



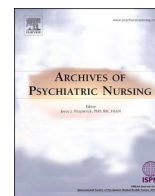
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## Examination of individuals' depression, anxiety, and stress levels during the COVID-19 pandemic in Turkey

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## ABSTRACT

**Purpose:** This research was conducted to determine the depression, anxiety, and stress levels of individuals during the COVID-19 epidemic. In addition, the compatibility of the Depression-Anxiety-Stress Scale (DASS-21) scale results with the participants' feeling depressed, anxious, and stressed were examined.

**Design and methods:** The sample of the study consisted of 870 individuals over the age of 18 between May–August 2021. The data of the study were collected online, using the personal information form and DASS-21.

**Results:** In our study, it was observed that 22.3 % of the participants were severely depressed, 19.0 % were highly anxious and 14.3 % were highly stressed. In addition, a relationship was determined between many socio-demographic variables and depression, anxiety, and stress levels. It was found that individuals who were not vaccinated, did not receive health care, and were not satisfied with health care were more depressed, anxious, and stressed. The agreement between all DASS-21 sub-dimensions and participants' feeling is poor in terms of Cohen's kappa. The agreement is poor in the anxiety sub dimension, but moderate in the other sub-dimensions in terms of Gwet's AC1.

**Practice implications:** It is recommended that nurses develop new care and evaluation strategies for the psychosocial field in order to protect and maintain the health of individuals during the COVID-19 pandemic process, as well as more practices promoting the COVID-19 vaccine in our country.

## Introduction

The new coronavirus disease (COVID-19), caused by the severe acute respiratory syndrome coronavirus (SARS-CoV), broke out in Wuhan, China in 2019 and quickly affected the whole world, and the situation was declared as a global pandemic (World Health Organization, 2021; Lai et al., 2020). Many measures have been taken so far to control the spread of the COVID-19 pandemic all over the world. While these measures differ among countries, common initiatives include social distancing, lockdown, and stay-at-home (Lin, 2020; Pakpour & Griffiths, 2020). Following the first case in Turkey, necessary precautions were taken on March 11, 2020. Despite the measures taken and the policies followed by the country, the number of cases and deaths has gradually increased. In the current situation report in our country, which is currently experiencing the fourth wave, the number of cases is 9.482.550; the number of deaths is recorded as 82.361 (Republic of

Turkey Ministry of Health, 2022).

Factors such as the rapid spread of the COVID-19 epidemic and its high morbidity rate, the emergence of new variants, the lack of concrete information about the effectiveness of the vaccine, the start of the fourth wave, lifestyle changes, social isolation, and online work has caused psychological problems on individuals as well as physical ones (Huang & Zhao, 2020; Qiu et al., 2020; Rajkumar, 2020; Torales et al., 2020). In a systematic review, it was determined that intense stress, depression, and anxiety were experienced during the pandemic (Xiong et al., 2020). In another study, it was observed that individuals' fear, anxiety, and stress levels increased especially during the emergence of the pandemic and the increase in the number of cases (Rajkumar, 2020). In addition, it is emphasized that individuals who experience depression, anxiety, and stress during the pandemic period resort to alcohol consumption, have eating disorders, domestic violence, and insomnia problems (Bradbury-Jones & Isham, 2020; Usher et al., 2020; Vuillier et al., 2021).

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WHO emphasizes that high levels of depression, anxiety, and stress can weaken the body's immunity and reduce protection against the virus (World Health Organization (WHO), 2021). For this reason, it is of critical importance to address the mental health of individuals as well as their physical health levels during the pandemic period. The fact that Turkey is among the top 10 countries with the highest number of COVID-19 cases has made us think that the mental health of individuals should be addressed during the pandemic period (Özdin et al., 2020). Based on this idea, our study aimed to determine the depression, anxiety, and stress levels experienced by individuals over the age of 18 living in Turkey during the COVID-19 process. In addition, Depression Anxiety Stress Scale (DASS-21) results and the concordance of participants' feeling depressed, anxious, and stressed were examined.

## Design and methods

### Design

This study was cross-sectional in order to determine the depression, anxiety, and stress levels of individuals during the COVID-19 epidemic. In addition, the participants were asked how they felt about their depressive, anxiety, and stress situations and it was examined whether it was compatible with the results obtained from the DASS-21 scale.

Inter-rater agreement is a very important issue in clinical research. Cohen's kappa statistic is a widely used statistic to test the agreement between two raters/diagnostic tests/methods/scales, where the variable of interest is nominal. Some researchers have stated that the kappa statistic is affected by the prevalence and bias index in the population. This problem is called the "Kappa paradox" by Feinstein and Cicchetti (Cicchetti & Feinstein, 1990; Wongpakaran et al., 2013). Gwet suggested using the AC1 statistic as a "paradox-resistant" alternative to the Unstable Kappa statistic (Gwet, 2014; Cicchetti & Feinstein, 1990). In addition, in the study conducted by Kanik et al. (2012), it was revealed that Gwet's AC1 statistic was not affected by sensitivity, selectivity, prevalence, bias index, and a number of categories and performed better (Kanik et al., 2012).

### Population and sample of the study

The population of the study consisted of individuals over the age of 18 living in Turkey. The convenience sampling method, one of the non-probability sampling methods, was preferred for sample selection. In the research, 921 participants were reached by using an online survey between May–August 2021. Individuals under the age of 18 who filled out the online questionnaire or entered incorrect data were not included in the study, and a total of 870 participants from 54 cities in Turkey formed the sample of the study.

Criteria for inclusion on the study were as follows: agreeing to participate in the study, being able to read and write Turkish, being open to communication, being aged over 18 years, being able to use a smart phone or computer, filling the online questionnaire between May–August 2021 completely and without errors.

### Data collection tools

The research data were collected through an online questionnaire consisting of two parts, the "Personal Information Form" and the DASS-21 prepared by the researchers.

### Personal information form

The personal information form includes the introductory information of individuals and the characteristics of the COVID-19 process.

### Depression Anxiety Stress Scale-21 (DASS-21)

DASS-21, which was developed by Lovibond and Lovibond in 1995, was used in the study to determine the depression, anxiety, and stress levels of individuals during the COVID-19 epidemic. DASS-21 was adapted into Turkish by Sarıçam in Sarıçam, 2018. DASS-21, which has three sub-dimensions as depression, anxiety, and stress, is in 4-point Likert type. Evaluation of the scale is made over sub-dimensions. Accordingly, it is categorized as: the depression subscale was normal (0–4 points), mild/moderate (5–10), and severe/very severe (11+); anxiety subscale is normal (0–3 points), mild/moderate (4–7) and severe/very severe (8+), and stress subscale is normal (0–7 points), mild/moderate (8–12) and severe/very severe (13+). Test-retest correlation coefficients of DASS-21 in normal samples are 0.68 for depression sub-dimension, 0.66 for anxiety sub-dimension, and 0.61 for stress sub-dimension (Sarıçam, 2018). In our study, the Cronbach's alpha internal consistency coefficient of the scale was calculated as 0.91 for the depression sub-dimension, 0.84 for the anxiety sub-dimension, and 0.89 for the stress sub-dimension.

### Ethical considerations

Ethical permission was obtained from Mersin University, Social and Human Sciences Ethics Committee (18/05/2021-06) to conduct this research. For the DASS-21 used in the study, written permission was obtained from the author, who adapted the scale into Turkish, via e-mail and the study was carried out in accordance with the Helsinki Declaration principles. Each participant received a copy of the informed consent in the invitation e-mail. In order to access the online questionnaire, participants needed to give their consent. Participants were asked to mark the statement "I agree to participate in the study" if they agreed to participate in the study. The participants were told that participation in the study was on a voluntary basis. Participants who completed the data collection form online were deemed to have agreed to participate in the study.

### Statistical analysis

Normality controls of continuous variables were tested with the Shapiro Wilk test. Independent Samples *t*-test and Variance Analysis test were used for the differences between the scale scores, sociodemographic characteristics, and the characteristics in the COVID-19 process. Homogeneity of variances was tested with Levene's test. One Way ANOVA test was used in case of homogeneity of variance, and Bonferroni test was used for paired comparisons. When the homogeneity of the variances could not be achieved, the differences among the groups were tested with the Welch test and paired comparisons were tested with the Games Howell test. Mean and standard deviation values are given as descriptive statistics. Spearman correlation coefficient was used for the relationship between scale scores and age. Cohen's kappa and Gwet's AC1 statistics were used to determine the agreement between the results obtained from the DASS-21 scale and how the participants felt in terms of depression, anxiety, and stress. Statistical significance value was accepted as  $p < 0.05$ .

## Results

It was determined that 68.2 % of the participants were female, 31.8 % were male, and the mean age was  $33.6 \pm 12.2$ . It was determined that 45.7 % of the participants were married, 43 % had children, and 82.6 % had university and postgraduate education. In addition, 54.9 % of the participants have a profession, while 17.2 % of them work as health staff. It was found that 55.6 % of the participants had an income equal to their expenses, 87.5 % had social security, 69.4 % lived in the city center and 28.4 % smoked. When the blood groups of the participants were examined, it was found that 43.2 % had A blood group, 32 % had O blood

group, 16.6 % had B blood group and 8 % had AB blood group. In addition, it was determined that 13.4 % of the participants had a chronic disease and 14.4 % of the participants with a chronic disease had more than one chronic disease.

It was determined that 50.9 % of the participants included in the study had been vaccinated, 38.4 % of those who had been vaccinated were tested, and 21.8 % of these individuals had positive test results. It was determined that 36.8 % of those who did not have the vaccine were tested and 40.8 % of these individuals had positive test results.

The average scores of participants from DASS-21; It was found to be  $7.4 \pm 4.8$  in the depression sub-dimension,  $4.7 \pm 3.6$  in the anxiety sub-dimension, and  $7.5 \pm 4.4$  in the stress sub-dimension (Table 1). When the relationship between age and DASS-21 sub-dimensions is examined, it is seen that as age increases, depression ( $r = -0.325$ ), anxiety ( $r = -0.267$ ) and stress ( $r = -0.302$ ) levels decrease (all  $p$  values  $< 0.001$ ). It was determined that 22.3 % of the participants experienced severe depression, 19.0 % experienced severe anxiety and 14.3 % experienced severe stress.

When the agreement between DASS-21 sub-dimensions and participants feeling depressed, anxious, and stressed is examined, it is seen that there is a poor agreement in the depression, anxiety, and stress sub-dimensions in terms of Cohen's kappa statistics. When Gwet's AC1 statistic is examined, it is seen that there is a poor agreement only in the anxiety sub-dimension, but a moderate agreement in the depression and stress sub-dimensions. In addition, 83.6 % of participants who are depressed, anxious, and stressed at a normal level, in reality, describe themselves as normally depressed, 70.6 % with normal anxiety, and 63.7 % as normally stressed (Table 2).

It was determined that participants who were women, single, with no children, unemployed, with no social security, and with lower income than expenditure were more depressed, anxious, and stressed. It was found that the participants who were health staff had higher anxiety levels (all  $p$  values  $p < 0.05$ ) (Table 3).

Table 4 includes the evaluation of the DASS-21 sub-dimension scores of the participants according to the characteristics of the COVID-19 process. Accordingly, it was determined that the depression, anxiety, and stress levels of the participants who were not vaccinated, did not receive adequate health services, and were not satisfied with the health service were higher. In addition, it was found that participants who were in contact with a COVID-19 positive person and who did not have social support after being diagnosed with COVID-19 had higher levels of anxiety, while those who did not have a chronic disease had higher depression levels (all  $p$  values  $p < 0.05$ ).

## Discussion

In our study, the depression, anxiety, and stress levels of the participants were mild/moderate. In addition, 22.3 % of the participants had severe depression, 19.0 % had severe anxiety and 14.3 % had severe stress. Another interesting finding in the study is that there is a poor agreement ( $p = 0.374$ ) between the scores obtained from the DASS-21 sub-dimensions and the state of individuals feeling anxious, while there is a moderate agreement in terms of depression and stress levels ( $p$  values; 0.420 and 0.404, respectively). In the adjustment statistics, individuals who were actually severely/very severely depressed, anxious, and stressed reported themselves as depressed at a rate of 42.8 %, as anxious at a rate of 43.6 %, and as stressed at a rate of 62.1 %, respectively.

**Table 1**  
Distribution of DASS 21 sub-dimensional scores.

Dimensions of scales	Number of items	Min-max	$\bar{X} \pm SS$	Cronbach $\alpha$
Depression	7	0–21	$7.0 \pm 4.7$	0.91
Anxiety	7	0–19	$4.6 \pm 3.6$	0.84
Stress	7	0–21	$7.4 \pm 4.4$	0.89

The study of Togluk Yiğitoğlu et al. (2021) found that 44.67 % of individuals diagnosed with COVID 19 were at high risk for depression and 20.81 % for anxiety (Yiğitoğlu et al., 2021). In the study of Verma and Mishra (2020) with the general population in India, 25 %, 28 % and 11.6 % of the participants were found to be moderately to severely depressed, anxious, and stressed, respectively (Verma & Mishra, 2020). In a study conducted during the first seven months of the COVID-19 pandemic, the prevalence of depression was determined as 20 %, the prevalence of anxiety as 35 %, and the prevalence of stress as 53 % (Lakhan et al., 2020). In another study, the interaction between pre-existing mental health status and waves was found to be statistically different. Accordingly, the rate of showing depressive symptoms in the 2nd and 3rd waves compared to the 1st wave gradually decreased (O'Connor et al., 2021). Studies show that individuals have different levels of psychological symptoms. The reason why individuals showed relatively lower levels of symptoms in our study compared to other studies and that they felt different in terms of their mental state may be related to the time interval in which the study was conducted. The data of the current study were collected in the third wave of the COVID-19 pandemic in our country. During this period, we can think that individuals who depend on the removal of restrictions to a large extent become freer, get used to the new normal process, and therefore do not see mental problems as “a problem anymore”. In addition, we can say that the initiation of COVID-19 vaccine applications is an important factor in protecting the mental state of individuals.

It was found that depression, anxiety, and stress were statistically higher in women ( $p$  values 0.011 and  $< 0.001$ , respectively). At the same time, it was determined that as the age increased, the depression, anxiety, and stress levels of the individuals decreased ( $r = -0.325$ ,  $p < 0.001$ ;  $r = -0.267$ ,  $p < 0.001$ ;  $r = -0.302$ ,  $p < 0.001$ , respectively). Khademian et al. (2021), in a study conducted in Iran, found women's anxiety levels to be higher than men's (Khademian et al., 2021). Hyland et al. (2020), found that the risk of anxiety or depression decreases as age increases, while the risk of depression or anxiety is approximately 1.5 times higher in women than in men (Hyland et al., 2020). Unlike our study, Verma and Mishra's (2020) study found that men are at twice the risk of women than women. In the same study, no significant difference was found in mental status symptoms in terms of age (Verma & Mishra, 2020). Similar results have been obtained in many studies. In this context, more results have been obtained for the symptoms of mental status (post-traumatic stress disorder, depression, anxiety, insomnia, etc.) of women and young individuals during the COVID 19 process (Rossi et al., 2020; Stanton et al., 2020; Wang et al., 2021). It can be thought that these findings obtained in our study may be due to the fact that women are more sensitive to mental problems than men and that their expressions are higher. In addition, as the age increases, the decrease in mental health problems can be associated with the fact that the social life of the elderly individuals is more limited than the young people due to their retirement, they spend most of their daily lives at home, and therefore they are not adversely affected by the pandemic as much as the young people.

It was found that single individuals and individuals without children had higher depression, anxiety, and stress levels than other individuals (all  $p$  values  $< 0.001$ ). Similar to our study, in a study conducted by Wang et al. (2021), the depression and anxiety stress levels of the participants with children were found to be lower, while the single participants were found to be higher (Wang et al., 2021). During the pandemic process, many restrictions have occurred in our country as well as all over the world. Shortly before the data of the current study were collected, the longest quarantine period in our country was experienced. Considering that individuals who are married and have children spend most of their time together in this quarantine, this finding obtained in our research can be explained by the existence and importance of social support.

The depression, anxiety, and stress levels of the unemployed, low socioeconomic, and non-social security participants were found to be

**Table 2**  
Agreement statistics for depression, anxiety and stress sub-dimension.

DASS-21 depression sub-dimension		Normally		Mild/moderate		Severe/very severe		Cohen's Kappa (p)	Gwet's AC1
		Number	Percentage	Number	Percentage	Number	Percentage		
Depression	Normally	225	83.6	160	39.3	25	12.9	0.378 (<0.001)	0.420
	Mild/moderate	42	15.6	216	53.1	86	44.3		
	Severe/very severe	2	0.7	31	7.6	83	42.8		
DASS-21 anxiety sub-dimension		Normally		Mild/moderate		Severe/very severe		Cohen's Kappa (p)	Gwet's AC1
		Number	Percentage	Number	Percentage	Number	Percentage		
Anxiety	Normally	259	70.6	126	37.3	18	10.9	0.314 (<0.001)	0.374
	Mild/moderate	92	25.1	165	48.8	75	45.5		
	Severe/very severe	16	4.4	47	13.9	72	43.6		
DASS-21 stress sub-dimension		Normally		Mild/moderate		Severe/very severe		Cohen's Kappa (p)	Gwet's AC1
		Number	Percentage	Number	Percentage	Number	Percentage		
Stress	Normally	312	63.7	45	17.6	3	2.4	0.344 (<0.001)	0.404
	Mild/moderate	157	32.0	123	48.0	44	35.5		
	Severe/very severe	21	4.3	88	34.4	77	62.1		

higher than the other participants (all  $p$  values  $<0.05$ ). In a study conducted by Wang et al. (2021), similar to our study, it was found that individuals who did not work had higher depression and anxiety levels (Wang et al., 2021). The COVID-19 pandemic has caused economic crises all over the world. In particular, individuals with low socioeconomic status may have been unemployed or their economies may have been adversely affected due to the measures taken during the pandemic. Therefore, the inability to meet their vital needs economically may have caused some mental problems in them. It is an expected result that the quality of life of individuals with low socioeconomic status will be more affected by this crisis.

The anxiety levels of healthcare professionals were found to be higher than those working in other sectors ( $p = 0.037$ ). Similarly, Elbay et al. (2020) found that 64.7 % of 442 healthcare workers had depression, 51.6 % had anxiety and 41.2 % had stressed (Elbay et al., 2020). Another study found that healthcare professionals had higher levels of anxiety and depression, as well as somatization and insomnia, compared to professionals in other fields (da Silva Neto et al., 2021). During the pandemic process, the workload of health professionals has increased, and at the same time, they have faced risks to their physical and mental well-being (Zhang et al., 2020). In addition, the lack of an effective treatment protocol for the virus has been one of the biggest challenges for healthcare professionals. All these have led to the development of mental problems such as anxiety, stress, and depression in healthcare workers (Shigemura et al., 2020).

The anxiety levels of individuals with COVID-19 contact were found to be high ( $p = 0.042$ ). The high contagiousness of COVID-19 and the death of many cases have caused many individuals to experience fear and anxiety (Schimmenti et al., 2020). CDC and WHO also emphasized that this situation is increasingly overwhelming and individuals experience strong emotions (CDC, 2020; World Health Organization, 2020). Therefore, in our study, it is an expected result that individuals, who have been in contact at least once, feel such emotions.

In addition, it was determined that individuals who were not vaccinated had higher depression, anxiety, and stress levels than other individuals (all  $p$  values  $<0.001$ ). Koltai et al. (2021), in a study conducted in the USA between March 2020 and June 2021, COVID-19 vaccination status was associated with a reduced risk of distress, perceived infection, hospitalization, and death (Koltai et al., 2021). The

purpose of the COVID 19 vaccine, like other vaccines, is to prevent serious and life-threatening infections, hospitalizations, and deaths. Some of the COVID-19 vaccines made to date have demonstrated up to 95 % efficacy in preventing symptomatic COVID-19 infections (Banerjee et al., 2021). Although vaccination in our country started in January 2021, intensive vaccination applications have been carried out since April 2021. Therefore, considering the data collection time of our study, it can be thought that vaccination applications positively affect the psychological well-being of individuals.

The depression, anxiety, and stress levels of the individuals who did not receive adequate service from health services after diagnosis and were not satisfied with the health services they received were found to be higher than the other individuals (all  $p$  values  $<0.05$ ). Similarly, according to Isautier et al. (2020), it was determined that individuals with a history of both depression and anxiety decreased their satisfaction in their health service purchases (Isautier et al., 2020). In another study, it was found that individuals who were dissatisfied with access to health services avoided getting vaccinated (Bass et al., 2021). As in past epidemics (Ebola virus and SARS), reduced health services have been associated with poor health outcomes during pandemics (Wang et al., 2012; Wilhelm & HELLERINGER, 2019). Based on this information, this finding obtained from our research can be explained by the fact that individuals may have experienced the same situation during the COVID-19 process and therefore are not sufficiently satisfied with health care services.

## Conclusion

It was observed that 22.3 % of the participants were severely depressed, 19.0 % had severe anxiety and 14.3 % were highly stressed. It has been determined that women are more depressed, anxious, and stressed than men, singles are more than married, have no children, those who do not work are more depressed than those who do not have social security. In addition, it was determined that the health workers only had higher anxiety levels than the other participants. When examined in terms of income, it was observed that depression, anxiety, and stress scores decreased as the income level improved. Finally, it was found that those who were not vaccinated were more depressed, anxious, and stressed than those who did not receive health care and

**Table 3**  
Distribution of the average scores of the DASS-21 sub-dimension according to descriptive characteristics.

		Depression	Anxiety	Stress
Gender	Female (n = 593)	7.3 ± 4.7	5.0 ± 3.7	7.9 ± 4.4
	Male (n = 277)	6.4 ± 4.9	4.0 ± 3.4	6.7 ± 4.4
	t	2.537	3.934	3.733
	P	<b>0.011</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>
Marital status	Married (n = 398)	5.5 ± 4.1	3.7 ± 3.2	6.2 ± 4.0
	Single (n = 472)	8.3 ± 5.0	5.5 ± 3.7	8.6 ± 4.5
	t	-9.139	-7.689	-8.120
	P	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>
Status of having children	Yes (n = 374)	5.6 ± 4.0	3.8 ± 3.2	6.3 ± 3.9
	No (n = 496)	8.1 ± 5.1	5.3 ± 3.8	8.4 ± 4.6
	t	-8.207	-6.515	-7.190
	P	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>
Educational level	Primary education (n = 25)	5.7 ± 3.3	3.4 ± 2.5	6.8 ± 3.3
	High school (n = 126)	7.4 ± 4.9	4.8 ± 3.9	7.9 ± 4.5
	University and above (n = 719)	7.0 ± 4.8	4.7 ± 3.6	7.5 ± 4.4
	F	1.305	1.537	0.883
	P	0.272	0.216	0.414
Working status	Employed (n = 478)	6.0 ± 4.4	4.1 ± 3.4	6.6 ± 4.3
	Unemployed (n = 392)	8.3 ± 5.0	5.4 ± 3.7	8.6 ± 4.4
	t	-7.018	-5.736	-6.620
	P	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>
Working status as health employee	Yes (n = 82)	6.8 ± 4.3	4.8 ± 3.4	7.2 ± 4.0
	No (n = 396)	5.9 ± 4.4	3.9 ± 3.4	6.5 ± 4.3
	t	1.756	2.087	1.365
	P	0.080	<b>0.037</b>	0.173
Income level	Income is less than expenses (n = 161)	8.2 ± 5.0	5.4 ± 3.7	8.4 ± 4.5
	Income is equal to expense (n = 484)	7.2 ± 4.7	4.7 ± 3.5	7.6 ± 4.3
	Expenses are less than income (n = 225)	5.9 ± 4.6 <sup>a, b</sup>	4.1 ± 3.6 <sup>a</sup>	6.6 ± 4.5 <sup>a, b</sup>
	F	11.520	6.417	7.830
	P	<b>&lt;0.001</b>	<b>0.002</b>	<b>&lt;0.001</b>
Social security	Yes (n = 761)	6.9 ± 4.7	4.6 ± 3.6	7.3 ± 4.4
	No (n = 109)	8.2 ± 5.0	5.4 ± 4.0	8.6 ± 4.3
	t	-2.636	-2.199	-2.804
	P	0.009	0.028	0.005
Living settlement unit	Village/town (n = 32)	6.9 ± 5.2	4.5 ± 3.7	7.5 ± 4.5
	District (n = 234)	7.1 ± 4.7	4.5 ± 3.5	7.4 ± 4.4
	Province (n = 604)	7.0 ± 4.8	4.7 ± 3.7	7.5 ± 4.4
	F	0.023	0.324	0.091
	P	0.977	0.724	0.913
Smoking status	Yes (n = 247)	7.2 ± 5.0	4.9 ± 3.8	7.6 ± 4.6
	No (n = 623)	7.0 ± 4.7	4.6 ± 3.5	7.4 ± 4.3
	t	0.661	1.233	0.557
	P	0.509	0.218	0.578
Blood group	A (n = 376)	6.9 ± 4.7	4.5 ± 3.5	7.4 ± 4.2
	B (n = 144)	7.6 ± 5.1	5.1 ± 3.9	8.0 ± 4.9
	AB (n = 70)	6.6 ± 5.0	4.4 ± 3.9	6.9 ± 4.2

**Table 3 (continued)**

	Depression	Anxiety	Stress
0 (n = 280)	7.1 ± 4.7	4.8 ± 3.5	7.6 ± 4.4
F	0.971	1.229	1.303
P	0.406	0.298	0.272

The bold values show p < 0.05.

<sup>a</sup> Shows differences with the first category.

<sup>b</sup> Shows differences with the second category.

**Table 4**

Distribution of DASS-21 sub-dimension scores by characteristics in the COVID-19 process.

		Depression	Anxiety	Stress
Having a chronic disease	Yes (n = 117)	6.2 ± 4.6	4.7 ± 3.6	7.1 ± 4.0
	No (n = 753)	7.2 ± 4.8	4.7 ± 3.6	7.6 ± 4.5
	t	-2.077	0.086	-1.275
	P	<b>0.038</b>	0.932	0.204
Contact with a COVID-19 positive person	Yes (n = 273)	7.3 ± 4.9	5.1 ± 3.7	7.6 ± 4.3
	No (n = 597)	6.9 ± 4.7	4.5 ± 3.6	7.5 ± 4.5
	t	1.101	2.034	0.476
	P	0.271	<b>0.042</b>	0.634
Vaccination	Done (n = 443)	6.0 ± 4.1	4.0 ± 3.3	6.6 ± 4.0
	Not Done (n = 427)	8.2 ± 5.1	5.4 ± 3.9	8.5 ± 4.7
	t	-6.980	-5.515	-6.527
	P	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>
Social support after diagnosis	Receive (n = 69)	6.2 ± 4.7	4.3 ± 3.4	6.9 ± 4.2
	Not receive (n = 32)	8.3 ± 5.1	6.4 ± 3.9	8.3 ± 4.6
	t	-1.978	-2.666	-1.561
	P	0.051	<b>0.009</b>	0.122
Getting enough health care delivery	Yes (n = 85)	6.4 ± 4.5	4.4 ± 3.4	6.8 ± 4.1
	No (n = 17)	9.5 ± 5.8	8.1 ± 3.6	10.2 ± 4.7
	t	-2.480	-4.054	-3.058
	P	<b>0.015</b>	<b>&lt;0.001</b>	<b>0.003</b>
Satisfaction with health care services	Yes (n = 79)	6.3 ± 4.6	4.4 ± 3.4	6.9 ± 4.0
	No (n = 22)	9.0 ± 5.5	7.2 ± 3.9	9.2 ± 4.9
	t	-2.327	-3.275	-2.226
	P	<b>0.022</b>	<b>0.001</b>	<b>0.028</b>

The bold values show p < 0.05.

those who were not satisfied with health care compared to those who were satisfied.

*Limitations*

This research is limited to data that can be accessed for two months, with internet access and using digital tools such as smartphones, computers, tablets, etc. to fill in the data collection tools.

*Implications for nursing practice*

The COVID-19 pandemic has deeply affected the mental health of individuals in Turkey as well as all over the world. The long duration of the pandemic process and the incomplete vaccination still continue to negatively affect the depression, anxiety, and stress levels of individuals. In this direction, during the COVID-19 pandemic, Recommendations for nurses include

- 1) Evaluate individuals accurately in terms of depression, anxiety, and stress
- 2) Teach individuals new strategies to improve coping with these mental problems
- 3) Provide individuals with more education and information about the COVID-19 vaccination.

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## Data availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

## CRedit authorship contribution statement

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version. Study design were performed by (SE, AAC, AA, DVY); Data collection were performed by (AAC, AA) and Data analysis was performed by SE and manuscript writing were performed by (SE, AAC, AA, DVY). All authors read and approved the final manuscript.

## Declaration of competing interest

The authors declare that they have no conflicts of interest.

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