

# AN ASSESSMENT OF ANXIETY ABOUT THE VIRAL EPIDEMIC AND WORK-RELATED STRESS IN FAMILY PHYSICIANS IN TURKEY: HOW DOES COVID-19 VACCINATION PERIOD AFFECT ANXIETY AND STRESS?

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## SUMMARY

**Background:** Our study aimed to evaluate the extent of family physicians' anxiety about the viral epidemic and work-related stress associated with the viral epidemic as well as examining the effects of COVID-19 vaccination period on such situations.

**Subjects and methods:** Data collection forms including the SAVE-9 scale, prepared for this cross-sectional study, were converted into online questionnaires and sent to family physicians in order to evaluate and examine the extent of anxiety and stress of family physicians working as family physicians in different provinces of Turkey via e-mails and communication groups between December, 2020 and March, 2021. The responses of 500 family physicians who were accessible in this way and volunteered to participate in the study were recorded to be analysed. Of all the 500 physicians, the SAVE-9 scale was re-administered to the subgroup of 50 family physicians in the post-vaccination period. The responses were compared with those received in the pre-vaccination period.

**Results:** Of all the 500 family physicians in this study, 40.6% of them were found to be in a state of anxiety about the viral epidemic. In particular, the scores of anxiety about the viral epidemic and of work-related stress were found much higher in female physicians and in those reporting that they had inadequate income. While there was a significant decline in the scores of anxiety about the viral epidemic in the subgroup in the post-vaccination period of health care workers, no statistically significant change was found in work-related stress scores.

**Conclusion:** Family physicians have been suffering anxiety due to the pandemic. The vaccination period has a positive impact on anxiety levels.

**Key words:** anxiety - COVID-19 - family physicians – stress - vaccination

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## INTRODUCTION

The COVID-19 virus, which has been on the global agenda for more than a year, has produced massively devastating consequences. It is obvious that besides the physical and clinical symptoms caused by the COVID-19, there are also psychologically negative consequences of the disease. The COVID-19 pandemic has some alarming impacts in terms of emotional and social functionality related to the mental health of individuals and society (Pfefferbaum & North 2020). One of the groups most affected by such negative effects is undoubtedly healthcare workers.

Recent studies have shown that anxiety and dependency are considerably higher in healthcare workers, and that factors such as increased weekly working hours and increased number of patients with the COVID-19 are associated with the states of depression and anxiety (Hacimusalar et al. 2020, Elbay et al. 2020).

Other causes of increased anxiety and depression in healthcare workers may be directly related to the anxiety of being infected with the COVID-19, the uncertainty about the duration of the pandemic, and new places of work associated with the pandemic. In this context, the relevant authorities in Turkey have

attempted to eliminate the negative consequences by means of certain methods such as additional financial supports or flexible working arrangements where possible. COVID-19 vaccinations, which have recently been intensified in our country and in the world, may also be one of the factors to exert a positive influence on healthcare workers against the states of anxiety and stress associated with the pandemic.

Since the COVID-19 virus is an important public health issue not only in our country but also all over the world, it has been aimed to protect health and prevent the spread of the virus through measures taken for the sake of the public and the environment when it comes to the management of the COVID-19 pandemic. In this context, protective and preventive health care services have gained considerable importance. Family physicians, who are the backbone of preventive health care services, have undertaken great responsibilities in various fields in the management of the process since the beginning of the pandemic. Triage, treatment, monitoring, efficient use of resources, and providing cost-effective care are among these areas of responsibility (Lee et al. 2020). Family physicians are also considered as the building blocks of surveillance efforts because they are intertwined with families and individuals in social life (Grattagliano et al. 2020).

The contact tracing procedures in Turkey, which have been strictly applied under the leadership of family physicians, not only help detect source patients and their contacts, but also ensure that infected cases are isolated and people with close contacts are quarantined. In the management of the process, family physicians in hospitals work in the departments such as pandemic triage and pandemic service, whereas those in family health care centres monitor the infected patients from among those registered to them through close follow-up. In addition, with the latest developments, family physicians have been given more active duties and responsibilities in the vaccination process for the purpose of controlling the pandemic.

The efforts and sacrifices of family physicians, who deliver protective and preventive health care services to the public and are in close contact with individuals in the society, have been of undeniable importance, especially during the management of the pandemic. However, considering the weariness and length of the process, it is reckoned that family physicians, like all health workers, have developed increased anxiety, stress, and depression. The study, therefore, has aimed to evaluate the extent of anxiety and work-related stress associated with the COVID-19 pandemic in family physicians who play an active and efficient role in the management of the pandemic in addition to examining the effect of COVID-19 vaccination period on such circumstances.

## SUBJECTS AND METHODS

### Study Groups

The population of this cross-sectional survey study consisted of healthcare professionals working as family physicians in Turkey.

Since the number of family physicians in Turkey was reported to be 24,428 (Republic of Turkey, Ministry of Development, Special Expertise Commission Report 2018), the study population was accepted as 24,428. The sample size was calculated as 378 with 95% confidence interval and 5% margin of error using the following formula:

$$n = \frac{X^2 NP(1 - P)}{d^2(N - 1) + X^2 P(1 - P)}$$

The sample size was targeted by using the snowball sampling technique. For this purpose, on 22 December 2020, data collection forms were first sent to a group of 50 physicians, most of whom were family physicians in our hospital's family medicine clinic and whom we defined as a subgroup, in the form of an online questionnaire via e-mail addresses (GoogleGroups) and communication groups (Facebook, WhatsApp, etc.). Later on, more physicians were accessed via e-mail addresses (GoogleGroups) and communication groups (Facebook, WhatsApp, etc.) by using the snowball sampling method through this group of 50 physicians, the identities of whom were known when they participated in our study. Although the sample group was calculated as 378 at the

beginning of the study, a total of 530 data collection forms were accessed with this method. However, 30 responses were excluded since 3 participants stated that they did not want to participate in the study, and responses from 24 participants were systematically received more than once, while responses from 3 participants were inappropriate (for example, the number of years they worked was more than their age); and consequently, the responses of 500 family physicians from 54 different provinces were recorded. In our study, we employed the SAVE-9 scale, which was developed by Chung et al. in Korea to assess the anxiety and stress status of healthcare workers, and whose Turkish validity and reliability study was conducted by Uzun et al. (Chung et al. 2020, Uzun et al. 2021).

The implementation of mass COVID-19 vaccination campaign in our country was first initiated on January 14, 2021, with the Sinovac COVID-19 vaccine by prioritizing healthcare workers. We stopped receiving new participant responses to our study on January 11, 2021, the date when the vaccination period had not yet started in our country. Since the 2<sup>nd</sup> dose of the Sinovac COVID-19 vaccination was due 4 weeks after the 1<sup>st</sup> dose, the full-dose vaccination period of the healthcare workers who wanted to be vaccinated in our country had been completed by the end of March 2021. In March 2021, data collection forms containing the SAVE-9 scale were sent once again to the group of 50 family physicians, whom we considered as a subgroup at the beginning of our study, and the responses were compared with those obtained before the vaccination period, in order to evaluate whether there was a change in the respondents' anxiety and stress status. At the beginning of the survey applications, the informed consent was obtained from all the participants.

After obtaining permission prior to the study to use the translated Turkish version of the scale, the necessary approval was obtained from the Clinical Research Ethics Committee of the University of Health Sciences Antalya Training and Research Hospital with the approval number 20/14 dated 22.12.2020. The study was conducted in accordance with the Declaration of Helsinki.

### Measurement Tools

#### *Sociodemographic Data Form*

The study included a data form prepared by the researchers in such a way as to contain age, gender, marital status, and other sociodemographic and clinical characteristics associated with the COVID-19 pandemic.

#### *SAVE-9 (the Stress and Anxiety to Viral Epidemics) Scale*

Developed by Chung et al. in Korea to measure anxiety and stress of healthcare workers, the scale consists of 9 questions and 2 sub-dimensions. Six questions in the scale aim to assess anxiety about the viral epidemic, while 3 questions measure the work-related stress asso-

ciated with the viral epidemic. The responses given to the questions in the scale are stated as: “never, rarely, sometimes, often, always”, and scoring is done as 0, 1, 2, 3, 4, respectively. A total value of  $\geq 22$  for 9 questions and/or a score of  $\geq 15$  for 6 questions measuring the anxiety about the viral epidemic are considered significant (Chung et al. 2020). The scale has been found valid and reliable for multiple languages, including Turkish (Mosolova et al. 2020, Tavormina et al. 2020, Uzun et al. 2021).

**Table 1.** General characteristics of the participants (n=500)

Variables	n	%
Age, $\bar{X}\pm SS$ / min-max	37 $\pm$ 9.6	25-63
25-34	256	51.2
35-44	116	23.2
45-54	104	20.8
55-64	24	4.8
Gender		
Female	282	56.4
Male	218	43.6
Title		
Specialist doctor	118	23.6
Family medicine assistant	154	30.8
Non-tenured family physician with ongoing training for specialty	54	10.8
Academic	20	4.0
Non-tenured family physician	154	30.8
Place of Work		
FHC	273	54.6
Hospital	212	42.4
Other	15	3
Years of Profession, $\bar{X}\pm SS$ / min-max	12 $\pm$ 9.4	1-38
Marital Status		
Single	135	27.0
Married	365	73.0
Having Children		
No	234	46.8
Yes	266	53.2
Smoking		
Non-smoker	339	67.8
Smoker	93	18.6
Quitter	68	13.6
Psychiatric Disorder		
No	464	92.8
Yes	36	7.2
Chronic Disease		
No	365	73.0
Yes	135	27.0
Income Level		
Inadequate	62	12.4
Moderate	291	58.2
Good	142	28.4
Very good	5	1.0

FHC: Family health centre

## Statistical Assessment

The descriptive findings were presented with mean  $\pm$  standard deviation (SD) or median (min-max) for the continuous data, and with frequency (n) and percentage (%) for the categorical data. The normality assumptions were controlled by the Shapiro-Wilk test. Categorical data were analyzed by Pearson's chi-squared and Fisher's Exact test. Student's t-test was used for analysis of normally distributed numerical data. One-Way ANOVA was used for comparison of parametric variables between groups and Tukey HSD test was used as a post-hoc test for significant cases. The McNemar test was used to compare paired categorical data. The paired samples test t-test was used for the comparison of repeated measurements. The Spearman and Pearson correlation tests were used to examine the relationship between the SAVE-9 score and the other numerical variables. Multiple linear regression analysis was performed to determine the associated factors with the stress and anxiety of participants. The variables with  $p < 0.2$  in the univariate analyses were further tested in the multivariate model. Cronbach's alpha coefficient was calculated for the reliability analysis. Statistical analysis was made using IBM SPSS Statistics for Windows, Version 23.0 (IBM Corp., Armonk, NY). Two-sided p-value less than 0.05 was considered statistically significant.

## RESULTS

Of all the 500 family physicians in the study, 56.4% of them were female, while 43.6% were male, with the mean age of 37.0 $\pm$ 9.6 (25-63) years. The majority of the participants (55.7%) were reported to be working in a family health centre (FHC). Table 1 presents the sociodemographic characteristics of the participants.

Of all the participants, 91.8% (n=459) of them were reported to be working in the COVID-19 related units (Table 2).

In the study, the anxiety status of 500 family physicians in pre-vaccination period was assessed and 40.6% (n=203) were found to experience anxiety about the viral epidemic with a score of  $\geq 15$ .

When the SAVE-9 scale and sub-scale scores of the participants were examined, the scores of anxiety about the viral epidemic ( $p < 0.001$ ) and of work-related stress associated with the viral epidemic ( $p = 0.020$ ) were found to be significantly higher in female physicians. No significant relationship was found between the variables of age, marital status, smoking, having a child, and anxiety and stress scores, whereas the group that considered themselves as having inadequate income had statistically significantly higher scores of anxiety about the viral epidemic and of work-related stress associated with the viral epidemic ( $p < 0.001$ ) (Table 3).

**Table 2.** Participant characteristics related to the COVID-19 (n=500)

Variables	n	%
<b>Work Related to the COVID-19</b>		
Previously worked, currently not working	50	10.0
Currently working	409	81.8
Never worked	41	8.2
<b>Place of Work</b>		
The FHC for the follow-up of patients infected with the COVID-19	285	57.0
Contact Tracing Team	90	18.0
Specimen Collection	132	26.4
COVID-19 triage	124	24.8
COVID-19 service	112	22.4
COVID-19 ICU	29	5.8
COVID-19 polyclinic	10	2.0
<b>Whether or not infected with the COVID-19</b>		
No	431	86.2
Yes	69	13.8
<b>Hospital admission due to the COVID-19 (n=69)</b>		
No	61	88.4
Yes	8	11.6

FHC: Family health centre, ICU: Intensive care unit

A negative correlation was found between the level of income and the SAVE-9 scale and subscale scores, according to which anxiety and stress scores were found to increase as the level of income decreased (Table 4).

When the participants were evaluated according to their COVID-19-related workplaces, it appeared that the scores of anxiety about the viral epidemic ( $p=0.027$ ) along with the total scores of anxiety and stress ( $p=0.033$ ) in physicians actively working in COVID-19 units were found to be statistically significantly higher than those scores of the participants who never worked or who previously worked, but not currently working in such units. Work-related stress scores were found to be significantly higher in the group who had been infected and recovered from the COVID-19 infection ( $p=0.017$ ) (Table 5).

When the family physicians were evaluated in terms of their duties in the units related to the COVID-19, the concern of infecting the family members of the group who worked actively in the units related to COVID-19 was found to be significantly higher ( $p=0.009$ ) in comparison to the group who previously worked in the units related to COVID-19, but are not currently working and the groups who have never worked in the units related to the COVID-19.

The multiple linear regression analysis of the factors affecting the total scores in the SAVE-9 scale has shown that the variables of being female ( $\beta=0.240$ ;  $p<0.001$ ), working in the FHC ( $\beta=0.123$ ;  $p=0.010$ ), being married ( $\beta=0.095$ ;  $p=0.029$ ), smoking ( $\beta=0.086$ ;  $p=0.042$ ), presence of chronic disease ( $\beta=0.103$ ;  $p=0.016$ ), currently working in the COVID-19 related units ( $\beta=0.092$ ;  $p=0.034$ ), and having been infected and recovered from

the COVID-19 were positively correlated with the total scores of the SAVE-9 scale, and that the stress scores were higher in those participants. We also found that the participants' SAVE-9 scale scores decreased with an increasing income level ( $\beta=-0.282$ ;  $p<0.001$ ) (Table 6).

When the sub-group of 50 family physicians were given the data collection forms again in March 2021, the period when the 2-dose vaccination period was completed for healthcare workers, 92% of them ( $n=46$ ) stated that they had received 2 doses of COVID-19 vaccine. The responses given to the SAVE-9 scale in this subgroup of 50 physicians were compared to those responses received in the pre-vaccination period, and a significant decrease was found in the anxiety scores associated with the pandemic ( $p=0.001$ ). However, no significant change was found in work-related stress scores when compared to the pre-vaccination period ( $p=0.078$ ) (Table 7).

## DISCUSSION

This study assessed the extent of anxiety about the viral epidemic and relevant work-related stress of 500 healthcare professionals working as family physicians in Turkey, and determined that a significant number of the participants (40.6%) were suffering anxiety about the viral epidemic. When the subgroup of 50 participants was assessed for the second time after the COVID-19 vaccination period, it appeared that there was a significant decline in physicians' anxiety about the viral epidemic, but with no significant change in their scores of work-related stress associated with the viral epidemic. The increasing responsibilities of family physicians in the management of the pandemic may be regarded as the main reason for this.

On the other hand, there are many studies examining the psychological effects of the pandemic. In the early days of the pandemic in China, 927 medical health workers, i.e., nurses and doctors, and 1255 non-medical health workers were evaluated in terms of their mental status and relevant symptoms in a study concluding that insomnia, anxiety, depression and obsessive-compulsive disorders presented by the group of medical health workers proved significantly more common than those presented by nonmedical health workers (Zhang et al. 2020).

Another study conducted by Huang et al. with healthcare professionals who were involved in the treatment of COVID-19 at the beginning of the pandemic reported that clinical anxiety symptoms increased in 23% of the participants without a statistically significant difference in terms of age, marital status, department, title, educational background, and professional status (Huang et al. 2020). In our study, in a similar manner, no statistical significance was observed between the variables of age, marital status, having a child, and the scores of anxiety about the viral epidemic and of work-related stress associated with the viral epidemic, whereas work-related stress scores appeared to be significantly higher in family physicians with chronic diseases.

**Table 3.** SAVE-9 scale and sub-scale scores according to the general characteristics of the participants

Variables	n	Anxiety about the viral epidemic		Work-related stress associated with the viral epidemic		SAVE-9 Total score	
		$\bar{X}\pm SS$	p	$\bar{X}\pm SS$	p	$\bar{X}\pm SS$	p
Age							
25-34	256	13.3±4	0.864	4.2±2.6	0.287	17.5±6	0.612
35-44	116	13.5±4.6		4.2±3		17.7±6.7	
45-54	104	13.2±4		4.2±2.9		17.3±5.9	
55-64	24	13.8±4		5.3±3		19.2±6.2	
Gender							
Female	282	14±3.9	<0.001	4.5±2.7	0.020	18.5±5.8	<0.001
Male	218	12.5±4.3		3.9±2.9		16.4±6.4	
Title							
Specialist doctor	118	13.1±4.2	0.024	3.9±2.8	0.006	16.9±6.1	0.005
Family medicine assistant	154	13.7±4.1		4.3±2.6		18±6.1	
Non-tenured family physician with ongoing training for specialty	54	13.6±4		4.2±2.7		17.8±5.7	
Academic	20	10.6±4.5		2.6±2.3		13.2±6	
Non-tenured family physician	154	13.5±4.2		4.8±3		18.3±6.2	
Statistical significance		1-4, 2-4, 3-4, 4-5		1-5, 2-4, 3-4, 4-5		1-4, 2-4, 3-4, 4-5	
Place of Work							
FHC	273	13.5±4.1	0.418	4.5±3	0.031	18.1±6.2	0.129
Hospital	212	13.2±4.3		3.9±2.5		17.1±6.1	
Other	15	12.3±3.3		3.7±3.1		16.1±5.8	
Statistical Significance		-		1-2, 1-3		-	
Marital Status							
Single	135	12.8±4.2	0.082	4.1±2.9	0.501	16.9±6.3	0.136
Married	365	13.6±4.2		4.3±2.8		17.9±6.1	
Having Children							
No	234	13.3±4.2	0.713	4.3±2.7	0.836	17.6±6.3	0.876
Yes	266	13.4±4.1		4.2±2.9		17.7±6	
Smoking							
Non-smoker	339	13.1±4.3	0.096	4.2±2.8	0.167	17.3±6.2	0.080
Smoker	93	14.2±4.1		4.7±2.9		18.9±6.3	
Quitter	68	13.4±3.7		4±2.8		17.4±5.6	
Psychiatric Disorder							
No	464	13.4±4.2	0.931	4.2±2.8	0.195	17.6±6.1	0.595
Yes	36	13.3±4.5		4.8±3.2		18.1±7	
Chronic Disease							
No	365	13.2±4.2	0.149	4±2.7	0.003	17.2±6	0.021
Yes	135	13.8±4.2		4.9±2.9		18.7±6.3	
Income Level							
Low	62	15.1±4.4	<0.001	5.5±3.2	<0.001	20.5±6.7	<0.001
Moderate	291	13.6±3.9		4.4±2.6		18±5.7	
Good- Very good	147	12.1±4.2		3.4±2.7		15.6±6.1	
Statistical significance		1-2, 1-3, 2-3		1-2, 1-3, 2-3		1-2, 1-3, 2-3	

Student's t-test, One-way ANOVA test. FHC: Family health centre

**Table 4.** The correlation between the participants' SAVE-9 scale and subscale scores, and other variables

Variables	Anxiety about the viral epidemic		Work-related stress associated with the viral epidemic		SAVE-9 Total score	
	R	P	R	P	R	p
Age	0.002	0.966	0.037	0.413	0.023	0.612
Years of Profession	0.005	0.920	0.043	0.336	0.027	0.541
Income Level	-0.198	<0.001	-0.221	<0.001	-0.234	<0.001

**Table 5.** SAVE-9 scale and subscale scores according to the COVID-related characteristics of the participants

Variable	n	Anxiety about the viral epidemic		Work-related stress associated with the viral epidemic		SAVE-9 Total score	
		$\bar{X} \pm SS$	p	$\bar{X} \pm SS$	p	$\bar{X} \pm SS$	p
<b>Work Related to the COVID-19</b>							
Previously worked, currently not working	50	12.4±3.6	0.027	3.8±2.6	0.225	16.2±5.2	0.033
Currently working	409	13.6±4.2		4.4±2.8		18±6.2	
Never worked	41	12.2±4.3		3.8±2.9		16±6	
Statistical significance		1-2, 2-3		-		1-2, 2-3	
<b>The FHC for the follow-up of patients infected with the COVID-19</b>							
No	215	12.9±4.3	0.033	4±2.8	0.067	16.9±6.3	0.023
Yes	285	13.7±4		4.4±2.8		18.2±6	
<b>Contact Tracing Team</b>							
No	410	13.4±4.1	0.743	4.2±2.8	0.787	17.6±6	0.921
Yes	90	13.2±4.4		4.3±2.9		17.6±6.7	
<b>Specimen Collection</b>							
No	368	13.3±4.1	0.391	4.3±2.8	0.664	17.5±6	0.681
Yes	132	13.6±4.5		4.2±2.7		17.8±6.5	
<b>COVID-19 Triage</b>							
No	376	13.3±4.1	0.605	4.2±2.8	0.941	17.6±6.1	0.700
Yes	124	13.5±4.5		4.3±2.7		17.8±6.4	
<b>COVID-19 Service</b>							
No	388	13.3±4.1	0.696	4.2±2.8	0.848	17.6±6	0.724
Yes	112	13.5±4.6		4.3±2.7		17.8±6.7	
<b>COVID-19 ICU</b>							
No	471	13.3±4.2	0.070	4.3±2.8	0.443	17.6±6.1	0.380
Yes	29	14.7±4.2		3.9±2.7		18.6±6.2	
<b>COVID-19 Polyclinics</b>							
No	490	13.4±4.2	0.373	4.3±2.8	0.035	17.7±6.2	0.071
Yes	10	12.2±2.8		2.4±2.3		14.6±4.7	
<b>Whether or not infected with the COVID-19</b>							
No	431	13.3±4.2	0.370	4.1±2.8	0.017	17.4±6.1	0.089
Yes	69	13.8±4.3		5±2.7		18.8±6.3	
<b>Hospital admission due to the COVID-19 (n=69)</b>							
No	61	13.8±4.5	0.913	5±2.7	0.889	18.8±6.5	0.988
Yes	8	13.6±2.5		5.1±2.9		18.7±4.4	

Student's t-test; One-way ANOVA test; FHC: Family health centre; ICU: Intensive care unit

**Table 6.** The factors affecting the participants' total score in the SAVE-9 scale

Model	SAVE-9					95% Confidence Interval		
	B	SE	B	t	Sig.	VIF	Lower	Upper
Being female	2.973	0.537	0.240	5.533	<0.001	1.112	1.917	4.029
Working in the FHC	1.512	0.588	0.123	2.573	0.010	1.341	0.357	2.667
Being married	1.320	0.601	0.095	2.195	0.029	1.115	0.138	2.501
Smoking	1.362	0.668	0.086	2.039	0.042	1.058	0.050	2.674
Chronic disease	1.419	0.585	0.103	2.426	0.016	1.055	0.270	2.568
Income level	-2.681	0.403	-0.282	-6.650	<0.001	1.058	-3.473	-1.889
Currently working related to the COVID-19	1.466	0.692	0.092	2.120	0.034	1.115	0.108	2.825
Recovered from the COVID-19	1.544	0.749	0.087	2.061	0.040	1.045	0.072	3.015

R=0.409; R<sup>2</sup>=0.168; p<0.001; FHC: Family health centre

**Table 7.** The comparison of pre- and post-vaccine periods based on the SAVE-9 scale and subscale scores in the subgroup to whom the scale was readministered (n=50)

Variables	Before X̄±SS	After X̄±SS	p
Stress and Anxiety to Viral Epidemic-9 (SAVE-9)	19.1±5.6	16.4±7	0.001
<i>Anxiety about the viral epidemic</i>	14.6±4.1	12.4±4.7	0.001
Are you afraid that the virus outbreak will continue indefinitely?	2.3±1	2.1±1.1	0.261
Are you afraid your health will worsen because of the virus?	2.5±0.9	1.9±1	0.001
Are you worried that you might get infected?	3±0.9	2.3±1.1	<0.001
Are you more sensitive towards minor physical symptoms than usual?	2.3±1.1	2.1±1.1	0.231
Do you worry your family or friends may become infected because of you?	3.3±0.8	2.9±1	0.024
Are you worried that others might avoid you even after the infection risk has been minimized?	1.2±1.1	1.1±0.9	0.442
<i>Work-related stress associated with the viral epidemic</i>	4.6±2.2	4±2.9	0.078
Do you feel sceptical about your job after going through this experience?	1.9±1.4	1.3±1.3	0.001
After this experience, do you think you will avoid treating patients with viral illnesses?	0.9±0.8	1±1.1	0.695
Do you think that your colleagues would have more work to do due to your absence from a possible quarantine and might blame you?	1.7±1.3	1.7±1.3	0.828

Paired Samples t-test

Moreover, a study conducted in Spain with 1228 healthcare professionals who had contact with patients with the COVID-19 reported that the rate of having a possible anxiety disorder was 58.6%, while the rate of having a serious anxiety disorder was 20.7% (Luceño-Moreno et al. 2020). It was unfortunately not possible to rate the anxiety levels with the scale used in our study.

In a study conducted with the nurses in Korea using the SAVE-9 scale, the participants were divided into two groups as depressed and non-depressed, as a result of which the SAVE-9 scale scores turned out to be significantly higher in the group with depression, both in the subgroup of anxiety assessment and subgroup of the work-related stress assessment (Hong et al. 2021). In our study conducted with family physicians in Turkey by using the SAVE-9 scale, we determined that a significant part of the participants (40.6%) were in a state of anxiety about the viral epidemic.

The assessment of work-related stress scores in our study showed that the stress scores were significantly higher in the physicians who followed up patients infected with COVID-19 in the FHC. In addition to the cross-sectional assessment of anxiety about the viral epidemic and work-related stress associated with the viral epidemic, our study also examined the effect of COVID-19 vaccination period on these conditions in the subgroup, which is the strength of our study. Moreover, in the literature, studies are limited to have explored the changes in mental status after COVID-19 vaccination period, which is another strength of our study.

In a study evaluating anxiety and depression associated with the COVID-19 pandemic in Iran, the prevalence of anxiety symptoms in the group infected with COVID-19 was found to be higher than those in the non-infected group (Hassannia et al. 2021). In our study, while work-related stress scores were found to be significantly higher in the group infected with the

COVID-19 virus compared to the non-infected group, no statistical significance was found in the scores of the anxiety about the viral epidemic.

A study of 393 participants with resident physicians and those continuing their minor studies reported that 55% of the participants had been working in COVID-19-related units, and that the stress and burnout scores were significantly higher in physicians working in such units than those who were not (Kannampallil et al., 2020). Similarly, in our study, pandemic-related stress scores were found to be statistically significantly higher in the group of participants who were actively working in relation to the COVID-19. In addition, the formerly mentioned study concluded that the state of being stressed was higher in female participants. Likewise, in our study, the scores of anxiety about the viral epidemic and work-related stress were found to be significantly higher in female physicians than in male physicians.

When it came to the COVID-19-related departments where the participants were working, the pandemic-related stress scores appeared to be the highest among the physicians working in the COVID-19 ICUs, which may be related to the fact that they are one of the work spaces that most clearly demonstrates the life-threatening risk of the pandemic to human life.

A study conducted with 197 physicians and nurses working in units related to the COVID-19 reported that 33% of the participants presented symptoms of anxiety ranging from severe to very severe, while 27.9% of them presented symptoms of stress ranging from severe to very severe, and that the nurses' scores of anxiety and stress were reported to be significantly higher than those of the physicians in the study (Öztürk et al. 2021). Likewise, in another study conducted with healthcare workers by Karadem et al., it was reported that being a nurse may be associated with the fear of COVID-19 (Karadem et al. 2021).

In our study, the evaluation according to the title revealed that the scores of anxiety about the viral epidemic in family medicine academics were found to be significantly lower than those of the other groups. The group with the highest work-related stress scores turned out to be the non-tenured family physicians.

A study assessing the extent of the COVID-19 induced anxiety and stress of 1106 physicians in Israel drew attention to the fact that the fear of being infected and the worry of transmitting an infection to family members were among the factors most strongly associated with the state of anxiety. Financial concerns, on the other hand, were found to be unrelated to anxiety (Mosheva et al. 2020).

In our study, when the pandemic-related stress scores were assessed, the question with the highest score was about the concern that family or friends might be infected from the participant. However, there was a negative correlation between the income levels and the stress scores, such that the scores of anxiety about the viral epidemic and of work-related stress found to be significantly high, even at the highest levels, in the group considering their income levels as inadequate. The regression analysis of the results in our study showed that the total score decreased with the increasing income level, a situation that supports the fact that financial concerns are effective in the presence of stress in our country.

Although circumstances such as working in the COVID-19-related units or inadequate income have increasing effects on stress, it is believed that COVID-19 vaccinations will help reduce the stress of millions of people around the world (Daou 2021). In our study, the evaluation of the subgroup after the period of COVID-19 vaccination clearly indicated a significant decline in the participants' tendency to reconsider their profession, which had emerged as a result of the fear of deterioration in their health due to the virus, and the concern of getting infected as well as infecting the relatives.

Physicians from only 54 out of 81 provinces in Turkey participated in our study and all provinces could not be contacted for the data collection stage, which is one of the limitations of our study. Another limitation is that the density of the number of participants differed according to the provinces.

## CONCLUSION

Family physicians, who take on important duties and responsibilities in the management of the pandemic, clearly experience anxiety about the viral epidemic. Although vaccination period has started to relieve anxiety in family physicians to a certain extent, the lack of a significant reduction in work-related stress even after the vaccination period may be related to the length of the pandemic, increased work areas, and the continuation of the intense workload. Sharing the increasing responsibilities of family physicians with their colleagues specialized in other departments may contribute to reducing work-related stress.

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## Contribution of individual authors:

Aysima Bulca Acar: design of the study, literature searches and analyses, interpretation of data, drafting of the article, data collecting, statistical analyses;

Remziye Nur Eke: literature searches, data collecting, drafting of the article;

Mehmet Özen: data collecting, statistical analyses, critical revision of the article.

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