

Factors Affecting Fear, Anxiety, and Depression during COVID-19 in Turkey: A Cross-sectional Study

Seda Kocak^{1,2}, Aysun Kazak³, Serdar Karakullukcu⁴

¹ Ankara University, Faculty of Medicine, Department of Physiology, Ankara, Türkiye.

² Kirsehir Ahi Evran University, Faculty of Medicine, Department of Physiology, Kirsehir, Türkiye.

³ Mersin University, Vocational School of Health Sciences, Medical Services and Techniques Department, First and Emergency Aid, Mersin, Türkiye.

⁴ Rize Provincial Health Directorate, Rize, Türkiye.

Correspondence Author: Seda Kocak

E-mail: seda.kocak@ahievran.edu.tr

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ABSTRACT

Objective: The aim of this study was to research levels of fear, anxiety and depression related with the COVID-19 outbreak and the potential risk factors contributing these facts within the population of Turkey.

Methods: 377 people participated in this study. This study conducted from September to the end of December 2020. An online survey was performed by using the Individual Information Form, The Fear of COVID-19 Scale (7-35 points) and Hospital Anxiety and Depression (HAD) Scale; HAD-A (0-3 points, ≥ 10), HAD-D (0-3 points, ≥ 7).

Results: When Hospital Anxiety and Depression Scale are examined, the anxiety scores of 15.9% (> 10 , $n = 60$) and depression scores of 34.2% (> 7 , $n = 129$) of the participants are higher than the cut-off points. HAD-A, HAD-D and COVID-Fear data were positively significantly correlated with each other ($p < 0.001$). In regression analysis, females, those with a relative who has at least one chronic illness, those with mental disorders, and those receiving psychological support were determined as risk factors.

Conclusions: Interrelationships of mental wellbeing, and health status changing at an individual basis must be taken into consideration while evaluating psychological effects of COVID-19.

Keywords: Anxiety, COVID-19, Depression, Fear

1. INTRODUCTION

Adults in Wuhan, the capital of Hubei province, applied to local hospitals with severe pneumonia symptoms for unknown reasons in December 2019. The People's Republic of China reported the epidemic to the World Health Organization (WHO) on December 31, 2019, and then it rapidly affected the whole world in a short time. The situation was declared as a pandemic. In those who suffered from this disease (which is called coronavirus disease of 2019, COVID-19), pathophysiological diseases such as acute respiratory distress syndrome and pneumonia can also be seen (1). This virus, which causes major respiratory infections, not only threatens the physical health of individuals but also can have acute and long-term effects on mental health (2). Individuals have been observed to suffer greater depression, anxiety, and stress, particularly as the pandemic spreads and the number of cases rises (3). Previous studies have shown that infectious diseases such as severe acute respiratory failure syndrome (SARS) can increase individuals' anxiety, depression, and stress levels (4). In addition, basic precautions against pandemic, changing daily routine, separation from family and friends,

the thought of food and medicine shortages, loss of income, social isolation, and school closures have created fear in individuals. Other factors that create fear in individuals during the pandemic are the fear of being infected and infecting their beloved ones. Especially before the curfews, people flocking to markets and increasing the risk of transmission by not maintaining social distance increased fear during the COVID-19 in Turkey (5).

Depression and anxiety disorders are common mental illnesses that affect a large part of the population. The reason for examining anxiety and depression together is that both diseases are seen at a very high rate (6, 7). Depression is a constant sadness, loss of interest, hopelessness, concentration disorder, interrupted sleep or food. In anxiety, situations such as worry, fear, restlessness, irritability and social isolation are seen. 322 million people suffer from depression while 264 million people suffer from anxiety at the global (8). In the emergence of the anxiety and depression in humans, the disease may occur after external factors other than medical factors. Pandemic is one of the factors (9, 10).

COVID-19 pandemic is a stressful situation for people and nations (11). Significant links have been found between viral diseases and anxiety-depression (12). The fear of COVID-19 was significantly associated with depression and anxiety according to Italian study which applied Hospital Anxiety and Depression scale (13). Chronic patients who experience pathophysiological stress may also be under psychological stress during the COVID-19. Studies showed that chronic disease symptoms worsen in the presence of anxiety and depression (14, 15). Individuals with chronic diseases are more susceptible to vulnerable from depression, and depression is more common with people having chronic diseases than the healthy population worldwide (16). The purpose of this study is to evaluate the factors affecting psychological variables such as fear, anxiety, and depression of individuals during the COVID-19 pandemic in Turkey. Our aim is to shed light on developing strategies and ongoing COVID-19 researches to prevent fear, anxiety, and depression.

2. MATERIAL AND METHODS

2.1. Design and Participants

This descriptive study was carried out to evaluate the factors affecting psychological variables such as fear, anxiety, and depression during the COVID-19 pandemic. Participants were recruited via social media channels (Facebook, Instagram, Twitter, WhatsApp) from September to the end of December 2020. Participants were over age of 18, literate in Turkish, had internet access and agreed to participate. The research data were collected through a web-based online survey conducted to decrease face to face interaction due to the COVID-19 isolation strategy. Participants completed the questionnaires by connecting to the website with a computer or smartphone.

2.2. Sampling method and sample size

Sample size was calculated according to 23.6% expected prevalence (17), Type 1 error of 5% and statistical power of 95% in a similar study. It was predicted that at least 277 people will be included in the study. Rate of waste was accepted as 30%. The study was completed with the participation of 377 people. OpenEpi, Version 3, open-source calculator was used for sampling size.

2.3. Measurements

The data were collected using the Individual Information Form, The Fear of COVID-19 Scale and Hospital Anxiety and Depression (HAD) Scale.

2.3.1. Individual Information Form

There are 20 questions –all of which has been developed by researchers – in questionnaire about socio-demographic characteristics (age, gender, marital status, etc.), information about chronic disease (whether there is any chronic disease and/or any relative with any chronic disease), information about whether the participants suffer from any mental disorder.

2.3.2. The Fear of COVID-19 Scale

Fear scale was firstly defined by Ahorsu et al and modified by Bakircioglu et al for Turkish version (13, 14). The scoring system for this 7-item scale is a 5-point Likert-type rating system. Participants use a 5-point Likert-type rating system to answer the questions as “strongly disagree” (1), “disagree” (2), “neither agree nor disagree” (3), “agree” (4), and “strongly agree” (5). This scale does not include reverse coding items. The total score obtained from all items of the scale reflects the level of the fear caused by COVID-19. The scale yields scores ranging from seven to thirty-five. A high score on the scale indicates that participants are afraid of COVID-19. The internal consistency of the scale is 0.88 (18).

2.3.3. Hospital Anxiety and Depression (HAD) Scale

The scale was developed by Zigmond&Snaith (19) and adapted to Turkish context by Aydemir et al. (20). It has subscales for anxiety and depression. It's a 14-item self-assessment scale with seven items investigating depressive symptoms (even numbers) and seven items investigating anxiety symptoms (odd numbers). Answers are graded on a four-point Likert scale, with scores ranging from 0 to 3. The goal of the scale is to determine the risk group by screening anxiety and depression in a short amount of time, rather than to make a diagnosis. Despite the fact that the scale's name includes the term “hospital,” it can also be utilized in research. As a result of the ROC analysis, the cut-off points of the Turkish HAD scale were determined as 10 for the anxiety subscale (HAD-A) and 7 for the depression subscale (HAD-D) (20).

2.4. Ethical Considerations and Consent

The study was approved by the Gumushane University Scientific Research and Publication Ethics Board (approval number 2020/6). In addition, the necessary permission for COVID-19 scientific research studies was obtained from the Republic of Turkey Ministry of Health (approval number: 2020-06-03T17_26_53) and Ankara Provincial Health Directorate (approval number 36198255). Before taking part in the study, all of the participants signed an electronic informed consent form.

2.5. Data analysis

Data were analyzed using SPSS 22.0 (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.). $p < 0.05$ was considered statistically significant. Descriptive statistics were performed to evaluate our data. Data shows numbers and percentages for categorical variables, mean and standard deviation for numerical variables. One Sample Kolmogorov Smirnov test was performed to adjust normal distribution, Mann Whitney U test was performed to compare numerical variables between two independent groups since assumption of normality was not met. Spearman test was performed for correlation analysis. Participants were divided into anxiety and depression groups according to the HAD scale cut-off points. The factors of anxiety and depression were determined by using logistic regression. The researchers utilized multiple linear regression analysis to find factors linked to COVID fear. Odds ratio (OR) and 95% confidence intervals (95% CI) are reported.

3. RESULTS

The average age of 377 participants in the study is 41.3 ± 14.7 , 52.5% ($n = 198$) of them are women. 68.2% of the participants are married ($n = 257$), 88.6% ($n = 334$) live with their families. The rate of those having a full-time job was 60.5% ($n = 228$). There are 75 (19.9%) active smokers. When the presence of chronic disease is questioned, 36.3% of the participants ($n = 137$) stated to have a chronic disease, 60.5% ($n = 228$) of the participants are those with a relative who has at least one chronic illness. The rate of those with mental disorders was 4.2% ($n = 16$), and the rate of those who received psychological support was 24.9% ($n = 94$). When the presence of individuals diagnosed with COVID in the family was questioned, 28 people (7.4%) answered "yes". The average HAD-A score of participants is 7.3 ± 3.9 , the HAD-D score is 6.2 ± 4.0 and the COVID-fear score is 17.7 ± 6.4 (Table 1).

Table 1. Sociodemographic and clinical characteristics of the participants

Variables	Number (N=377)	%
Gender		
Male	198	52.5
Female	179	47.5
Marital Status		
Married	257	68.2
Single	120	31.8
Civil Status		
Living with family	334	88.6
Single	43	11.4
Type of employment		
Employment full-time	228	60.5
Unemployed	149	39.5
Use of tobacco products		
Current smoker	75	19.9
Lifetime abstainer	212	56.2
Former smoker	90	23.9
Presence of a chronic disease		
Yes	137	36.3
No	240	63.7
Being with a relative who has at least one chronic illness		
Yes	228	60.5
No	149	39.5
Presence of a mental disorder		
Yes	16	4.2
No	361	95.8
Receiving psychological support		
Yes	94	24.9
No	283	75.1
The Presence of an Individual Diagnosed with COVID in the Family		
Yes	28	7.4
No	349	92.6
Age, Mean \pm SD		
	41.3 \pm 14.7	
HAD-A, Mean \pm SD		
	7.3 \pm 3.9	
HAD-D, Mean \pm SD		
	6.2 \pm 4.0	
COVID Fear, Mean \pm SD		
	17.7 \pm 6.4	

Anxiety scores of women, those with a relative who has at least one chronic illness, and respondents supported psychologically were significantly higher. Depression scores of respondents with chronic diseases, those with a relative who has at least one chronic illness, respondents with psychiatric diseases and respondents supported psychologically were also higher. When we look at results of COVID-fear scale, scores of women, respondents with chronic diseases, those with a relative who has at least one chronic illness, and respondents supported psychologically were significantly higher (Table 2). When the cut-off points of HAD scale are observed, the anxiety scores of 15.9% ($n = 60$) of the participants and 34.2% ($n = 129$) of the participants are higher than cut-off points.

Table 2. Comparison of participants' HAD-A, HAD-D and Fear scores

	HAD – A Mean±SD	HAD-D Mean±SD	Fear Mean±SD
Age			
18-49	7.7±3.8	6.3±3.9	17.9±6.5
>50	6.1±4.1	6.0±4.3	17.3±6.1
P value	<0.001	0.412	0.573
Gender			
Male	7.8±4.2	6.7±4.2	18.6±6.6
Female	6.7±3.6	5.7±3.6	16.6±6.0
P value	0.021*	0.041*	0.004*
Marital Status			
Married	7.2±4.0	6.4±4.1	18.0±6.3
Single	7.4±3.8	5.9±3.8	17.0±6.5
P value	0.654	0.205	0.143
Civil Status			
Living with family	7.3±3.9	6.3±4.0	17.6±6.3
Single	7.1±4.0	5.8±3.9	18.1±7.2
P value	0.821	0.468	0.818
Type of employment			
Employment full-time	7.1±3.7	6.2±3.9	17.3±6.4
Unemployed	7.5±4.2	6.3±4.1	18.2±6.3
P value	0.488	0.830	0.176
Use of tobacco products			
Yes	7.4±3.9	6.7±4.3	18.2±6.9
No	7.2±3.9	6.1±3.9	17.6±6.3
P value	0.950	0.324	0.643
Presence of a chronic disease			
Yes	7.6±3.7	6.8±4.1	18.3±6.1
No	7.0±4.0	5.9±3.9	17.3±6.5
P value	0.126	0.032*	0.101
Being with a relative who has at least one chronic illness			
Yes	7.9±3.8	6.7±4.0	18.6±6.4
No	6.3±3.9	5.6±3.9	16.3±6.1
P value	<0.001*	0.002*	0.001*
Presence of a mental disorder			
Yes	9.2±5.3	10.2±5.8	18.9±6.9
No	7.2±3.8	6.1±3.8	17.6±6.4
P value	0.135	0.005*	0.420
Receiving psychological support			
Yes	8.5±4.3	7.4±4.8	19.5±6.9
No	6.9±3.7	5.9±3.6	17.1±6.1
P value	0.003*	0.017*	0.009*
The Presence of an Individual Diagnosed with COVID in the Family			
Yes	7.5±4.4	6.7±3.7	18.6±6.9
No	7.2±3.9	6.2±4.0	17.6±6.3
P value	0.999	0.595	0.465

HAD-A: Hospital Anxiety and Depression, Anxiety Subscale

HAD-D: Hospital Anxiety and Depression, Depression Subscale

*p < 0.05

Gender (OR=2.362, 95% CI = (1.289,4.328)) and receiving a psychological support (OR=1.865, 95% CI = (1.013,3.435)) are risk factors for anxiety; being with a relative who has at least one chronic illness (OR=1.939, 95% CI = (1.205,3.120)) and presence of mental disorder (OR=3.813, 95% CI = (1.246,11.667)) are determined as risk factors for depression according to the findings of a multiple binary logistic regression analysis of depression and anxiety risk variables (**Table 3**).

Table 3. Results of logistic regression analysis on factors significantly associated with depression and anxiety.

	Anxiety according to HAD-A		Depression according to HAD-D	
	OR (95% CI)	P value	OR (95% CI)	P value
Age	0.980 (0.958, 1.002)	0.074	0.992 (0.976, 1.008)	0.327
Gender	2.362 (1.289, 4.328)	0.005*	1.273 (0.818, 1.982)	0.285
Presence of chronic disease	0.928 (0.488, 1.765)	0.820	1.213 (0.740, 1.989)	0.444
Being with a relative who has at least one chronic illness	1.830 (0.968, 3.460)	0.063	1.939 (1.205, 3.120)	0.006*
Presence of a psychiatric disease	1.669 (0.482, 5.780)	0.419	3.813 (1.246, 11.667)	0.019*
Psychological support	1.865 (1.013, 3.435)	0.045*	1.533 (0.926, 2.538)	0.096

HAD-A: Hospital Anxiety and Depression, Anxiety Subscale

HAD-D: Hospital Anxiety and Depression, Depression Subscale

*p < 0.05

Female gender ($\beta = 0.142$, $p = 0.005$), being with a relative who has at least one chronic illness ($\beta = 0.151$, $p = 0.003$), and psychological support status ($\beta = 0.130$, $p = 0.010$) were independent predictors for COVID-19 fear to estimate scores according to multiple linear regression analysis and displayed in **Table 4**.

Table 4. Results of multiple linear regression analysis of clinical variables for predicting COVID-fear scales

	COVID-19 Fear			
	B	β	95% CI for B	P value
Gender (Male and Female)	1.816	0.142	(0.557,3.076)	0.005*
Presence of chronic disease (yes-no)	0.448	0.034	(-0.880,1.775)	0.508
Being with a relative who has at least one chronic illness	1.971	0.151	(0.659,3.284)	0.003*
Psychological support (yes-no)	1.923	0.130	(0.460,3.386)	0.010*

*p < 0.05

The correlation of HAD-A, HAD-D and COVID-Fear scales is shown in **Table 5**. All data were positively significantly correlated with each other ($p < 0.001$). The correlation coefficients ranged from $r = 0.322$ to $r = 0.610$.

Table 5. Correlation of HAD-A, HAD-D and Fear scales

	CD		None-CD		Total	
	HAD-A	HAD-D	HAD-A	HAD-D	HAD-A	HAD-D
HAD-D	r= 0.447*		r= 0.695*		r= 0.610*	
Fear	r= 0.486*	r= 0.302*	r= 0.452*	r= 0.342*	r= 0.466*	r= 0.322*

* $p < 0.001$, CD: Chronic disease, None-CD: Absence of chronic disease

4. DISCUSSION

The COVID-19 pandemic has been an unexpected and uncertain situation during which our country and other countries had difficulty in understanding and discerning, especially at the beginning. Fear (getting sick, dying, being separated from beloved ones due to quarantine, losing beloved ones due to virus), feeling helpless and stressed due to social isolation, feeling lonely and depression symptoms come to the fore by looking at the symptoms of those directly or indirectly affected by the pandemic (21, 22).

The aim of this study is both to examine the interaction amongst fear, anxiety, depression levels and the factors affecting fear, anxiety, depression levels of individuals related to the COVID-19 pandemic in Turkey. The first notable finding of our research is the differentiation of some psychological variables according to gender during the COVID-19 pandemic. The anxiety and fear levels of female respondents were higher compared to male respondents. This finding is consistent with previous studies showing that women experienced some psychological problems more negatively during pandemic periods (17, 23-28). The scores of anxiety and fear of female respondents being higher can be explained by the presence of a gender perception in which duties and responsibilities within the home environment are expected from women to a large extent (29). In the COVID-19 pandemic, due to social isolation measures, spending more time with family at home may represent more responsibility and duty that are needed to be overcome, especially for women. In addition, we believe that genetic, biological and hormonal characteristics of women, controlling their emotions and behavior less than men in society, and experiencing their emotions more intensely than men affected anxiety and fear results (24).

The COVID-19 pandemic has resulted in a slew of significant etiological global mental diseases that have impacted all aspects of life and thrown the societal fabric into disarray. COVID-19 is a condition that can expose a variety of fears (contagion, the future, financial difficulties, xenophobia, and agoraphobia) as well as cause anxiety and fear-related aspects. (30). In addition to gender, other findings of the present study are COVID-fear and depression with those with a relative who has at least one chronic illness, COVID-fear and anxiety with those receiving psychological support, and depression scores with those with mental disorder(s) were found to be significantly higher. In a study conducted with 1304 people in Turkey, the relationship between fear of COVID-19 and depression, anxiety and stress variables were examined. It has been determined that fear of COVID-19 mediates these variables (22). In another study conducted

with university students in Turkey, depression and anxiety were found to be predicted positively by fear (21). 78 percent of participants in an Australian study conducted during the COVID-19 outbreak showed that their mental health had deteriorated since the outbreak, a quarter said they were too or extremely worried about contracting COVID-19, and half said they were worried about family and friends contracting COVID-19. In addition, the COVID-19 fear score was found to be higher in those who previously received psychological support in that study (31). In a study conducted in South Africa, the relationships between perceived COVID-19 risk and depression were examined over two waves of COVID-19. Especially adults with a history of childhood trauma were twice as likely to experience depressive symptoms. Participants also had a high level of anxiety. It was also determined that the participants' fear of COVID-19 was due to financial insecurity and fear of contamination (32). In a study conducted during the COVID-19 outbreak in Hong Kong, the depression score was found to be high (33). Other studies investigated support our research (34, 35). A prolonged and unknown threat can become chronic and draining. Fear of the unknown causes anxiety in both healthy people and people with mental illnesses (36). Such a high infection and mortality rate is disturbing for individuals. Fear and anxiety can arise both by obtaining more information about the virus and by fearing from both the uncertainties and various mutations of the virus.

Chronic diseases involve challenging processes that fundamentally affect habits and quality of life. Scientists, health professionals, and people who pulled through the coronavirus state that the treatment processes were carried out under harsh conditions, and many difficulties were experienced by patients. Therefore, additionally, for individuals dealing with the difficulties of chronic illnesses, it may be frightening to hear about those aforementioned conditions and difficulties. Another important finding of the study is related with the fear of coronavirus and depression of the individuals according to their chronic illnesses. It has been observed that those with a history of chronic disease experience the psychological effects of the epidemic such as stress, anxiety, and depression at higher levels (23). The results of similar studies support our research (17, 18, 35, 37-39).

In the present study, a positive correlation was found between fear, depression and anxiety. Studies of the COVID-19 outbreak and other previous global infections have been found to cause health problems such as fear, anxiety and depressive symptoms (27, 28, 35). One of the studies, through which it was determined that the fear of COVID-19 can be exacerbated because of the coexistence of depression and anxiety disorders, is in parallel with our research results (13). Many factors have affected the level of public distress during COVID-19. Protection measures, curfews, social distancing, and especially restrictions cause negative effects on those who cannot sustain themselves. This leads to increased levels of anxiety and depression (23). While putting the measures to reduce the spread of the virus at the center of management

strategies, it is necessary to adopt practices that support the physical and psychological health of individuals. Knowing the psychiatric aspects of infectious diseases will guide clinicians for fast and appropriate psychological interventions.

The study had some limitations to consider. First, the participants' responses were constrained by items. Second, because the study used a web-based online survey, the participants' computer skills might have influenced how they replied to the survey. Third, because this is a descriptive study, the individuals' mental health could not be tracked over time. Fourth, our study findings may not be generalizable to other populations because factors such as the prevalence of COVID-19 and differential mortality can alter the effects of COVID-19 on mental health.

5. CONCLUSION

In conclusion, this study demonstrates the factors affecting generalized anxiety, depression, and fear associated with COVID-19 in Turkey. One of the main implications of this study is that governments should provide psychological support to citizens during a pandemic. In brief, home and web-based psychological interventions should be developed to reduce the negative effects of COVID-19 on mental health.

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Conflict of Interest

None

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