

# A determination of the relationship between the symptoms, hospital anxiety and depression levels, and quality of life patients diagnosed with Covid-19

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Received: 2021-11-10.

Accepted: 2021-12-11



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J Clin Med Kaz 2021; 18(6):81-85

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## Abstract

**Introduction:** The worldwide spread of coronavirus over the last 20 years has resulted in its becoming a major threat to health. The virus is thought to be a zoonotic disease spread by means of direct and contact transmission. The purpose of this study was to investigate the symptoms, anxiety-depression levels, and quality of life of patients with Covid-19.

**Material and methods:** This descriptive, cross-sectional research was conducted in an education and research hospital between August and November 2020. An information form, the Hospital Anxiety and Depression Scale, and the Quality of Life Scale were employed as data collection tools. The study was completed with 103 individuals.

**Results:** The mean age of the patients enrolled in the study was 37.77±10.92 years, and 67% were women. Higher anxiety levels were determined in women compared to men ( $p=0.001$ ) and in married participants compared to unmarried individuals ( $p=0.010$ ). Significant negative correlation was determined between anxiety and the Quality of Life Scale sub-parameters of general health, physical health, psychological health, and environment. Positive correlation was found between Covid-19 severity and anxiety, and negative correlation between Covid-19 severity and physical health ( $p<0.001$ ).

**Conclusion:** Higher anxiety was determined among women and married patients in this study, and quality of life (in the four sub-parameters) decreased as anxiety increased. Physical health decreased, while anxiety increased, with the severity of Covid.

**Key words:** anxiety, covid, depression, infection, life quality

## Introduction

The novel coronavirus SARS-CoV-2, officially described as Covid-19 by the World Health Organization (WHO) on 11 February, 2020, is a highly pathogenic virus affecting humans. Molecular techniques, serology, and viral culture are employed as serological diagnostic tools [1].

Although symptoms in diagnosed patients vary from individual to individual, symptoms ranging from mild to severe and worsening from day to day include fever, headache, cough, sore throat, nasal obstruction,

nausea, diarrhea, hoarseness, painful eating-drinking, fatigue, myalgia, and severe respiratory failure [2, 3].

Patients diagnosed with Covid-19 and requiring hospitalization are known to experience psychological as well as physical problems. These patients are reported to experience high levels of anxiety and depression, with anxiety levels increasing still further and mental state worsening in patients with chronic disease and disability [4, 5]. At the same time, studies have reported that patients who have experienced Covid-19 experience more depressive symptoms and problems such as sleep

disorder compared to other patients, while their mental health is also at risk and they require constant observation [6].

Quality of life, a dynamic characteristic, is an important parameter in the evaluation of health and is known to be closely linked to sociological, psychological, cultural, and economic factors [7]. Studies have reported that the quality of life and mental health of the great majority of individuals are adversely affected by Covid-19, and that this can in turn trigger depression [8, 9]. It has also been emphasized that this persists even after discharge [10].

While previous studies have more frequently evaluated Covid-19-related symptoms in health workers, the general public, and patients with psychological problems [11-13], and post-discharge studies have been performed, there has to date been no investigation in hospitalized patients diagnosed with Covid-19 [10, 14]. This study was therefore intended to investigate symptoms, anxiety-depression levels, and quality of life in diagnosed patients.

## Materials and methods

Following receipt of the requisite approvals, data were collected using a questionnaire to be applied to patients diagnosed with Covid-19 presenting to and being treated at an education and training hospital between 15 August-15 November 2020. All patients giving consent between those dates were included in the study.

The questionnaire consisted of an information form, the HADS, and the WHO Quality of Life Scale.

### 1. Hospital Anxiety and Depression Scale (HADS)

HADS was originally developed by Zigmond and Snaith in 1983 [15]. Its validity and reliability were subsequently confirmed by Aydemir et al. in 1997 [16]. This four-point Likert-type scale measures patient anxiety and depression. HADS contains 14 questions, seven involving anxiety and seven measuring depression.

### 2. World Health Organization Quality of Life Scale

The short form of the WHO Quality of Life Scale for Turks (WHOQOL BREF TR) was used to determine patients' quality of life. The WHOQOL BREF TR consists of 27 questions. The form reveals individuals' general health and quality of life (GHQL) and their physical, social, psychological, and environmental well-being. The short form of the Turkish-language Quality of Life Scale (WHOQOLBREF-TR) was developed by the WHO, and Eser et al. (1999) subsequently investigated its validity and reliability for Turkey [17]. The WHOQOLBREF contains 26 questions in four domains (physical, psychological, social relationships, and environmental) selected from the WHOQOL-100.

The requisite approval for the research was obtained from the Turkish Ministry of Health. Ethical committee approval was granted by the Gümüşhane University Scientific Research and Publication Ethics Committee (2020/7).

The patient's sociodemographic characteristics were expressed using descriptive statistics, means, median, frequencies, and percentage values. Comparisons were made using the t test, Pearson's Correlation, and Spearman's Correlation for all statistical analyses. A two-sided p value of less than 0.05 was considered statistically significant.

## Results

The mean age of the patients in the study was 37.77±10.92 years; 67% were women, 70.9% were married, and 28.2% had at least one chronic disease. Almost all patients reported complying with precautions against contagion set out by the Ministry of Health (Table 1).

Table 1

Sociodemographic characteristics of the study participants

	n	%
<b>Gender</b>		
Female	69	67.0
Male	34	33.0
<b>Marital status</b>		
Married	73	70.9
Unmarried	30	29.1
<b>Presence of chronic disease</b>		
Yes	29	28.2
No	74	71.8
<b>Have you taken protective measures against the risk of Covid-19 infection?</b>		
Yes	102	99.0
No	1	1.0
<b>Have any members of your family been diagnosed with Covid-19? (Mother-Father-Spouse-Child-Brother-Sister)</b>		
Yes	66	64.1
No	37	35.9

The most frequent symptom was fatigue, observed in 76.7% of patients, followed by back and joint pain in 67.0%. In addition, 54.5% of patients experienced headache, 51.5% fever, and 47.6% cough (Table 2).

Table 2

Symptoms observed (more than one answer was given)

	n	%
<b>Fever</b>	53	51.5
<b>Cough</b>	49	47.6
<b>Hoarseness</b>	22	21.4
<b>Loss of taste and smell</b>	49	47.6
<b>Lack of appetite</b>	49	47.6
<b>Fatigue</b>	79	76.7
<b>Respiratory distress</b>	18	17.5
<b>Sore throat</b>	31	30.1
<b>Headache</b>	56	54.4
<b>Diarrhea</b>	24	23.3
<b>Conjunctivitis</b>	4	3.9
<b>Skin eruptions or color changes in the fingers or toes</b>	5	4.9
<b>Back pain</b>	69	67.0
<b>Nasal discharge</b>	33	32.0
<b>Loss of speech and movement</b>	4	3.9
<b>Chest pain</b>	19	18.4

Statistical analysis revealed significant correlation between gender and anxiety levels, with anxiety levels being higher in women than in men ( $t=3.42$ ,  $p=0.001$ ). The quality of life subdomains of physical health, psychological health, and environment differed significantly in terms of gender. Physical health was better among women than among men ( $t=3.37$ ,  $p=0.001$ ). Psychological health was also better in women than in men ( $t=-2.80$ ,  $p=0.006$ ). The environment subdimension was similarly better in women than in men ( $t=-2.62$ ,  $p=0.010$ ).

Anxiety was significantly correlated with marital status ( $t=2.64$ ,  $p=0.010$ ). Married participants had higher anxiety levels than single individuals. Anxiety levels were also higher among individuals with family members with a history of Covid compared to those with no infected relative ( $t=2.73$ ,  $p=0.007$ ).

Significant negative correlation was determined between anxiety and all four Quality of Life Scale domains (general health, physical health, psychological health, and environment) ( $p < 0.001$ ). Anxiety levels decreased as general health, physical health, psychological health, and environment-related quality of life increased. Significant negative correlation was determined between depression and the Quality of Life Scale sub-parameters of general health, physical health, psychological health, and environment ( $p < 0.001$ ). Depression levels decreased as general health, physical health, psychological health, and environment-related quality of life increased. A significant negative association was determined between Covid-19 severity and physical health ( $p < 0.001$ ). Physical health improved as the severity of Covid-19 decreased. A positive association was determined between severity of Covid-19 and anxiety levels ( $p < 0.001$ ). Anxiety levels rose in line with Covid-19 severity (Table 3).

**Table 3** Correlations between various parameters and Quality of Life and Hospital Anxiety and Depression Scale parameters

	Depression		Anxiety		Covid severity	
	r	p	r	p	r	p
<b>General health</b>	-0.630	<b>p&lt;0.001</b>	-0.474	<b>p&lt;0.001</b>	-0.156	0.115
<b>Physical health</b>	-0.657	<b>p&lt;0.001</b>	-0.648	<b>p&lt;0.001</b>	-0.388	<b>p&lt;0.001</b>
<b>Psychological health</b>	-0.762	<b>p&lt;0.001</b>	-0.673	<b>p&lt;0.001</b>	-0.192	.052
<b>Social relations</b>	-0.500	<b>p&lt;0.001</b>	-0.427	<b>p&lt;0.001</b>	-0.110	0.269
<b>Environment</b>	-0.530	<b>p&lt;0.001</b>	-0.446	<b>p&lt;0.001</b>	-0.188	0.058
<b>Anxiety</b>	0.745	<b>p&lt;0.001</b>	1	-	0.241	0.014
<b>Depression</b>	1	-	0.745	<b>p&lt;0.001</b>	0.189	0.056

## Discussion

The Covid-19 pandemic has been reported to trigger anxiety and depression, with quality of life also being adversely affected [8, 14].

Statistical analysis revealed a significant gender difference in anxiety levels, being higher in women than in men. One meta-analysis performed to determine the effects of Covid-19 on mental health reported that the anxiety experienced by women is greater than that experienced by men [18]. A previous study from Turkey also determined higher Covid-19-related anxiety and depression levels in women [19]. Our finding is consistent with the previous literature and is important in showing that more anxiety is experienced by women. It can be thought that estrogen, progesterone and prolactin hormones increase the stress response in women.

Comparison of Quality of Life Scale subgroups revealed significant gender differences in physical health, psychological health, and environment, all three being better in women than in men. A meta-analysis by Vindegard & Benro (2020) investigating the effects of Covid-19 on mental health reported lower psychological health among women [18]. Ma et al. (2020) investigated depression and quality of life among individuals with Covid-19 but reported no gender difference in terms of quality of life [20]. The discrepancies among the findings may be due to the samples involved.

Anxiety levels were higher among married individuals in the present study compared to unmarried participants. In a study from Canada investigating the effect of Covid-19, Nkire et al. (2020) determined high levels of anxiety and depression in

single individuals [21]. Özdin & Bayrak Özdin 2020 and Passos et al. (2020) both found no difference in anxiety in terms of marital status [19, 22].

In the present study, anxiety and depression levels decreased as the Quality of Life subscale sub-parameters of general health, physical health, psychological health, and environment increased. One meta-analysis (1963 studies and 87 preprints) considered the psychiatric and neuropsychiatric symptoms of Covid-19 and reported that patients experienced symptoms such as intense sleeplessness, stress, anxiety, forgetfulness, and fatigue, even extending to psychosis in advanced stages, and that their quality of life was adversely affected [23]. Another study investigating the effect of Covid-19 on quality of life described anxiety and depression, fatigue, pain, and sleep and concentration problems as frequently experienced symptoms, and emphasized the adverse impacts of these on quality of life [10]. Another study of healthy individuals examined the general effects of Covid-19 on mental health and quality of life and reported that individuals experienced stress and anxiety because of the pandemic, but that family support enhanced quality of life [24]. Previous studies have more frequently involved healthy individuals or the post-discharge period, and no previous studies have investigated the hospitalization period. Consistent with the previous literature, anxiety and depression levels in the present study decreased as Covid-19-related quality of life increased.

Physical health improved in the present study as the severity of Covid-19 decreased. Precious studies have reported symptoms ranging from mild to severe in individuals with Covid-19, describing symptoms starting with cough, fatigue, and joint pain worsening from day to day, together with severe levels of respiratory and movement difficulty [25, 26]. The negative effect on physical and mental health in particular among individuals exposed to these symptoms has also been emphasized [27, 28].

Anxiety levels increased in line with the severity of Covid-19 in this study. Similarly, Mazza et al. (2020) also reported that anxiety and depression levels as the severity of the disease worsened among individuals with Covid-19 [29]. Another study from Ireland also reported that anxiety levels increased with disease severity [30]. These findings are consistent with those of the present study.

Since the present study was performed in a single center, at a specific time, and during the first wave of Covid-19, the research results cannot be generalized.

## Conclusion

The findings of this study show high levels of anxiety among women and married patients, but that anxiety decreased as quality of life (general health, physical health, psychological health, and environment) increased. Physical health decreased as the severity of Covid-19 worsened, while anxiety increased. We recommend that the potential effects of the severity of the disease and quality of life should not be overlooked when caring for patients with Covid-19, and that programs aimed at reducing anxiety should be developed and implemented.

**Disclosures:** There is no conflict of interest for all authors.

**Funding:** None.

**Acknowledgments:** None.

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