



# The relationship between psychological distress, meaning in life, and life satisfaction in the COVID-19 pandemic

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**Título:** La relación entre la molestia psicológica, el sentido de la vida y la satisfacción con la vida en la pandemia del COVID-19.

**Resumen:** Durante la pandemia de COVID-19, el miedo a infectarse, perder a familiares y las medidas tomadas para prevenir la contaminación (por ejemplo, cierres, cuarentenas, distanciamiento espacial, etc.) han aumentado el riesgo de depresión, ansiedad y estrés. En el presente estudio, se exploró la relación entre la angustia psicológica, el significado de la vida y la satisfacción con la vida entre personas infectadas y no infectadas con COVID-19 durante la pandemia. El presente estudio es el primero en examinar estas variables simultáneamente. La muestra estuvo compuesta por 687 adultos mayores de 18 años (media = 30,51 años). Los resultados indicaron que las personas adultas con una alta satisfacción con la vida tenían niveles más bajos de angustia psicológica, encontraban la vida más significativa y buscaban menos el significado. El malestar psicológico se relacionó positivamente con la búsqueda de sentido en la vida y negativamente con la existencia de sentido en la vida. Además, la depresión y la existencia de sentido en la vida fueron predictores significativos de la satisfacción con la vida.

**Palabras clave:** Pandemia de COVID-19. Trastorno psicológico. Significado de la vida. Satisfacción de vida. Depresión. Ansiedad. Estrés

**Abstract:** During the COVID-19 pandemic, the fear of being infected, losing relatives, and measures taken to prevent contamination (e.g., lockdowns, quarantining, spatial distancing, etc.) have all increased the risk of depression, anxiety and stress. In the present study, the relationship between psychological distress, meaning in life, and life satisfaction was explored among individuals who were infected and not infected with COVID-19 during the pandemic. The present study is the first to examine these variables simultaneously. The sample comprised 687 adult individuals over the age of 18 years (mean=30.51 years). Results indicated that adult individuals with high life satisfaction had lower levels of psychological distress, find life more meaningful, and seek meaning less. Psychological distress was positively related with the search for meaning in life and negatively related with the existence of meaning in life. Moreover, depressive symptoms and the existence of meaning in life were significant predictors of life satisfaction.

**Keywords:** COVID-19 Pandemic. Psychological distress. Meaning of life. Life satisfaction. Depression. Anxiety. Stress.

## Introduction

The COVID-19 pandemic has affected the whole world since the end of 2019, and has had many negative consequences on individuals both physically and psychologically (Otu et al., 2020). The restrictions implemented by governments worldwide to inhibit the spread of the disease have resulted in the loss of life, difficult socio-economic conditions, and increased mental health problems. Therefore, it is important to understand the risk and protective factors of this likely long-term pandemic (Talevi et al., 2020). Measures such as lockdowns, quarantines, self-isolation, spatial distancing, and working/learning from home have caused individuals to experience psychological problems such as depression, anxiety, stress, and post-traumatic stress disorder (Guan et al., 2020).

### Psychological distress: Depression, anxiety, and stress

Depression comprises feelings of intense sadness and negative thoughts (worthlessness, inadequacy, etc.), and is a mood disorder that negatively affects physical health (American Psychiatric Association, 2000). Most individuals

have experienced depression or depressive symptoms due to negative situations at some point(s) in their lives (Parker, 2004). Ingram (2009) noted that sad and stressful events have an important role in the formation of depression.

Depression is also a frequently recurring disorder, so mental health professionals do lots of work with regards to the negative effects of this disorder and implementing therapeutic solutions (Rudolph, 2009). Suicide is among the most serious and extreme outcomes of the disorder (Miller, 1998) and demonstrates that condition needs to be taken seriously. Given that bad news can be a contributory cause of depression, the COVID-19 pandemic has brought about ongoing bad news in to the daily lives of millions of individuals globally, it is unsurprising that many studies in the literature have examined depression among individuals during the COVID-19 pandemic (e.g., Bueno-Notivol et al., 2021; Chen et al., 2020; Elbay et al., 2020; Fountoulakis et al., 2022; Hawes et al., 2021; Johns et al., 2022; Pappa et al., 2020). Similarly, there are many studies in the literature, that have looked at depression's relationship with anxiety (Celano et al., 2018; Lenze et al., 2001), burnout (Koutsimani et al., 2019; Plieger et al., 2015), life satisfaction (Jenkins et al., 2013; Won et al., 2021), self-esteem (Fiorilli et al., 2019; Williams & Galliher, 2006), and social media use (Aalbers et al., 2019; Lin et al., 2016).

Mayer (2008) noted that anxiety is a natural response to life events and is something that can affect performance positively. However, anxiety disorder can cause significant distress in individuals' lives, and is a disorder that can disrupts

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people's functionality (Lener et al., 2017). Therefore, the severity of the anxiety is very important in determining psychological outcomes (Schneier et al., 2014). Stressful events and circumstances can trigger anxiety. Intense anxiety may occur in the face of negative life events, and cause physiological and psychological damage among some individuals (Feder et al., 2017). The COVID-19 pandemic, which has affected the whole world has caused high levels of anxiety symptoms, with as many as one out of every four individuals being affected (Erdoğan et al., 2020). Indeed, during the pandemic, the concept of 'coronavirus anxiety' emerged, and studies have been carried out on this new condition (Evren et al., 2020; Lee, 2020). For many individuals, increased anxiety has become a natural consequence of the pandemic, and anxiety has a known association with depression (Choi et al., 2020; Groen et al., 2020; Mazza et al., 2020; Pitman et al., 2018).

Another psychological consequence of the pandemic is increased stress. Chen (2017) defined stress as an emotional state in which concentration is difficult, the body is tense, and thoughts can become out of control. The process of managing and coping with stress differs from person to person. Negative life events such as loss, change, illness are among the factors that put individuals under increased stress (Romas & Sharma, 2017). Anxiety and stress caused by the pandemic has led to mental health problems for some individuals (Aardema, 2020). During the pandemic, many stressors such as isolation, spatial distancing, economic hardship, hopelessness, and risk of contracting a terminal illness have simultaneously penetrated human lives. For some people, it is very difficult to overcome all these negative situations at the same time (Polizzi et al., 2020). Moreover, many studies have simultaneously explored depression, anxiety, and stress levels among individuals during the pandemic (Alnazly et al., 2021; Salari et al., 2020; Shah et al., 2020; Varma et al., 2021).

### Meaning in life

Meaning in life has been described as a very important resource in the development of the person and their well-being (Steger et al., 2006). Jurica et al. (2014) emphasized that from this perspective, every individual can find meaning in life. Meaning is very important for a person's awareness and self-discovery (Wong, 2014). The role of meaning in life during negative life events, especially in times of crisis, is of vital importance because individuals need to be able to show psychological resilience to help cope with these difficult situations (Schnell & Krampe, 2020). Meaning in life has shown positive relationships with interpersonal well-being (Yu & Chang, 2021), psychological flexibility (Arslan & Allen, 2021), religious coping strategies (Yıldırım et al., 2021), psychological adjustment (Lin, 2021), and psychological resilience (Karataş & Tagay, 2021). Meaning in life has been discussed in many different studies during the pandemic. For example, Schnell and Krampe (2020) examined acute COVID-19 stress and general mental distress in Germany

and Austria during the lockdown and in the weeks after (characterized by eased restrictions). They found that individuals who see meaning in their lives experienced substantially less mental distress. They have also found that meaningfulness was one of the buffers between COVID-19 stress and general mental distress. de Jong et al. (2020) reported that having a clear life purpose helps in coping with the psychological effects of the pandemic. Moreover, Trzebiński et al., (2020) found that meaning in life and life satisfaction acted as a buffer against anxiety during the COVID-19 pandemic.

### Life satisfaction

Life satisfaction reflects an individual's positive attitude towards life (Hall, 2014). The ups and downs in life determine an individual's level of life satisfaction (Willroth et al., 2020). While life satisfaction is fed by positive life experiences, it is also useful in developing psychological resilience (Huebner et al., 2006). Stressful events greatly affect the levels of life satisfaction among individuals. The COVID-19 pandemic has affected the life satisfaction level of many individuals (Bou-Hamad et al., 2021; Dymecka et al., 2021; Trzebiński et al., 2020). Many of the consequences of the pandemic such as extended quarantine periods, losing loved ones, and fear of losing one's job are closely related to the life satisfaction levels among individuals.

### The present study

Being infected, seeing relatives die, isolation processes, and travel restrictions during the COVID-19 pandemic all have affected the anxiety and stress level of some individuals. In the present study, individuals who had been infected with COVID-19 during the pandemic were compared with those that had not in relation to psychological distress, meaning of life, and life satisfaction levels. In addition, the relationships between depression, anxiety, stress, life meaning, and life satisfaction among adults were investigated. These factors were also examined in relation to those who had relatives who had been infected with COVID-19 (vs. those who had not), and those who had relatives that had died from COVID-19 (vs. those who had not).

Lopes and Nihei (2021) examined the relationships between depression, anxiety and stress levels, life satisfaction, well-being and coping strategies among individuals in their study of Brazilian university students during the COVID-19 process. The study found that psychological well-being, life satisfaction, and coping strategies had a protective effect on depression, anxiety and stress. Karataş and Tagay (2021), on the other hand, found that life satisfaction, meaning of life, and fear of COVID-19 predicted resilience among adults during the COVID-19 pandemic. These studies demonstrate the importance of such topics and that they should be empirically addressed.

Although the situation has now been brought under con-

trol at the time of writing, the ongoing restrictions continue to adversely affect the mental health of individuals. Given the uncertainty as to when the pandemic will end due to the constant spread of new COVID-19 variants, studies such as the present one are important in terms of providing insight into what can be done in future pandemics in the future. It should also be noted that no previous study has ever examined the variables under investigation here simultaneously.

## Method

### Research design

In the present study, a predictive correlation model using cross-sectional survey data was used to determine the effects of depression, anxiety, stress, and meanings of life among adult individuals on life satisfaction during the COVID-19 pandemic. Predictive correlational analysis was used to determine the predictive power of the unknown variable based on the known value after examining the relationships between the variables (Buyukozturk et al., 2014).

### Participants

The participants comprised adults living in seven different geographical regions of Turkey. The demographic characteristics of the participants were as follows: 490 were female (71.3%) and 197 were male (28.7%); 466 were 34 years old or younger (67.8%) and 221 were over 34 years old (32.2%). In relation to education background, 11 had completed primary school (1.6%), 42 had completed secondary school (6.1%), 551 had completed university education (80.2%) and 83 had completed postgraduate education (12.1%). In relation to geographical region, 195 lived in the Marmara region (28.4%), 53 lived in the Aegean region (7.7%), 55 lived in the Mediterranean region (8.0%), 162 lived in the Southeastern Anatolia region (23.6%), 77 lived in the Eastern Anatolia region (11.2%), 63 lived in the Black Sea region (9.2%), and 82 lived in the Central Anatolia region (11.9%).

### Measures

*Socio-demographic variables:* The survey included a 'Personal Information Form' developed by the research team, and comprised questions relating to gender, age, education level, geographical region of residence, educational background, marital status, and pandemic-related variables (i.e., if they had previously had COVID-19, if they had relatives who had previously had COVID-19, and if they had any relatives who had died of COVID-19).

*Depression, Anxiety, and Stress Scale Short Form (DASS-21):* The DASS-21 (Lovibond & Lovibond, 1995; Turkish version: Sariçam, 2018) was used to assess symptoms of depression, anxiety, and stress. The scale consists of three sub-dimensions: depression, anxiety, and stress. Items (e.g., "I no-

ticed that my mouth is dry", "I felt that life was worthless", and "I felt that I was touchy") on the scale are rated on a four-point scale: 0 (*not at all suitable for me*), 1 (*somewhat suitable for me*), 2 (*usually suitable for me*), and 3 (*completely suitable for me*). Each sub-dimension of the scale is scored separately. As the scores obtained from the sub-dimensions increase, the level of the structure measured by the sub-dimension also increases. In the present study, the Cronbach's alpha coefficients were .89 for depression, .87 for anxiety, and .86 for stress.

*Life Satisfaction Scale (LSS):* The unidimensional LSS (Diener et al., 1985; Turkish version Dağlı & Baysal, 2016) was used to assess life satisfaction. Items (e.g., "In most ways my life is close to my ideal", and "The conditions of my life are excellent") on the scale are rated on a five-point scale: 1 (*I never agree*), 2 (*I very little agree*), 3 (*I agree moderately*), 4 (*I largely agree*) and 5 (*I completely agree*). As the score obtained from the scale increases, life satisfaction increases. In the present study, the Cronbach's alpha internal consistency coefficient of the LSS was .86.

*Meaning of Life Scale (MLS):* The MLS (Steger et al., 2006; Turkish version: Dursun, 2012) was used to assess meaning of life. The scale consists of two sub-dimensions, the presence of meaning in life and the search for meaning in life. Items (e.g., "I understand my life's meaning", "I am always looking to find my life's purpose", and "My life has no clear purpose") on the scale are rated on a seven-point scale: 1 (*strongly disagree*), 2 (*mostly not true*), 3 (*partially not true*), 4 (*cannot be said to be true or false*), 5 (*partly true*), 6 (*mostly true*) and 7 (*strongly true*). As the scores obtained from the scale increase, the meaning of life also increases. In the present study, Cronbach's alpha internal consistency coefficient for the presence of meaning in life was .83, and the search for meaning in life was .91.

### Procedure and ethics

To collect data from adults living in different regions of Turkey, data collection was carried out online using *Google Forms* (because face-to-face data collection was not possible during the months of June to July 2021). Using convenience sampling, participants were recruited in the research on a voluntary basis by sharing the link to the survey via Turkish online forums and social networking communities (e.g., *Facebook*, *WhatsApp*). While conducting this research, there was an attempt to create diversity in terms of age, gender, and seven geographical regions of Turkey to increase the study's generalizability. Therefore, there were no exclusion criteria and the only inclusion criterion was being 18 years or older to participate in the study. Data were collected from 721 participants. There were no missing data as surveys could not be submitted unless all data fields had been completed. The survey took approximately 10-15 minutes to complete. Ethical approval was granted by the research team's university committee (Ethics Registration Number: 47954).

## Data analysis

In the present study, a regression analysis was used to determine the effects of depression, anxiety, stress, and meaning of life on life satisfaction of adults during the pandemic. The predictive correlational model was used to determine the predictive power of the unknown variable based on the known value after examining the relationships between the variables (Büyüköztürk, 2017). The analysis of the data was performed with SPSS v.25.0. A total of 34 data outliers based on Mahalanobis values were excluded from the analysis, and analyses were carried out with data from the remaining 687 participants. Pearson correlation analysis was utilized to determine the relationship between depression, anxiety, stress, presence of meaning in life, search for meaning in life, and life satisfaction. Hierarchical regression analysis was utilized to determine the effect of depression, anxiety, stress, presence of meaning in life, and search for meaning in life on life satisfaction. In the analysis, the psychological distress variables (i.e., depression, anxiety, and stress symptoms) and meaning of life were considered as two distinct variables. Therefore, in the hierarchical regression analysis, the three types of psychological distress were evaluated as one block, and the meaning of life was evaluated as the second block.

Regression assumptions were checked before multiple regression analyses were conducted (Can, 2020). More specifically, the normality assumption of the data was examined, and as seen in Table 1, it was determined that the data were normally distributed between +1.5 and -1.5 normal (Tabachnick & Fidell, 2013). After checking the normality assumption of the data, as a second step, autocorrelation cases were examined. After checking the normality assumption of the data, the autocorrelation status was examined as a second step. Durbin-Watson's *d* value was examined for autocorrelation and it was found that this value was 1.978 which is deemed as conservative because it was between 1.5-2.5 (Field, 2005). For the third step in the regression assumptions, Variance Inflation Factor and Tolerance values were examined. It was determined that the tolerance values were between .294 and .866, and the Variance Inflation Factor values were between 1.128 and 3.402 and therefore within acceptable ranges (Field, 2005). Finally, correlational relationships between the variables were examined, and it was found that these relations were significant between .191 and .785 in the low and high-level ranges (Büyüköztürk, 2017). Based on these checks, it was determined that the data were suitable for performing multiple hierarchical regression analysis.

**Table 1**  
*Descriptive analysis results.*

	<i>n</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
1. Depression symptoms	687	8.8763	5.58221	.385	-.694
2. Anxiety symptoms	687	7.4236	5.30000	.457	-.668
3. Stress symptoms	687	10.3508	5.28881	.057	-.736
4. Life satisfaction	687	15.3683	4.60793	-.268	-.567
5. Presence of meaning	687	26.1659	6.50735	-.863	.364
6. Search for meaning	687	22.8020	8.32372	-.486	-.694

## Results

### Demographic variables

A number of *t*-tests were performed to examine whether the participants' depression, anxiety, stress, life satisfaction,

existence of meaning in life, and search for meaning in life differed on the basis of whether the participant had previously had COVID-19 (Table 1), whether they had relatives who had previously had COVID-19 (Table 2), and whether they had relatives who had died from COVID-19 (Table 2).

**Table 2**  
*The t-test results concerning being infected with COVID-19.*

		<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Depression symptoms	Yes	158	8.9873	5.82219	.285	.776
	No	529	8.8431	5.51375		
Anxiety symptoms	Yes	158	7.9177	5.38217	1.336	.182
	No	529	7.2760	5.27137		
Stress symptoms	Yes	158	10.5000	5.34033	.404	.686
	No	529	10.3062	5.27760		
Life Satisfaction	Yes	158	15.6709	4.72754	.941	.347
	No	529	15.2779	4.57226		
Presence of meaning	Yes	158	27.2722	6.33929	2.444	.015
	No	529	25.8355	6.52627		
Search for meaning	Yes	158	21.7532	8.92908	.161	.071
	No	529	23.1153	8.11680		

There were no significant differences between participants who had previously had COVID-19 and those who had not in relation to depression symptoms [ $t(687) = .28, p > .05$ ], anxiety symptoms [ $t(687) = 1.34, p > .05$ ], stress symptoms [ $t(687) = .41, p > .05$ ], life satisfaction [ $t(687) = .94, p > .05$ ], and the search for meaning in life [ $t(687) = .16, p > .05$ ] but there was a significant difference in relation to presence of meaning in the life [ $t(687) = 2.44, p < .05$ ]. There were no significant differences between participants who had previously had COVID-19 and those who had not in relation to depression symptoms [ $t(687) = .28, p > .05$ ], anxiety symptoms [ $t(687) = 1.34, p > .05$ ], stress symptoms [ $t(687) = .41, p > .05$ ], life satisfaction [ $t(687) = .94, p > .05$ ], and the search for meaning in life [ $t(687) = .16, p > .05$ ] but there was a significant difference in relation to presence of meaning in the life [ $t(687) = 2.44, p < .05$ ].

However, since the difference between the means was small, Bonferroni correction was made to control the type I

error. In addition, Bonferroni correction was made because a large number of groups in the data analysis caused an increase in the margin of error in pairwise comparisons. Bonferroni correction is determined by the significance level/dependent variable formula (Miller, 1991). Since the number of dependent variables was six with Bonferroni correction, the level of significance was determined as  $.05/6 = .0083$ . For this reason, the level of significance was taken as  $p < .01$  in the  $t$ -test used to test the difference between the levels of finding meaning according to the status of the participants in the COVID-19 epidemic. Then, with the formula  $\alpha_{critical} = 1 - (1 - \alpha_{altered})^k$ , the  $\alpha$  critical value was found to be  $.0199$ . As a result, since the  $p$ -value was more significant than  $.05$ , it was determined that the presence of meaning values of the participants who were caught in the epidemic did not differ significantly [ $t(687) = 2.44, p < .01$ ].

**Table 3**  
The  $t$ -test results concerning having a relative infected with COVID-19.

		<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Depression symptoms	Yes	604	8.8063	5.61335	.886	.376
	No	83	9.3855	5.35526		
Anxiety symptoms	Yes	604	7.4305	5.29277	.092	.927
	No	83	7.3735	5.38451		
Stress symptoms	Yes	604	10.3344	5.30128	.219	.827
	No	83	10.4699	5.22736		
Life satisfaction	Yes	604	15.2434	4.67150	1.920	.055
	No	83	16.2771	4.02527		
Presence of meaning	Yes	604	26.1209	6.68309	.002	.625
	No	83	26.4940	5.06873		
Search for meaning	Yes	604	22.9305	8.36155	1.091	.276
	No	83	21.8675	8.03008		

There were no significant differences between participants who had relatives who had previously had COVID-19 and those who had not in relation to depression symptoms [ $t(687) = .886, p > .05$ ], anxiety symptoms [ $t(687) = .092, p >$

$.05$ ], stress symptoms [ $t(687) = .219, p > .05$ ], life satisfaction [ $t(687) = 1.920, p > .05$ ], existence of meaning in life [ $t(687) = .002, p < .05$ ], and search for meaning in life [ $t(687) = 1.091, p > .05$ ].

**Table 4**  
The  $t$ -test results concerning whether a relative was infected with COVID-19 and died.

		<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Depression symptoms	Yes	272	9.0037	5.75355	.484	.629
	No	415	8.7928	5.47241		
Anxiety symptoms	Yes	272	7.7390	5.37195	1.263	.207
	No	415	7.2169	5.24853		
Stress symptoms	Yes	272	10.3162	5.29318	.139	.890
	No	415	10.3735	5.29221		
Life satisfaction	Yes	272	15.0993	4.78633	1.239	.216
	No	415	15.5446	4.48425		
Presence of meaning	Yes	272	26.4301	6.43751	.861	.389
	No	415	25.9928	6.55467		
Search for meaning	Yes	272	23.5404	8.12939	1.886	.060
	No	415	22.3181	8.42328		

There were no significant differences between participants who had relatives who had died from COVID-19 and those who had not in relation to depression symptoms

[ $t(687) = 0.484, p > .05$ ], anxiety symptoms [ $t(687) = 1.263, p > .05$ ], stress symptoms [ $t(687) = .139, p > .05$ ], life satisfaction [ $t(687) = 1.239, p > .05$ ], presence of meaning in life

$t(687) = .861, p > .05$ ], and search for meaning in life [ $t(687) = 1.886, p > .05$ ].

### Correlation analysis

Pearson correlation analysis was performed to examine the relationships between depression symptoms, anxiety symptoms, stress symptoms, life satisfaction, existence of meaning in life and searching for meaning in life (Table 5).

**Table 5**

*Correlational relationships between the study variables.*

	1	2	3	4	5	6
1. Depression symptoms	1					
2. Anxiety symptoms	.713**	1				
3. Stress symptoms	.785**	.762**	1			
4. Life Satisfaction	-.466**	-.310**	-.349**	1		
5. Presence of meaning	-.469**	-.319**	-.304**	.489**	1	
6. Search for meaning	.321**	.262**	.306**	-.248**	-.191**	1

\*\* $p < .01$

Depression symptoms were (i) moderately negatively associated with life satisfaction ( $r = -.466, p < .01$ ) and presence of meaning ( $r = -.469, p < .01$ ), and (ii) moderately positively correlated with search for meaning ( $r = .321, p < .01$ ). Anxiety symptoms were (i) moderately negatively associated with life satisfaction ( $r = -.310, p < .01$ ) and presence of meaning ( $r = -.319, p < .01$ ), and (ii) moderately positively correlated search for meaning ( $r = .262, p < .01$ ). Stress symptoms were (i) moderately negatively associated with life satisfaction ( $r = -.349, p < .01$ ) and presence of meaning ( $r = -.304, p < .01$ ), and (ii) positively correlated with search for meaning ( $r = .306, p < .01$ ). Finally, life satisfaction was (i) moderately positively correlated with presence of meaning ( $r = .489, p < .01$ ) and (ii) moderately negatively associated with search for meaning ( $r = -.248, p < .01$ ).

### Regression analysis

Hierarchical regression analysis was performed to determine the extent to which depression, anxiety, stress, existence of meaning in life and search for meaning in life were predictors of life satisfaction (Table 6).

**Table 6**

*Results of hierarchical regression analysis for predictors of life satisfaction.*

	B	S	$\beta$	$t$	$p$	$\Delta R^2$
1 (Constant)	18.660	.344		54.259	.000	.218**
Depression symptoms	-.421	.047	-.510	-8.958	.000	
Anxiety symptoms	.031	.047	.036	.654	.513	
Stress symptoms	.021	.054	.024	.390	.697	
2 (Constant)	12.233	.916		13.352	.000	.102**
Depression symptoms	-.239	.047	-.290	-5.036	.000	
Anxiety symptoms	.046	.044	.053	1.044	.297	
Stress symptoms	-.025	.051	-.029	-.499	.618	
Presence of meaning	.243	.026	.344	9.513	.000	
Search for meaning	-.052	.019	-.094	-2.808	.005	

\* $p < .05$

As seen in Table 6, depression, anxiety and stress scores from the DASS-21 were included in the first block of the analysis. These variables explained approximately 22% of the variance of the total life satisfaction score. The relative order of the variables on life satisfaction according to the standardized regression coefficient ( $\beta$ ) were: depression symptoms ( $\beta = -.510, t = -8.958$ ), anxiety symptoms ( $\beta = .036, t = .654$ ) and stress symptoms ( $\beta = .024, t = .390$ ). When the  $t$ -test results regarding the significance of the regression coefficients were analyzed, it was found that only depression symptoms had a significant effect on life satisfaction.

In the second block of the analysis, the scores of the sub-dimensions of meaning in life and the search for meaning in life were included in the model. The second block of independent variables explained a further 10% of the variance of the total life satisfaction score. According to the standardized regression coefficients, the relative order of the variables included in the model on life satisfaction were: existence of meaning in life ( $\beta = .344, t = 9.513$ ) and search for meaning in life ( $\beta = -.094, t = -2.808$ ). When the  $t$ -test results regarding the significance of the regression coefficients were examined, it was found that only the existence of meaning in life was a significant predictor of the variables included in the second model. The variables in both blocks explained 32% of the variance in total life satisfaction score.

### Discussion

The present study was carried out during the COVID-19 pandemic. It first examined whether the participants' depression symptoms, anxiety symptoms, stress symptoms, the existence of meaning in life and the search for meaning in life differed significantly according to the status of being previously infected with COVID-19, whether relatives had previously been infected with COVID-19, and whether any of their relatives had died due to COVID-19. When the findings were examined, there was no significant difference in psychological distress, meaning of life and life satisfaction levels among individuals who either had relatives who had previously been infected with COVID-19 or those who had relatives who had died from COVID-19. According to the correlation analysis, as life satisfaction increased, depression symptoms, anxiety symptoms, stress symptoms, and search for meaning in life decreased, and the existence of meaning in life increased. As individuals' depression symptoms, anxiety symptoms, and stress symptoms increased, the existence of meaning in life decreased and the search for meaning in life increased.

The mere existence of the pandemic itself, the restrictions made whether or not the disease is present, and the mandatory isolation periods have adversely affected the mental health of many individuals (Guan et al., 2020). In addition to the mandatory restrictions in the COVID-19 pandemic, it is important to carry out psychological screening of individuals who are infected and after treatment (Ismael et al., 2020). In a meta-analysis study, it was reported that

COVID-19 infected patients are at risk of experiencing psychiatric and mental health problems such as depression, anxiety and sleep disorders (Deng et al., 2021). In the present study, another finding that emerged was that as life satisfaction levels of individuals increased, their depression symptoms, anxiety symptoms, and stress symptoms decreased. There are many studies in the literature supporting this finding during the COVID-19 pandemic (Duong, 2021; Lin, 2021; Lopes & Nihei, 2021; Yalçın et al., 2022). Another finding was that as life satisfaction increased, the search for meaning in life decreased and the existence of meaning in life increased. Lin's (2021) study supports this finding. Since life satisfaction is a positive view of the life, it is expected that individuals with high life satisfaction are more resistant to stressors and find life more meaningful with their mechanisms to cope with negative situations.

In addition, as the presence of meaning in life increased, the symptoms of depression, anxiety and stress decreased. Moreover, as the search for meaning in life increased, the symptoms of depression, anxiety and stress also increased. Similarly, Newman et al. (2021) reported that the presence of meaning in life predicted less negative affect and healthier preventive actions during the COVID-19 pandemic while the behavior of seeking meaning in life was associated with more risky and unhealthy behaviors. On the other hand, Eisenbeck et al. (2021) reported that meaning-centered coping was associated with less depression, anxiety, and stress. Yang et al. (2021) reported that meaning in negative experiences during the COVID-19 pandemic reduced depression, anxiety and stress, and increased coping with COVID-19. Finally, the present study found that depression symptoms and the presence of meaning in life were significant predictors of life satisfaction. In many studies, it has been reported that the presence of meaning in life predicts life satisfaction (Datu & Mateo, 2015; Karataş et al., 2021; Pan et al., 2008).

### Implications and limitations

The COVID-19 pandemic has affected the whole world for about two years (at the time of writing) and is a situation that has very negative consequences. Here, the psychological effects of this virus, which includes worries about themselves and their relatives, and whose effect cannot be predicted, have been and continue to be as problematic as the physical effects. Individuals have tried to continue their lives despite all these negativities. Being able to discover the existence of meaning in life despite all kinds of negativities is an important element that connects individuals to life. In addition, the fact that individuals with high life satisfaction had lower symptoms of depression, anxiety, and stress in the present study indicates that life satisfaction has a preventive effect in the COVID-19 pandemic. Therefore, all kinds of intervention studies could be developed to increase the life satisfaction of individuals which would contribute to increasing the resistance to stressors and keeping the meaning of

life alive in negative life events that are experienced or likely to be experienced.

The present study has a number of limitations. All the data were self-report and therefore suffers from well-established methods biases such as social desirability and memory recall. This may have included socially desirable responses concerning whether the participant had experienced COVID-19 or not. Many people were infected but did not take a COVID-19 test because they did not want to have to be quarantined and go into social isolation. The data collection procedure comprised convenience sampling which means there was representativeness bias and the findings cannot necessarily be generalized to other adults. Moreover, the sampling method used also meant there was no way of knowing what the response rate was. The data were also cross-sectional and therefore causality between the study variables cannot be determined. The present study was only conducted with adults and therefore is not generalizable to other groups negatively affected by the pandemic such as school-age students.

### Conclusions

The aim of the present study is to investigate the relationship between psychological distress, meaning of life, and life satisfaction among individuals infected with COVID-19 and those who were not during the pandemic. The variables examined in this study had not been simultaneously evaluated in any previous study. The results showed that psychological distress was positively related with the search for meaning in life and negatively related with the existence of meaning in life. This suggests that the existence of meaning in life is a strong preventive factor in reducing symptoms of depression, anxiety, and stress. Individuals who find their life meaningful have a high level of being able to cope with stressors during the COVID-19 pandemic. Therefore, interventions are needed to facilitate the promotion of existence of meaning in individuals' lives. The present study also indicated that depression and the existence of meaning in life were significant predictors of life satisfaction. Therefore, preventive interventions that increase life satisfaction are likely to play both a protective and preventive role in increasing the existence of meaning in life while reducing the symptoms of depression.

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**Availability of data and materials:** The original form and data of the current study are available from the corresponding author upon reasonable request.

### Declarations

*Ethics approval and consent to participate:* All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research



committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

*Informed consent:* Informed consent was obtained from all individual participants included in the study.

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