data. In the study, functional independence status, anxiety level, and fear of coronavirus outcomes were evaluated.

Personal Information Form

Data on the descriptive and demographic characteristics of patients were collected using a personal information form. The researchers developed this form following a comprehensive literature review. It includes questions about age, gender, marital status, educational status, job, number of cohabitants, presence of chronic diseases, history of organ transplantation, smoking history, and symptoms observed at the time of admission to the hospital and during hospitalization (16-19).

Modified Barthel Index

The MBI was created by the modification of the BI, which was developed by Mahoney and Barthel (1965), by Shah et al. (20). Physical independence in ADL (transfer, ambulation/wheelchair use, climbing stairs, feeding, dressing, grooming, bathing, toilet use, bladder incontinence, and bowel incontinence) is assessed using a 10-item scale. A score of "0" indicates total dependency, while a score of "100" indicates total independence (20). The total score ranges from 0 to 100. Cronbach's alpha value for the overall scale was determined to be 0.93 in the study by Yavuzer et al. (21,22). In our study, the alpha value of the scale was 0.82.

Beck Anxiety Inventory

Beck et al. (23) created the Beck Anxiety Inventory. It is a 4-point Likert-type scale with 21 questions, each assigned 0 to 3 points and used to gauge the level of anxiety. The total scale scores are interpreted as follows to indicate anxiety levels: low for scores from 8 to 15; moderate for scores from 16 to 25; and high for scores from 26 to 63 (23). Ulusoy et al. (24) conducted a validity and reliability assessment of the scale in Türkiye, and they reported that Cronbach's alpha was 0.93. In our analysis, the alpha value was 0.90.

Coronavirus Anxiety Scale

Lee (25) created the CAS to detect potential instances of dysfunctional anxiety linked to COVID-19. It has one dimension and five questions. A five-point Likert scale with the following options is used to grade the questions: 0, never; 1, rarely, less than one or two days; 2, a few days; 3, more than 7 days; 4, almost daily in the last two weeks (25). In a validity and reliability research done in Türkiye by Biçer et al. (26), Cronbach's alpha was found to be 0.83. In our analysis, the alpha value was 0.85.

Ethical Considerations

Written approval for the study was obtained from the Clinical Research Ethics Committee of Akdeniz University Faculty of Medicine (KAEK-231/28.04.2021) and from the Antalya Provincial Health Directorate (date: 28.06.2021). Permission from the authors who developed the scales used in the study was obtained by e-mail. Informed consent forms prepared following the Declaration of Helsinki were obtained online from the patients who agreed to participate in the study.

Statistical Analysis

IBM SPSS Statistics for Windows, Version 23.0, was used for statistical analysis (IBM Corp., Armonk, NY). The Shapiro-Wilk test was used to assess the normality of the data. Descriptive statistics were summarized using frequency (n), percentage (%), mean, standard deviation (SD), median, range (minimum–maximum), interquartile range (25^{th}–75^{th} percentile). For non-parametric comparisons of scale scores between independent groups, the Mann-Whitney U test and the Kruskal-Wallis test were used. The Bonferroni correction was used for post hoc analysis. For the reliability analysis, Cronbach's alpha coefficients were calculated. A two-sided p-value < 0.05 was considered statistically significant.

RESULTS

Sociodemographic and COVID-19 Characteristics of the Participants

A total of 150 patients who were hospitalized with a diagnosis of COVID-19 participated in the research. The mean age of the participants was 52.3 ± 13.18 years, 55.3% were male, 80% were married, 32% were university graduates, and 30.7% were housewives. 72.7% of the participants at least one comorbidity, 24% were smokers, and 21.3% used immunosuppressive drugs. The participants lived with an average of 3.02 ± 1.05 household members (median = 3, range = 1–4) (Table 1). The most common symptoms experienced by the participants on admission and during hospitalization were dyspnea (63.3%, 64%), cough (58.7%, 46%), fever (56%, 32%), and fatigue (40.7%, 22.7%) (Table 2). The mean anxiety level of the participants was 5.3±2.89 (minimum-maximum: 1–10). They experienced anxiety due to shortness of breath (62.7%), hospitalization (57.3%), and oxygen therapy (50%).

Findings Related to Functional Dependence and Anxiety Levels of the Participants According to their Sociodemographic Characteristics

The mean score for the functional independence status of the participants was 95.7 ± 8.98 according to MBI. The MBI scores of participants aged 60 and over ($p < 0.001$) and of those with chronic diseases ($p = 0.010$) were significantly lower. In addition, MBI scores were significantly higher among university graduates ($p = 0.006$) and among participants with a history of organ transplantation ($p = 0.004$). No significant relationship was found between the participants' MBI scores and their gender, marital status, job, cohabitants, smoking status, or immunosuppressive drug use ($p > 0.05$). It was found that the mean anxiety score of the participants was 33.8 ± 11.40 according to the BAI, and 82% of them had high levels of anxiety. The BAI scores were significantly higher in women and in secondary school graduates than in primary school graduates, and were higher in housewives or unemployed participants than in self-employed participants, workers, or civil servants ($p < 0.05$). In addition, it was found that the mean anxiety score of the participants

was 8.9 ± 4.96 according to the CAS and that 46% of them had dysfunctional anxiety associated with the coronavirus. CAS scores were higher in secondary school and university graduates than in primary school graduates, and higher in participants living with four or more cohabitants than in those with two or fewer cohabitants ($p < 0.05$) (Table 3).

Table 1. Socio-demographic and COVID-19 characteristics of the participants (n = 150).

Socio-demographic characteristics	n	%
Age	52.3 ± 13.18	54 (21–89)
$\bar{X}$ ± SD/median (minimum-maximum)		
Gender		
Female	67	44.7
Male	83	55.3
Marital status		
Married	120	80.0
Single	30	20.0
Educational status		
Literate	4	2.7
Primary school	27	18.0
Secondary school	27	18.0
High school	44	29.3
University	48	32.0
Occupation		
Housewife	46	30.7
Retired	22	14.7
Self-employed	45	30.0
Workers-civil servants	16	10.7
Student	2	1.3
Unemployed	19	12.7
Number of people living together at home	3.02 ± 1.05/3 (1–4)	
$\bar{X}$ ± SD/median (minimum-maximum)		
One person	1	0.7
Two person	63	42.0
Three person	45	30.0
Four people and more	41	27.3
Comorbidities[a]	109	72.7
Kidney disease	25	16.7
Cardiovascular disease	26	17.3
Hypertension	38	25.3
Cancer	21	14.0
Diabetes mellitus	39	26.0
Smoking	36	24.0
Organ transplant history	26	17.3
Immunosuppressive drug use	32	21.3

[a]Participants could report more than one comorbidity; therefore, percentages do not total 100%. SD: Standard deviation.

Findings Related to the Functional Independence Status and Anxiety Level of the Participants According to the Symptoms at the Time of Admission and Hospitalization

BAI scores were significantly higher in participants with nausea or vomiting at hospital admission ($p = 0.034$), and CAS scores were significantly higher in participants with cough during hospitalization ($p = 0.002$). No significant relationship was observed between the participants' symptoms, either at admission or during hospitalization, and their MBI scores ($p > 0.05$) (Table 4).

Findings Related To The Functional Independence And Anxiety Level Of Participants According To Their Anxiety Levels

BAI scores were higher in participants who feared they would not recover and who had dyspnea ($p < 0.05$). Although the BAI scores of the participants who were afraid of not seeing their family members were higher, this difference was not significant ($p > 0.05$). CAS scores were significantly higher among participants who feared they would not recover and significantly lower among those who

Table 2. Symptoms of the patients at the time of admission to the hospital and during hospitalization (n =150).

Symptoms[a]	n	%
At the time of admission		
Dyspnea	95	63.3
Cough	88	58.7
Fever	84	56.0
Fatigue	61	40.7
Musculoskeletal pain	34	22.7
Nausea-vomiting	22	14.7
Diarrhea	12	8.0
Sore throat	9	6.0
Chest pain	6	4.0
Expectoration	6	4.0
Loss of taste and smell	2	1.3
Hospitalization		
Dyspnea	96	64.0
Cough	69	46.0
Fever	48	32.0
Fatigue	34	22.7
Nausea-vomiting	7	4.7
Sore throat	6	4.0
Diarrhea	3	2.0
Loss of taste and smell	1	0.7

[a]Participants could report more than one comorbidity; therefore, percentages do not total 100%.

Table 3. Scale scores according to the sociodemographic characteristics of the patients (n = 150).

Variables	MBI, median (IQR)	BAI, median (IQR)	CAS, median (IQR)
Age			
Under 60	100 (100–100)	35 (28–42)	8 (6–12)
60 and over	100 (90–100)	34 (27–39)	8 (5–12)
z/p	**z = -4.206; p < 0.001**	z = -0.912; p = 0.362	z = -0.727; p = 0.467
Gender			
Female	100 (95–100)	39 (32–45)	8 (5–13)
Male	100 (100–100)	31 (26–38)	8 (5–12)
z/p	z = 0.503; p = 0.615	**z = -3.520; p<0.001**	z = -0.032; p = 0.974
Marital status			
Married	100 (100–100)	36 (29–42)	8 (5.5–12)
Single	100 (95–100)	33 (25–42)	8 (5–14)
z/p	z = -1.499; p = 0.134	z = -1.020; p = 0.308	z = -0.094; p = 0.925
Educational status			
Primary school and before	100 (90–100)[a]	31 (26–36)[a]	6 (2–9)[a]
Secondary school	100 (95–100)[a.b]	39 (31–45)[b]	9 (5–13)[b]
High school	100 (95–100)[a.b]	35.5 (29.5–45.5)[a.b]	8 (5.5–13)[a.b]
University	100 (100–100)[b]	34 (27–42.5)[a.b]	9 (7–13)[b]
KWH/p	**KWH = 12.371; p = 0.006**	**KWH = 7.851; p = 0.049**	**KWH = 9.754; p = 0.021**
Occupation			
Housewife	100 (95–100)	37 (31–44)[a]	8 (6–12)
Retired	100 (95–100)	35.5 (31–41)[a.b]	7.5 (5–10)
Self–employed	100 (100–100)	33 (23–38)[b]	8 (5–12)
Workers–civil servants	100 (100–100)	28 (26–39)[b]	7.5 (6.5–14.5)
Unemployed	100 (100–100)	39 (29–46)[a]	10 (6–16)
KWH/p	KWH = 4.186; p = 0.381	**KWH = 12.682; p = 0.013**	KWH = 4.211; p = 0.378
Number of people living together at home			
Two people and fewer	100 (95–100)	36 (28–41.5)	7 (5–10)[a]
Three people	100 (100–100)	31 (27–39)	8 (6–13)[a.b]
Four people or more	100 (100–100)	38 (31–43)	9 (7–14)[b]
KWH/p	KWH = 3.733; p = 0.155	KWH = 2.517; p = 0.284	**KWH = 8.214; p = 0.016**
Chronic disease			
No	100 (100–100)	31 (27–38)	9 (7–13)
Yes	100 (95–100)	36 (29–42)	8 (5–12)
z/p	**z = -2.582; p = 0.010**	z = 1.525; p = 0.127	z = -1.370; p = 0.171
Smoking			
No	100 (95–100)	36 (29–42)	8 (6–12)
Yes	100 (100–100)	30.5 (26.5–40)	8 (5–12.5)
z/p	z = 1.396; p = 0.163	z = -1.466; p = 0.143	z = 0.163; p = 0.870
Organ transplant history			
No	100 (95–100)	35 (28–42)	8 (5–12.5)
Yes	100 (100–100)	33.5 (28–41)	7.5 (6–10)
z/p	**z = 2.873; p = 0.004**	z = -0.124; p = 0.901	z = 0.035; p = 0.972
Immunosuppressive drug use			
No	100 (95–100)	33.5 (28–41)	8 (5–12)
Yes	100 (100–100)	39 (32–46)	8.5 (7–12.5)
z/p	z = 1.872; p = 0.061	z = 1.781; p = 0.075	z = 0.920; p = 0.358

The same lowercase letters in a column indicate no significant difference between groups. *p < 0.05. BAI: Beck Anxiety Inventory, CAS: Coronavirus Anxiety Scale, IQR: Interquartile range, KWH: Kruskal-Wallis H test, MBI: Modified Barthel Index, z: Mann-Whitney U test.

Table 4. Scale scores according to the symptoms of the patients at the time of admission to the hospital and hospitalization (n = 150).

Symptoms	MBI, median (IQR)	BAI, median (IQR)	CAS, median (IQR)
At the time of admission			
Dyspnea			
No	100 (100–100)	36 (29–45)	8 (5–13)
Yes	100 (95–100)	34 (28–40)	8 (5–12)
z/p	z = -0.476; p = 0.634	z = -1.264; p = 0.206	z = -0.080; p = 0.936
Cough			
No	100 (95–100)	36 (29–42)	8 (5–12)
Yes	100 (100–100)	33 (27.5–42)	8 (5.5–13)
z/p	z = 0.854; p = 0.393	z = -0.945; p = 0.345	z = 0.764; p = 0.445
Fever			
No	100(95–100)	36 (25–42)	8.5(5–13)
Yes	100(100–100)	34.5 (29–42)	8(6–12)
z/p	z = 0.670; p = 0.503	z = 0.968; p = 0.333	z = -0.051; p = 0.959
Fatigue			
No	100 (95–100)	34 (27–42)	8 (6–13)
Yes	100 (100–100)	36 (29–41)	8 (5–12)
z/p	z = 0.861; p = 0.389	z = 0.373; p = 0.709	z = -0.848; p = 0.396
Musculoskeletal pain			
No	100 (95–100)	35 (28–42)	8 (5–12.5)
Yes	100 (100–100)	33 (29–42)	8 (6–11)
z/p	z = 1.604; p = 0.109	z = -0.011; p = 0.991	z = 0.266; p = 0.791
Nausea-vomiting			
No	100 (95–100)	33 (27–41.5)	8 (5–12)
Yes	100 (95–100)	39 (34–44)	8 (7–13)
z/p	z = -0.231; p = 0.817	**z = 2.121; p = 0.034**	z = 0.919; p = 0.358
Diarrhea			
No	100 (95–100)	34 (28–42)	8 (5–12)
Yes	100 (92.5–100)	39 (34–47)	7 (5.5–11.5)
z/p	z = -0.103; p = 0.918	z = 1.851; p = 0.064	z = -0.340; p = 0.734
Hospitalization			
Dyspnea			
No	100 (95–100)	33.5 (28–41)	7.5 (5–12)
Yes	100 (95–100)	35 (28–42.5)	9 (6–13)
z/p	z = 0.069; p = 0.945	z = 0.541; p = 0.589	z = 1.133; p = 0.257
Cough			
No	100 (95–100)	33 (25–42)	7 (5–11)
Yes	100 (100–100)	36 (31–43)	9 (7–13)
z/p	z = 0.448; p = 0.654	z = 1.709; p = 0.087	**z = 3.123; p = 0.002**
Fever			
No	100 (95–100)	35.5 (27–42)	8 (5–13)
Yes	100 (100–100)	33.5 (29–43)	8 (6–12)
z/p	z = 1.348; p = 0.178	z = 0.877; p = 0.381	z = 0.420; p = 0.674
Fatigue			
No	100 (95–100)	33 (28–42)	8 (5–12)
Yes	100 (100–100)	36 (29–42)	8 (5–13)
z/p	z = 0.049; p = 0.961	z = 0.485; p = 0.628	z = -0.257; p = 0.798
Nausea-vomiting			
No	100 (95–100)	35 (28–42)	8 (5–12)
Yes	100 (95–100)	34 (25–41)	10 (7–14)
z/p	z = -0.127; p = 0.899	z = -0.120; p = 0.904	z = 0.389; p = 0.698

*p < 0.05. BAI: Beck Anxiety Inventory, CAS: Coronavirus Anxiety Scale, IQR: Interquartile range, MBI: Modified Barthel Index, z: Mann-Whitney U test.

feared hospitalization ($p < 0.05$). There was no significant correlation between participants' anxiety states and their MBI scores ($p > 0.05$) (Table 5).

DISCUSSION

Although the symptoms associated with COVID-19 infection vary from person to person, it is reported that fever, dyspnea, cough, fatigue, and musculoskeletal system symptoms (muscle pain and joint pain) are most common in individuals who present to the hospital (27-31). Additionally, dyspnea, fatigue, and myalgia have been reported as the most common symptoms in post-COVID-19 patients (32). In our study, consistent with the literature, the most common symptoms experienced by individuals diagnosed with COVID-19 on admission and during hospitalization were dyspnea, fever, cough, and fatigue. These findings highlight the importance of early nursing assessments focused on respiratory and systemic symptoms. Nurses should be vigilant in monitoring dyspnea and fatigue, as these symptoms significantly affect daily functioning and increase psychological distress. Proactive symptom management protocols may improve both physical outcomes and emotional well-being.

Disorders in body functions and structures such as dyspnea, weakness, myalgia, and pain limit the functional independence of individuals (7,32). Functional independence is the capacity to carry out ADL that are required to meet fundamental needs, carry out daily tasks, and preserve one's health and well-being (8). Our results showed that the functional independence of most individuals diagnosed with COVID-19 was adversely affected. Similar findings have been reported in the literature (33-36). Chung et al. (16) found that 36% of individuals diagnosed with COVID-19 were fully independent, 28% were moderately dependent, and 15% were severely dependent. Triantafyllaki et al. (36) reported that the BI scores of patients who were followed up in the clinic after intensive care treatment due to COVID-19 was found to be low. Similarly, it has been reported that most patients hospitalized with COVID-19 have low functional status 6 months after hospitalization (32,37). Belli et al. (33) reported that individuals who survived after hospital treatment due to COVID-19 depended on or needed someone else's help to perform their daily living activities. Heras et al. (38), in their study with elderly patients, found that the functional independence status of elderly patients was slightly low. In our study, the participants were slightly functionally dependent, and the MBI scores of participants aged 60 and over and of those with an additional disease were significantly lower.

Table 5. Scale scores according to patients' anxiety levels in daily life (n = 150).

Anxiety levels	MBI, median (IQR)	BAI, median (IQR)	CAS, median (IQR)
Dyspnea			
No	100 (95–100)	32 (19.5–41.5)	7.5 (5–12)
Yes	100 (100–100)	36 (29–42)	8 (6–12)
z/p	z = 1.860; p = 0.063	**z = 2.142; p = 0.032**	z = 1.642; p = 0.101
Hospitalization			
No	100 (92.5–100)	36.5 (28.5–42.5)	9.5 (7–14)
Yes	100 (100–100)	33 (28–41)	7.5 (5–10)
z/p	z = 1.587; p = 0.112	z = -1.011; p = 0.312	**z = -2.345; p = 0.019**
Oxygen therapy			
No	100 (95–100)	34 (27–41)	8 (5–10)
Yes	100 (100–100)	36 (29–43)	9 (6–13)
z/p	z = 1.424; p = 0.154	z = 1.053; p = 0.292	z = 1.841; p = 0.066
Fear of not recovering			
No	100 (95–100)	32 (25–40)	8 (5–10)
Yes	100 (100–100)	38 (32–45)	10 (7–14)
z/p	z = 0.402; p = 0.688	**z = 3.144; p = 0.002**	**z = 3.376; p = 0.001**
Inability to do daily activities			
No	100 (95–100)	35 (29–42)	8 (5–12)
Yes	100 (97.5–100)	35 (27–41)	8.5 (6–12.5)
z/p	z = 0.285; p = 0.776	z = -0.410; p = 0.682	z = 0.740; p = 0.459
Not seeing their relatives			
No	100 (95–100)	33 (27–42)	8 (5–12)
Yes	100 (100–100)	39 (35–42)	7 (5–12)
z/p	z = 0.451; p = 0.652	z = 1.937; p = 0.053	z = -1.184; p = 0.236

*p < 0.05. BAI: Beck Anxiety Inventory, CAS: Coronavirus Anxiety Scale, IQR: Interquartile range, MBI: Modified Barthel Index, z: Mann-Whitney U test.

Similarly, Frontera et al. (39) demonstrated that older adults diagnosed with COVID-19 exhibited significantly lower BI scores.

Our findings are consistent with recent evidence demonstrating that post-acute functional trajectories following COVID-19 hospitalization remain heterogeneous. Although inpatient rehabilitation programs have been shown to enhance ADL performance, many patients—particularly older adults and those with multiple comorbidities—continue to experience residual functional limitations after discharge. Declines or limited improvement in BI or MBI scores during hospitalization have been associated with higher mortality and poorer long-term outcomes (10,40). Similarly, rehabilitation studies report that early, structured, and multidisciplinary programs can promote significant but incomplete recovery of functional independence, closing the gap between intensive-care and medical-unit survivors (11,12). These results underscore the necessity of sustained monitoring and targeted interventions to maintain functional gains throughout the post-acute phase.

These results underscore the necessity for geriatric-sensitive and comorbidity-aware nursing care plans. Functional assessments should be performed routinely for elderly or chronically ill individuals, and rehabilitation interventions should focus on preserving autonomy and preventing complications related to immobility. Similar to our research, it was reported that the functional independence levels of elderly individuals who were treated for COVID-19 diagnosis and those who had an additional disease were low (16,19,33). Bayat et al. (41) stated that while advanced age affected functional independence, there was no relationship between the presence of additional disease and functional independence, unlike our study.

In our study, the MBI scores of the participants who were university graduates and who had a history of organ transplantation were significantly higher. These individuals' knowledge of COVID-19, its treatment, and how to respond in an acute situation may increase their level of functional independence. Similar findings have been reported in the literature (42). It is emphasized that individuals possess a high level of knowledge about COVID-19, that the body of information has expanded as the pandemic has progressed, and that such information has been accessed through radio, television, and the internet. It has been reported that higher levels of health literacy among individuals are associated with greater knowledge about COVID-19 (43). Health literacy may play a mediating role in this relationship by enabling individuals to interpret medical information accurately, engage effectively with healthcare professionals, and perform self-care activities with confidence. Similarly, prior experience with the healthcare system—such as regular medical follow-up in organ transplant patients—can enhance one's ability to navigate hospital environments and adhere to rehabilitation plans, thereby supporting functional independence. From a clinical nursing perspective, these findings suggest that health literacy and prior medical experience may serve as protective factors in maintaining functional independence. Individuals with greater knowledge of the disease process and acute care responses may navigate hospitalization more effectively. Therefore, nurses should assess patients' baseline knowledge and provide tailored educational interventions, especially for those with limited healthcare experience, to support functional recovery and promote self-care autonomy. In our study, no significant relationship was found between functional independence status and gender, marital status, occupation, cohabitants, smoking, use of immunosuppressive drugs, symptoms at the time of admission or hospitalization, or anxiety ($p > 0.05$). Since the research was conducted with patients whose general condition was sufficiently good to complete the questionnaire, it is thought that their functional independence status may not have been substantially affected.

In addition to its physical effects, COVID-19 has significantly contributed to increased mental health problems in society, particularly among patients (44). Recent systematic reviews and longitudinal cohort studies indicate that anxiety and other psychological symptoms remain highly prevalent among hospitalized COVID-19 patients and those in the post-acute phase. Meta-analytic data show that approximately one-quarter of individuals experience clinically significant anxiety during the recovery period (14), while hospital-based studies report even higher rates (13). Furthermore, long-term follow-up findings demonstrate that psychiatric and cognitive symptoms—including anxiety, depression, and fatigue may worsen or newly emerge up to two to three years after hospitalization (15). These data reinforce the importance of incorporating validated anxiety screening tools, such as the BAI, alongside functional measures in the comprehensive care of COVID-19 survivors. According to the literature, it has been reported that the most common mental health problem in individuals treated with a diagnosis of COVID-19 is anxiety, ranging from 6.5% to 63% (45,46). In a study examining mental health problems in individuals hospitalized because of COVID-19, 34.7% of patients experienced anxiety. Additionally, it was emphasized that there was a relationship between the development of anxiety and advanced age, the severity of the disease, low education level, presence of another family member diagnosed with the disease, female gender, and lack of social support (18). Nie et al. (47) reported that nearly half of the participants (38%) experienced anxiety, and older individuals who were female, had a high level of education, had a family history of COVID-19, or had a family member who had died due to COVID-19 had a higher level of anxiety. In a study conducted with patients recovering from COVID-19 treatment, it was reported that participants who were female, had advanced age, and were university graduates had higher anxiety levels (48). In a systematic review, it was stated that female gender, younger age (≤40 years), presence of chronic/psychiatric diseases, unemployment, being a student, and exposure to more information about COVID-19 in social media/news increased anxiety (49). Bocek and colleagues also stated that age and gender are important factors affecting anxiety levels (50). The high level of anxiety in women has been attributed to greater sensitivity to stressors or to a higher rate of reporting psychological symptoms (46). In line with these findings, our study found that 82% of participants had high levels of anxiety. Women, secondary school graduates, housewives, and unemployed individuals exhibited significantly higher anxiety scores. These findings emphasize the need for gender-sensitive and psychosocially- informed care models. Nurses should proactively identify patients at higher risk of anxiety and provide counseling, emotional support, and access to mental health services tailored to gender- and social-role vulnerabilities.

In our study, 46% of participants experienced dysfunctional anxiety associated with COVID-19. COVID-19-related dysfunctional anxiety levels were higher among participants with secondary school

or university education than among those with primary school education. This finding can be explained by patients with higher educational levels having greater access to information, which increases their awareness of potential complications of their condition and may, in turn, increase their anxiety levels. Participants living with four or more cohabitants had higher COVID-19-related dysfunctional anxiety levels than those living with two or fewer individuals. This finding suggests that higher household density may heighten anxiety due to increased perceived infection risk, increased caregiving burden, and increased fear of transmitting the virus to family members. Recent evidence supports this interpretation, indicating that confinement and the sudden disruption of intergenerational support systems intensified stress and emotional distress among families, especially when household responsibilities were unequally distributed (51,52). Studies conducted in Israel and Italy have likewise shown that families with more members in close quarters experienced greater strain on coping resources and higher anxiety levels, as maintaining caregiving, remote work, and emotional regulation simultaneously proved challenging (53,54). From a nursing perspective, these findings underscore the importance of assessing household structure and caregiving roles when planning psychosocial interventions. Nurses should identify patients and caregivers living in crowded or multigenerational households and provide them with tailored stress-management strategies, family-centered counseling, and social support linkages to mitigate the psychological burden of caregiving in constrained living conditions. Consistent with this interpretation, previous studies have shown that separation from family and friends, reduced caregiving support, and worries about relatives significantly increase anxiety and emotional exhaustion during health crises (55,56).

In the literature, it has been reported that physical symptoms (fever, cough, dyspnea, gastrointestinal symptoms, etc.) due to COVID-19 increase individuals' anxiety levels (28,57). In our study, participants who had nausea/vomiting at hospital admission and those who had cough during hospitalization had significantly higher anxiety levels. These results highlight the need for integrated somatic and psychological care. Nurses should recognize that certain physical symptoms may serve as anxiety triggers and adopt holistic nursing approaches that simultaneously target symptom relief and emotional regulation. Additionally, participants who were afraid that they would not recover or who had dyspnea had higher anxiety levels. The level of COVID-19-related dysfunctional anxiety was high among participants who feared they would not recover, but low among those who feared hospitalization. The high level of anxiety among individuals who fear they may not recover may be due to excessive information in the press and social media about the disease or to fear of death. This underscores the need for clear, empathetic, and evidence-based communication from nurses. Addressing patients' fears about prognosis and survival through therapeutic dialogue may significantly alleviate dysfunctional anxiety.

Study Limitations

This study has some limitations. Conducting the study at a single centre limits the generalisability of the results. The data were collected through self-reporting, which may have introduced social desirability bias. Moreover, because data were collected online and patients with poor general condition were excluded, only clinically stable inpatients able to complete the questionnaire independently were included. As a result, the sample likely represents a healthier, functionally less impaired subset of the inpatient population and may therefore underestimate the true levels of functional dependence and anxiety among more severely affected COVID-19 patients. Additionally, the duration of hospitalization was not collected as part of the demographic data. Because the study focused on functional independence and anxiety rather than hospital-stay characteristics, it was not possible to explore associations between length of hospitalization, functional outcomes, and anxiety. These factors may have influenced the representativeness and generalizability of the findings. Future studies should consider hybrid or in-person data collection methods and include patients with varying disease severity and functional dependence to better reflect the broader clinical population.

CONCLUSION

This study demonstrated that hospitalized patients with COVID-19 commonly experienced high levels of anxiety and mild functional dependence, with nearly half showing dysfunctional anxiety specifically related to COVID-19. Among the symptoms examined, nausea/vomiting and coughing were significantly associated with increased anxiety levels. These findings emphasize the necessity of incorporating routine anxiety screening and functional independence assessments into the standard nursing care of hospitalized patients. Individualized and holistic nursing interventions are essential not only to manage physical symptoms but also to reduce psychological distress and to promote recovery. Furthermore, the results highlight the essential role of nursing in addressing the dual burden of physical and emotional symptoms during infectious disease outbreaks. Special attention should be paid to at-risk populations—such as women, unemployed individuals, and those with lower educational levels—through targeted psychosocial support and education. Future research should aim to include patients with varying levels of disease severity, functional capacity, and sociodemographic backgrounds and investigate the long-term effects of COVID-19 on mental health and daily functioning. In light of ongoing viral mutations and the evolving symptomatology of COVID-19, nursing strategies must remain flexible, evidence-based, and tailored to the complex needs of patients.

Ethics

Ethics Committee Approval: Written approval for the study was obtained from the Clinical Research Ethics Committee of Akdeniz University Faculty of Medicine (decision number: KAEK- 231, date. 28.04.2021) and from the Antalya Provincial Health Directorate (date: 28.06.2021). Permission from the authors who developed the scales used in the study was obtained by e-mail.

Informed Consent: Informed consent forms prepared following the Declaration of Helsinki were obtained online from the patients who agreed to participate in the study.

Footnotes

Authorship Contributions

Concept: A.A.Ç., S.A., H.B., Design: A.A.Ç., S.A., H.B., D.İ., Data Collection or Processing: A.A.Ç., S.A., F.G., Analysis or Interpretation:

A.A.Ç., S.A., H.B., D.İ., Literature Search: A.A.Ç., S.A., H.B., D.İ., Writing: A.A.Ç., S.A., H.B., D.İ.

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