

## Research Article

# Does COVID-19 Awareness Affect Pandemic Anxiety? A Sample of Turkey

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## Abstract

**Aim:** This study aims to examine the effects of Covid-19 awareness and individual characteristics (age, gender, educational status, income status, physical activity, presence of chronic/psychiatric disease) on pandemic anxiety.

**Material and Method:** This study was conducted with a descriptive and cross-sectional design. The data were collected online from individuals aged between 18 and 70 in Turkey by using the Personal Information Form, Coronavirus Awareness Scale (CAS), and Coronavirus Anxiety Scale (CAS).

**Results:** The study was conducted with 1036 individuals. 63% of these individuals were female. The total mean scores of the scales and factors were found as  $35.16 \pm 6.89$  for the CPA factor,  $12.97 \pm 4.31$  for the AFCD factor,  $11.70 \pm 3.92$  for the HPA factor, and  $2.56 \pm 3.81$  for the coronavirus anxiety scale. In the study, a negative significant correlation was found between CPA and anxiety scores ( $r=-0,115, p<0.001$ ), and a positive significant correlation was found between HPA and anxiety scores ( $r=0,167, p<0.001$ ). The t-test, Mann-Whitney U test, ANOVA, post-hoc test, LSD, and Spearman correlation analysis were used in the analysis of the study data.

**Conclusion:** In the study, it was found that Contagion Precaution Awareness, Hygiene Precaution Awareness, and the presence of anxiety were found to be correlated with each other. The highest level of awareness was found in women, as well as in participants who are working flexible hours and participants with a high level of income, while the highest level of anxiety was found in participants with psychiatric diseases.

**Keywords:** Anxiety; Awareness; Covid-19

## Introduction

COVID-19 virus is a virus within the beta coronavirus genera, which also includes SARS-CoV and MERS-CoV. The virus emerged in 2019, and then quickly affected the whole world in a short period, and thus it was declared as a global epidemic, in other words, a “pandemic” [1,2]. The virus was identified on January 13, 2020, as a result of studies conducted on a group of patients that showed symptoms of fever, cough, and shortness of breath affecting the respiratory tract. In order to fight this virus, which can transmit itself very quickly to others, and to prevent its contagiousness, practices such as cleaning rules and the use of masks and social isolation to minimize the contact of people with each other, have gained importance. Restriction decisions of governments to prevent the spread have shaped daily living in most parts of the world [2]. Although restrictions were effective in preventing the uncontrolled spread of COVID-19, they affected mental health negatively in some individuals [3]. It is common for

individuals to feel stressed and anxious in some situations such as an epidemic, due to fear of getting sick or dying, social exclusion, quarantine, or becoming unemployed. In the current pandemic, psychological problems including anxiety, depression, and stress have been reported to increase [4].

Anxiety refers to an individual’s excessive arousal about not being able to cope with a problem [5]. The number of studies conducted on mental health has rapidly increased during the pandemic. Most of these studies have significant consequences for emotional and social functioning and mental health [6]. Twenty five percent of the individuals were reported to experience anxiety in a study conducted in India. In the same study, employment status, income, gender, and relationship status were reported to be associated with mental health [7]. In a study conducted in Japan, the rate of moderate/severe anxiety was reported as 11.4% and it was concluded that being younger and unemployed were effective on these rates [8]. A study conducted in Portugal reported a 9.1% anxiety and it was found that individuals who had better mental health maintained their physical activity levels and had jobs [9]. In a study conducted in Iran, it was reported that women and younger adults experienced more anxiety [10]. In a meta-analysis, an increase was reported in anxiety rates in all demographic characteristics when compared with the pre-pandemic period [11]. According to another meta-analysis, the anxiety rate in Eastern Europe was reported as 30% during the pandemic [12].

Although cases should be identified and isolated rapidly, and quarantines should be implemented in settlements whenever necessary, it is stated that the most important measures are the measures that individuals will take on their own [13,14]. In one

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study, it was concluded that an increase in awareness increased the adaptation of protective health behaviors significantly and prevented the spread of contagious diseases [14]. In another study, it was found that higher awareness (hygiene, wearing a mask, and reducing contact between people) reduces the spread of the virus. This awareness also makes it easier to comply with the mandatory quarantine measures [13]. For this reason, a variety of news and information bulletins have been included during the pandemic to increase the awareness of the public. During this process, it was aimed to increase the individuals' awareness to improve their beliefs and attitudes about the disease as well as the required measures for the contagion, and to create changes in their behaviors in order to help fight the pandemic. However, it is not known how this situation affects the mental health of individuals. There are a large number of studies in the literature on the relationship between Covid-19, anxiety, and individual characteristics (age, gender, educational status, etc.). However, there are limited numbers of studies examining the relationship between awareness of the pandemic and anxiety [15]. The present study intends to contribute to the literature by showing the relationship between awareness of Covid-19 and anxiety.

Therefore, the present study aims to examine the effects of Covid-19 awareness and individual characteristics (age, gender, educational status, income status, physical activity, presence of chronic/psychiatric disease) on anxiety about the pandemic.

## Material and Method

### Study design

The study was conducted as a descriptive and cross-sectional study.

### Population and sample

The population of the study consists of individuals between 18 and 70 years of age living in Turkey. The number of individuals within this age range covers 75.8% of the total population in Turkey [16]. The sample size was determined as 484 with a 0.05 margin of error, 0.95 confidence interval, and 0.3 effect size, by utilizing G\*Power software. By using the snowball sampling method, all individuals who could be reached online, who could use social networks, and who did not have issues communicating in Turkish were included in the study. 1242 individuals were reached within the specified time (55% more than the predetermined sample).

### Data collection tools

The data in the study were collected by using the Personal Information Form, Coronavirus Awareness Scale (CAS), and Coronavirus Anxiety Scale (CAS).

**Personal information form:** In this form prepared by the researchers in line with the relevant literature, the individual characteristics of the participants were determined with 11 questions such as age, gender, educational status, physical activity status, employment status, monthly income, and the presence of chronic disease.

**Coronavirus (Covid-19) Awareness Scale (CAS):** The scale was developed by Bilgin [17]. It is Likert-type scale with 5 points ranging between (1) Never and (5) Always, with a total of 17 items. The factors of the scale, which does not include any reversely scored items, should be evaluated separately. The maximum possible score for the 9-item Contagion Precaution Awareness factor is 45, while the maximum possible scores for 4-item Awareness of Following Current

Developments and 4-item Hygiene Precaution Awareness are 20. High scores from factors show that the awareness level for that factor is high. Cronbach Alpha values are 0.93 for the Contagion Precaution Awareness (CPA) factor, 0.87 for the Awareness of Following Current Developments (AFCD) factor, and 0.82 for the Hygiene Precaution Awareness (HPA). In the present study, Cronbach Alpha values were found as 0.861 for CPA, 0.807 for AFCD, and 0.752 for HPA.

**Coronavirus (Covid-19) Anxiety Scale (CAS):** The scale was developed by Lee et al. [18] and adapted to the Turkish culture by Biçer et al. [19]. Participants indicate how often they experienced the situations in the expressions within the past two weeks. The responses are "Never", "Rarely, less than one or two days", "a few days", "more than 7 days", and "almost every day for the past two weeks". The minimum possible score for each question is 0, while the maximum possible score is 4. Each item score is added (varying between 0 and 20) and the total score is calculated. The higher scores denote higher Covid-19 anxiety levels. The Cronbach Alpha value of the scale is 0.832. In the present study, it was found as 0.898.

### Data collection

The data collection form was prepared by using Google Forms and sent online (WhatsApp, e-mail) to participants. The study data were collected between November and December 2021. Twelve hundred and forty two people were reached within the specified dates. However, since 206 people did not use social networks, data collection was completed with 1036 people. All collected data were included in the analysis.

### Data analysis

SPSS version 22.00 statistical package software was used for data analysis. Percentage, mean, and standard deviation were used as descriptive statistics. The homogeneity of the variances was evaluated with the Levene's test. The normality distribution of numerical variables was evaluated with Skewness and Kurtosis. The parametric tests were used in the analysis of data with normal distribution, while non-parametric tests were used in the analysis of data that did not have a normal distribution. The t-test and Mann-Whitney U test were used in the comparison of the scale scores of two groups, and ANOVA along with the Kruskal-Wallis test was used in the comparison of the scale scores of more than two groups. In more than two groups, LSD and Dunnett's T3 test were used to find out the difference between the variables. The Spearman correlation coefficient was used to find out the correlations between scales. The significance level was considered as  $p < 0.05$ .

## Results

Table 1 shows that 69.1% of the participants were between the ages of 18 and 34, 63% were female, 59.2% were married, and 23.9% had an undergraduate or higher degree. It was found that 74.1% exercised 1 or 2 days a week, 58.8% had children, 51.6% were not working, and 36.3% had a monthly income of  $\leq 1000$  TL. It was found that 79.2% of the participants did not live with individuals aged 65 or older in their homes, 83.2% did not have a chronic disease, and 96.1% did not have psychiatric diseases (Table 1).

In Table 2, it can be seen that the CPA factor of the coronavirus awareness scale had a mean total score of  $35.16 \pm 6.89$ , AFCD had a mean total score of  $12.97 \pm 4.31$ , and HPA had a mean total score of  $11.70 \pm 3.92$ . The total mean score of the coronavirus anxiety scale was found as  $2.56 \pm 3.81$  (Table 2).

**Table 1:** Sociodemographic characteristics of the participants.

	n	%
Age		
18-34 years	716	69.1
35-54 years	258	24.9
55-70 years	62	6.0
Gender		
Female	659	63.6
Male	377	36.4
Marital status		
Married	423	40.8
Single	613	59.2
Educational status		
Primary	255	24.6
High school	533	51.4
University and higher	248	23.9
The state of doing weekly physical activity		
1-2 days	768	74.1
3 days and more	268	25.9
The state of having children		
Yes	427	41.2
No	609	58.8
Working status		
No	535	51.6
No. but I used to before the pandemic	24	2.3
Yes. from home	37	3.6
Yes. with fixed hours	78	7.5
Yes. full time	330	31.9
Retired	32	3.1
Monthly income		
<1000 tl	376	36.3
Between 1000-3000 tl	212	20.5
Between 3000-4000 tl	111	10.7
>4000 tl	337	32.5
Presence of individuals aged 65 and older at home		
Yes	216	20.8
No	820	79.2
Presence of chronic disease		
Yes	174	16.8
No	862	83.2
Presence of psychiatric disease		
Yes	40	3.9
No	996	96.1

n; Frequency; %; Percent; sd: Standard Deviation; min: Minimum Score; max: Maximum Score

**Table 2:** The coronavirus awareness scale and Coronavirus anxiety scale mean scores.

	Min.	Max.	Mean ± SD
Coronavirus awareness scale			
CPA	9	45	35.16 ± 6.89
AFCD	4.00	20.00	12.97 ± 4.31
HPA	4.00	20.00	11.70 ± 3.92
Anxiety total score	0.00	20.00	2.56 ± 3.81

SD: Standard Deviation; Min: Minimum Score; Max: Maximum Score

In Table 3, the mean score of the sub-dimension of Coronavirus awareness (CPA, AFCD, and HPA) and the mean total score of anxiety were compared with sociodemographic data. Since it is not recommended to calculate the total score of the coronavirus awareness scale, the comparisons were made with factors [17]. No significant difference was found between CPA, AFCD, HPA, and anxiety scores in terms of age groups ( $p < 0.05$ ). A significant difference was found between CPA and HPA scores in terms of gender ( $p = 0.001$ , in both). Female participants were found to have higher mean scores in both factors when compared with male participants. A significant

difference was found between CPA and AFCD scores in terms of marital status ( $p = 0.002$ ,  $p = 0.003$ , respectively). In both factors, married participants were found to have higher scores than single participants. A significant difference was found between participants who were high school graduates and those who were primary education and university graduates, in terms of CPA and AFCD scores ( $p = 0.001$ ). Participants with a high school degree were found to have higher CPA and AFCD mean scores. A significant difference was found between the anxiety scores of primary education graduates when compared with high school and university graduates ( $p = 0.001$ ). Primary education graduates were found to have higher anxiety scores. While no significant difference was found between CPA, AFCD, and HPA scores in terms of weekly physical activity ( $p < 0.05$ ), a significant difference was found between the anxiety score and weekly physical activity ( $p = 0.030$ ). Participants who exercised 1-2 days a week were found to have higher anxiety mean scores. A significant difference was found between CPA and anxiety scores in terms of the variable of having children ( $p = 0.011$ ,  $p = 0.381$ , respectively). It was found that participants who had children had higher CPA and anxiety scores than participants who did not have children. In terms of HPA scores, a significant difference was found between the participants who were not working and those who were working full-time ( $p = 0.001$ ). The participants who were not working were found to have higher HPA scores (Table 3).

In terms of HPA scores, a significant difference was found between the participants who were not currently working (but who had worked before the pandemic) and those who were working from home, those who were working full time, and those who were retired ( $p = 0.001$ ). The participants who were not currently working were found to have higher mean HPA scores. A significant difference was found between the participants who were not working and those who were working full-time in terms of anxiety scores ( $p = 0.003$ ). It was found that the participants who were not working had higher anxiety total mean scores. A significant difference was found between those with a monthly income of 4000 TL and above and those with a monthly income of 1000 TL and below and 1000-3000 TL in terms of CPA scores ( $p = 0.001$ ). The participants who had a monthly income of  $\geq 4000$  TL were found to have higher mean CPA scores. A significant difference was found between the participants who had a monthly income of  $\geq 4000$  TL and those who had a monthly income of  $\leq 1000$  TL in terms of AFCD scores ( $p = 0.013$ ). The participants who had a monthly income of  $\geq 4000$  TL were found to have higher mean AFCD scores. A significant difference was found between the participants who had a monthly income between 3000 TL and 4000 TL and those who had a monthly income of  $\geq 4000$  TL in terms of HPA scores ( $p = 0.017$ ). The participants who had a monthly income between 3000 TL and 4000 TL had higher HPA scores. A significant difference was found between the participants who had a monthly income between 1000 and 3000 TL and those who had a monthly income of 4000 TL in terms of anxiety scores ( $p = 0.021$ ). The participants who had a monthly income between 1000 TL and 3000 TL were found to have higher anxiety mean scores. While no significant difference was found between CPA, AFCD, and HPA scores in terms of the presence of an individual aged  $\geq 65$  years at home ( $p < 0.05$ ), a significant difference was found between the anxiety scores ( $p = 0.022$ ). Participants who had individuals aged  $\geq 65$  years at home were found to have higher anxiety scores than others. While no significant difference was found between CPA, AFCD, and HPA scores of the participants in terms of the presence of chronic disease ( $p < 0.05$ ), a significant difference

**Table 3:** Comparison of total mean Coronavirus awareness scale factors and Coronavirus Anxiety Scale scores.

Variable	Coronavirus Awareness Scale factors			Anxiety total score Mean ± SD
	CPA Mean ± SD	AFCD Mean ± SD	HPA Mean ± SD	
<b>Age</b>				
18-34 years	35.10 ± 6.61	12.92 ± 4.25	11.73 ± 3.85	2.27 ± 3.58
35-54 years	35.37 ± 7.26	13.02 ± 4.46	11.62 ± 4.22	2.77 ± 3.88
55-70 years	34.93 ± 8.42	13.25 ± 4.34	11.67 ± 3.53	5.01 ± 5.032
Test	F=0.178	F=0.195	F=0.090	KW= 1.204
p	P=0.837	P=0.823	P=0.914	P= 0.548
<b>Gender</b>				
Female	36.13 ± 6.19	12.92 ± 4.24	12.44 ± 3.56	2.56 ± 3.81
Male	33.46 ± 7.67	13.04 ± 4.42	10.40 ± 4.18	1.36 ± 0.48
Test	t=6.109	t=-0.423	t= 8.316	U=124.185.000
p	p=0.001*	p=0.672	p=0.001*	p=0.993
<b>Marital status</b>				
Married	35.96 ± 7.07	13.45 ± 4.21	11.76 ± 3.97	2.55 ± 3.66
Single	34.60 ± 6.71	12.63 ± 4.34	11.66 ± 3.89	2.56 ± 3.91
Test	t=3.149	t=2.998	t=0.369	U=129251.000
p	p=0.002*	p=0.003*	p=0.712	p=0.928
<b>Educational status</b>				
Primary <sup>a</sup>	34.19 ± 7.56	12.32 ± 4.15	11.52 ± 4.00	3.64 ± 4.24
High school <sup>b</sup>	36.61 ± 6.39	13.66 ± 4.21	11.89 ± 4.00	1.99 ± 3.28
University and higher <sup>c</sup>	33.03 ± 6.47	12.14 ± 4.42	11.48 ± 3.87	2.66 ± 4.16
Test	F=27.518	F=14.640	F=1.266	KW= 26.806
p	p=0.001* (b>a. b>c)	p=0.001* (b>a. b>c)	p=0.282	p=0.001* (a>b. a>c)
<b>The state of doing weekly physical activity</b>				
1-2 days	35.02 ± 6.96	12.91 ± 4.32	11.69 ± 3.94	
3 days and more	35.55 ± 6.67	13.12 ± 4.27	11.73 ± 3.88	2.09 ± 3.29
Test	t=-1.100	t=-0.675	t=-0.134	U=94373.000
p	p=0.272	p=0.500	p=0.893	p=0.030*
<b>The state of having children</b>				
Yes	35.80 ± 7.08	13.27 ± 4.22	11.71 ± 3.95	2.79 ± 4.00
No	34.70 ± 6.71	12.75 ± 4.36	11.69 ± 3.91	2.39 ± 3.67
Test	t=2.536	t=1.917	t=0.082	U=126141.500
p	p=0.011*	p=0.055	p=0.934	p=0.381*
<b>Working status</b>				
No <sup>a</sup>	35.38 ± 6.62	12.79 ± 4.31	12.26 ± 3.71 <sup>a</sup>	2.83 ± 3.98 <sup>a</sup>
No. but I used to before the pandemic <sup>b</sup>	35.33 ± 6.88	14.62 ± 5.22	13.75 ± 4.20 <sup>b</sup>	3.04 ± 4.64
Yes. from home <sup>c</sup>	35.35 ± 7.18	12.13 ± 4.63	10.70 ± 4.66 <sup>b</sup>	2.45 ± 3.60
Yes. with fixed hours <sup>d</sup>	36.15 ± 6.63	14.11 ± 4.39	11.58 ± 4.21	2.98 ± 3.79
Yes. full time <sup>e</sup>	34.82 ± 7.12	12.97 ± 4.18	10.92 ± 3.91 <sup>a,b</sup>	1.89 ± 3.37 <sup>b</sup>
Retired <sup>f</sup>	32.09 ± 8.45	12.78 ± 3.70	10.28 ± 3.74 <sup>b</sup>	3.56 ± 4.19
Test	F=1.886	F=2.295	F=7.633	KW=17.624
p	p=0.094	p=0.050	p=0.001* (a>e .b>c. b>e. b>f)	p=0.003* (a>e)
<b>Monthly income</b>				
<1000 tl <sup>a</sup>	34.48 ± 6.75 <sup>b</sup>	12.44 ± 4.41 <sup>b</sup>	11.84 ± 3.67 <sup>a</sup>	2.47 ± 3.74 <sup>b</sup>
Between 1000-3000 tl <sup>b</sup>	34.25 ± 7.46 <sup>b</sup>	13.10 ± 4.23	11.92 ± 3.97 <sup>a</sup>	3.70 ± 4.43 <sup>a</sup>
Between 3000-4000 tl <sup>c</sup>	35.48 ± 6.91	12.90 ± 3.88	12.36 ± 3.71 <sup>a</sup>	2.87 ± 3.73
>4000 tl <sup>d</sup>	36.38 ± 6.48 <sup>a</sup>	13.49 ± 4.32 <sup>a</sup>	11.19 ± 4.18 <sup>b</sup>	1.83 ± 3.29 <sup>b</sup>
Test	F=6.177	F=3.626	F=3.395	KW=9.685
p	p=0.001* (d>a. d>b)	p=0.013* (d>a)	p=0.017* (c>d)	p=0.021* (b>d)
<b>Presence of individuals aged 65 and older at home</b>				
Yes	34.58 ± 7.49	12.82 ± 4.02	12.04 ± 3.80	3.07 ± 4.12
No	35.31 ± 6.72	13.00 ± 4.38	11.61 ± 3.95	2.42 ± 3.72
Test	t=-1.291	t=-0.569	t=1.431	U=80164.500
p	p=0.198	p=0.570	p=0.153	p=0.022*
<b>Presence of chronic disease</b>				
Yes	34.44 ± 7.55	12.95 ± 4.04	12.01 ± 3.96	3.66 ± 4.49
No	35.30 ± 6.74	12.97 ± 4.36	11.64 ± 3.91	2.33 ± 3.62
Test	t=-1.388	t=-0.054	t=1.124	U=63573.000
p	p=0.166	p=0.957	p=0.261	p=0.001*
<b>Presence of psychiatric disease</b>				
Yes	33.82 ± 7.16	10.70 ± 3.93	10.72 ± 3.42	5.10 ± 5.03
No	35.21 ± 6.87	13.06 ± 4.30	11.74 ± 3.94	2.45 ± 3.72
Test	t=-1.251	t=-3.414	t=-1.613	U=12957.000
p	p=0.211	p=0.001*	p=0.107	p=0.001*

F: one-way ANOVA; t: Independent Sample T-Test; KW: Kruskal Wallis Test; U: Mann Whitney U test; \*p< 0.05.

was found between the anxiety scores ( $p=0.001$ ). Participants with chronic disease were found to have higher anxiety scores. A significant difference was found between AFCD scores and anxiety scores of the participants in terms of the presence of psychiatric disease ( $p=0.001$ , in both). The participants who did not have any psychiatric diseases were found to have higher AFCD scores; while those who had a psychiatric disease were found to have higher anxiety scores (Table 3).

Table 4 shows a negative significant correlation between coronavirus awareness scale CPA factor and anxiety scores ( $r=-0.115$ ,  $p<0.001$ ), a positive significant correlation between HPA and anxiety scores ( $r=0.167$ ,  $p<0.001$ ), while no significant correlation was found between the AFCD factor total mean score and anxiety scale total mean score ( $p>0.001$ ) (Table 4).

**Table 4:** Correlation between the coronavirus awareness scale factors and anxiety total score.

		Coronavirus Awareness Scale factors		
		CPA	AFCD	HPA
Anxiety total score	R	-.115	0.010	0.167
	p	0.001**	0.737	0.001**

R: Spearman Correlation Coefficient. \*\* $p<0.001$ .

## Discussion

In this section, the results found in the study have been discussed in light of the relevant literature. It was found that all patients had high mean CPA, AFCD, and HPA scores, while they had low mean anxiety scores. This finding shows that more than half of the participants followed precautions such as quarantine and social media rules, followed up-to-date developments regularly, and obeyed hygiene precautions. In a study conducted in Arabia, it was found that the majority of the participants showed behaviors to prevent the infection from spreading [20]. According to a study conducted in Bangladesh, it was found that less than half of the participants had a good level of knowledge regarding the pandemic [21]. These differences between countries can be related to the differences in accessing knowledge and the level of income. In a study conducted in China, it was found that individuals in a mildly infected area had higher awareness than participants in a seriously infected area in terms of the precautions to prevent the pandemic [15]. Previously conducted studies showed that the public may develop psychological problems due to the lack of knowledge on public health emergencies [22,23]. A high level of awareness may prevent psychiatric problems that may occur [24]. Covid-19 is a new virus. For this reason, it may cause anxiety among individuals in regions where the pandemic is experienced severely [15]. According to the results of the present study, less than half of the participants experienced anxiety. In a study conducted in Austria, it was found that 19% of the participants experienced anxiety [25]. In a study conducted in Portugal, the rate of anxiety experienced was reported as 9.1% [9]. In another study conducted in India, the rate of anxiety was found as 25% [7]. The results of the present study are similar to the results in the literature. In one study, it was found that the societies which defined themselves as religious showed stronger psychological resilience against the pandemic [26]. The anxiety rates experienced may be related to the country's level of development in health technology and piety.

In our study, a significant difference was found between educational status, physical activity, having a child, working status, monthly income, presence of individuals aged 65 and over at home, having a chronic illness, having a psychiatric illness, and the presence of anxiety. A significant difference was also found between awareness

levels and gender, marital status, educational status, having children, working status, monthly income, and the presence of psychiatric disease.

In terms of gender, female participants' contagion precaution awareness and hygiene precaution awareness were found to be higher, as expected. This shows that women obeyed quarantine and social distance measures more diligently. A different study conducted also found that women had higher pandemic awareness levels [27]. In the present study, married participants were found to have a higher awareness of contagion prevention and following current developments. This can be associated with married women having children and their instinct of protecting them. It is important to inform the public correctly. According to a study conducted, access to information about the pandemic is mostly provided through the internet, online newspapers, and social networks. For this reason, for the healthy spread of valid information, communication activities need to be redesigned [15]. In the present study, primary education graduates were found to have higher anxiety scores. It has been found that being more exposed to information will decrease information pollution and anxiety. It was also found that not getting a university education might be a cause of high anxiety [15]. Planning education about the pandemic to primary education graduates by using simple language may decrease information pollution and anxiety rates. In the present study, it was found that the participants with a low level of education took communication networks such as social media more seriously. It was found that high school graduates had higher awareness of contagion precautions and they followed the current developments more than primary education and university graduates. This difference may be due to the fact that there were more high school graduates in the study.

In the present study, the participants who exercised less than others (1-2 days a week) had higher anxiety scores. Physical activity has the potential to strengthen psychological resilience and coping skills [28]. It has been reported that the number of steps walked worldwide decreased in the period after the declaration of COVID-19 as a global pandemic [29]. According to studies conducted, it has been found that there is a decrease in physical activity levels due to social distancing precautions, and physical activity may help to decrease COVID-19-related anxiety [30,31]. Physical activity is recommended as a non-pharmacological measure because of its documented positive acute effect on psychological symptoms [32]. Creese et al. [33] found physical activity to be effective in coping with anxiety during the pandemic. In a different study, sedentary life was found to be associated with increased anxiety levels [34]. World Health Organization reported that frequent and long-term physical activity significantly decreased pandemic-related anxiety [35]. The results of the present study are in parallel with the literature.

In the present study, married participants were found to have a higher awareness of contagion precautions and following current developments. This result can be associated with having children and parental instinct. It was also found that the participants who had children experienced higher anxiety levels. In a different study, the rate of moderate and severe anxiety was found to be 18% among parents in Chinese society [36]. This result supports the results of our study. In addition, the hygiene-measures awareness of participants with children was found to be higher when compared with participants who did not have children. This was an expected result. The family unit, which is the basic building block of any society,

should be prepared regarding how to protect themselves and others from diseases and how to prepare one of its members to cope with this situation. For this reason, it is critically important to manage the pandemic by increasing personal health consciousness to decrease mental health risks among parents [36].

In our study, the participants who were not working and those who were not working due to the pandemic had higher hygiene precaution awareness. This result may be due to obeying quarantine measures more as a result of spending more time at home. It was found that participants with a monthly income higher than 3000 TL had higher contagion awareness and following current developments awareness. These results may be associated with the fact that working participants need to protect themselves from the pandemic, and thus, need the information required for this task. In the present study, the participants who had a low monthly income level and those who were not working had higher anxiety scores, as expected. The socioeconomic state is a complex structure, which includes various factors such as household income, household conditions, profession, education, and unemployment [37]. As an indicator of socioeconomic state, income level is associated with different health outcomes. This indicator is considered to be one of the best predictors of material living standards [38]. There is a strong correlation between socioeconomic status and low income and poor health status for morbidity and mortality rates, and lower socioeconomic groups carry a higher burden of disease. Considering that individuals with a low level of income are more likely to have professions with a high risk of being exposed to COVID-19 and less access to health services, unequal income can worsen the impacts of the pandemic [39,40]. In a study conducted in Austria, Pieh et al. [25] (2020) found that individuals with a low level of income experienced more anxiety. In another study, experiencing financial loss was found to be associated with an increased level of anxiety [34]. These findings support the information that the decrease in income status prepares the ground for various mental diseases [41].

In the present study, anxiety scores of the individuals who lived with an old parent at home were found to be higher. Caregivers may also have underlying health problems, or family members who have not provided care before may have to do this to fill in the resulting lack of care [42]. In this case, caregivers may experience anxiety due to feeling insufficient in providing the necessary care, not being able to find caregiver support, and the anxiety of having a loss. In a study conducted, it was found that 70% of caregivers had to provide more care due to quarantine measures, and this caused mental problems in them. In the same study, 87% of the participants worried about getting sick and not being able to look after their loved ones [42]. In our study, those who had a chronic or psychiatric disease had higher anxiety scores. It is more difficult for individuals with a chronic disease or those who can be psychologically hurt to protect themselves from the destructive effects of the virus [43]. It was also found that the participants who had no psychiatric disease had higher awareness regarding following up-to-date developments. This can be due to the fact that patients with mental diseases are more prone to social isolation. In a study conducted, it was reported that during the quarantine, patients with chronic diseases such as cardiovascular diseases, active cancer, diabetes, stroke, dementia, schizophrenia, and major depressive disorder suffer more from emotional discomfort, anxiety, anger, confusion, and stigmatization [3]. In a different study, it was found that having a non-contagious chronic disease was associated with increased symptoms of anxiety [34]. It has been reported that in some chronic diseases, anxiety associated with

COVID-19 may lead to disease exacerbations, including decreased physical activity [44,45]. These patients with chronic diseases should be given timely psychological care in addition to physical care [46]. During any contagious disease, psychological reactions of the population play a critical role both in shaping the spread of the disease and the occurrence of emotional distress, and social disorder during and after the epidemic. The long-term mental health effects of COVID-19 may take a long time to fully manifest, and managing this effect requires not only psychiatrists but also a harmonious functionality of the health system in general [43].

In the present study, it was found that anxiety decreased as contagion precaution awareness increased, and anxiety increased as hygiene precaution awareness increased. This result shows the importance of having correct information about the transmission ways of the infection. Previously conducted studies show that psychological development can be provided by increasing the pandemic awareness of the public [47]. On the other hand, in a study conducted in China, higher anxiety scores were found in the participants who were aware of the transmission methods of the disease. Situations such as cultural differences, religious beliefs, and the population living in the area may have caused these results. In addition, trying to apply hygiene rules more than necessary can be said to cause anxiety in individuals. In a different study, no correlation was found between awareness of behaviors to prevent infection and anxiety levels. Psychological problems due to a lack of knowledge can frequently be seen among the public [15]. For this reason, simple and understandable education can be planned for the public through media channels.

### Limitations of the Study

The results of the present study can be generalized only in the country it was conducted. In addition, especially older individuals who were not using a mobile phone may have been excluded from the study. Another limitation is the fact that illiterate individuals could not fill in the surveys even if they could use a mobile phone. Although not many, there are residential areas in which internet access is limited. Hence, individuals in these places may have been excluded from the study.

### Conclusion and Recommendations

In the present study, contagion precaution awareness, awareness of following current developments, and hygiene awareness factors rates were found to be high, while anxiety rates were low. Awareness levels were found to be higher among women, married, and high school graduates, have children, have a higher monthly income, and do not have a psychiatric illness. In addition, it was determined that primary school graduates, those with low physical activity duration, those who do not work, those who have a relatively low monthly income, those who have an individual aged 65 and over at home, and those with chronic diseases and psychiatric diseases experienced anxiety. It was determined that there was a correlation between the level of awareness of contamination and hygiene measures and the presence of anxiety among the participants. As long as life continues, the risk of epidemic disease also continues. Therefore, it is clear that governments should regularly plan online education in a language that the general public can understand and encourage participation in it. Thanks to regular and accurate information flow, information pollution can be reduced and anxiety rates in the society can be kept at lower levels.

### Ethical Considerations

Before starting the study, necessary permissions were obtained from the Ministry of Health, Scientific Research Platform. Ethics

committee approval was also obtained from a state university Ethics Committee (2021/04 numbered). The form including the necessary explanations about the purpose and method of the study was sent to participants online and they were included in the study after their written consent was taken. The study was conducted in accordance with the Helsinki Declaration of Human Rights.

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## Author's Contribution

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