



## Investigation of COVID-19 Anxiety Levels of Physicians

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### Research Article

#### History

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### ABSTRACT

**Background:** The Coronavirus Anxiety Scale is a self-reported scanning tool used to detect dysfunctional anxiety about the COVID-19 pandemic. In this study, our aim was to determine the anxiety levels of members of the Medical Chamber of the Sivas and Erzincan provinces of Turkey during the pandemic.

**Methods:** The Coronavirus Anxiety Scale questionnaire was e-mailed to members of the Sivas-Erzincan Medical Chamber. According to the scores obtained from the questionnaire, the participants were divided into two groups: those without anxiety (Group 1) and those with anxiety (Group 2). We compared to demographic features of members according to groups.

**Results:** Anxiety was present in 10.9% of the 337 physicians who participated in the survey. The anxiety rate in women (17.6%) was statistically significantly higher than that of men (7.9%). We did not find a statistically significant difference between the groups according to marital status, having a child, alcohol use, smoking status, having COVID-19, getting vaccinated, getting psychiatric support before the pandemic, bereavement due to COVID-19, or the job position of the participant. There was also no statistically significant difference between the education levels of physicians (job titles) and their anxiety rates

**Conclusion:** During the COVID-19 pandemic, approximately one-tenth of our member physicians experienced anxiety. Anxiety rates were higher in women and those who received psychiatric support during the pandemic.

**Keywords:** COVID-19, physicians, anxiety

## Doktorların COVID-19 Kaygı Düzeylerinin İncelenmesi

#### Süreç

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### Öz

**Amaç:** Koronavirüs Kaygı Ölçeği, COVID-19 salgınıyla ilgili işlevsel olmayan kaygıyı tespit etmek için kullanılan bir öz bildirim tarama aracıdır. Bu çalışmada, Türkiye'nin Sivas ve Erzincan illerindeki Tıp Odası üyelerinin salgın sürecindeki kaygı düzeylerini belirlemeyi amaçladık.

**Yöntemler:** Koronavirüs Kaygı Ölçeği anketi, Sivas-Erzincan Tıp Odası üyelerine e-posta yoluyla gönderildi. Anketten elde edilen puanlara göre, katılımcılar kaygısız olmayanlar (Grup 1) ve kaygılı olanlar (Grup 2) olmak üzere iki gruba ayrıldı. Gruplara göre üye demografik özellikleri karşılaştırıldı.

**Bulgular:** Anketimize katılan 337 doktordan %10,9'u kaygı yaşadığını bildirdi. Kadınlarda (%17,6) kaygı oranı erkeklerle (%7,9) göre istatistiksel olarak anlamlı şekilde daha yüksekti. Gruplar arasında medeni durum, çocuk sahibi olma, alkol kullanımı, sigara içme durumu, COVID-19 geçirme, aşı olma, salgından önce psikiyatrik destek alma, COVID-19 nedeniyle yas, veya katılımcının iş pozisyonu açısından istatistiksel olarak anlamlı bir fark bulunmadı. Ayrıca doktorların eğitim seviyeleri (ünvanları) ile kaygı oranları arasında da istatistiksel olarak anlamlı bir fark bulunmadı.

**Sonuç:** COVID-19 salgını sırasında üye doktorlarımızın yaklaşık onda biri kaygı yaşadı. Kadınlarda ve salgın sırasında psikiyatrik destek alanlarda kaygı oranları daha yüksekti.

**Anahtar sözcükler:** COVID-19, doktorlar, kaygı

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## Introduction

Coronavirus arose in Wuhan, China, in late 2019 and spread, creating a pandemic in 2020, affecting people and society all over the World <sup>1</sup>. As of November 2022, 640,785,651 people have become sick, and 6,616,834 people have died <sup>2</sup>. Since the beginning of the pandemic, negative effects on the mental health of society have been noted, including stress, fear, anxiety, and depression because of the vagueness of treatment and immunization <sup>3</sup>. The death of healthcare workers who had been exposed to an intense viral load affected and exacerbated the physiological burden on healthcare workers <sup>4,5</sup>. In addition, heavy working conditions, intensely isolated living conditions, and long separations from their family, healthcare workers have faced burnout <sup>6,7</sup>.

In a study conducted on healthcare workers during the pandemic period, 52.3% of the participants had generalized anxiety disorder, and 53.1% had insomnia <sup>4</sup>. In studies conducted at various stages of the COVID-19 pandemic, this unprecedented situation was reported to cause anxiety in healthcare workers <sup>8</sup>. In a study conducted in Turkey, women were found to have higher anxiety levels than men during the pandemic <sup>9</sup>.

The Coronavirus Anxiety Scale (CAS) is a self-reported scanning tool developed by Lee et al. <sup>10</sup> used to detect dysfunctional anxiety about the pandemic. The participants' anxiety levels were detected by five questions, each of which was given a score from 0 to 4 points. The Turkish version of the CAS was validated by Evren et al <sup>11</sup>.

In this study, our aim was to determine the anxiety levels of members of the Sivas-Erzincan Medical Chamber during the pandemic.

## MATERIALS AND METHODS

### Participants

Our study was carried out after receiving the necessary permission from the Sivas-Erzincan Medical Chamber. Sivas and Erzincan are two provinces in central eastern Turkey. The questionnaire was e-mailed to 450 physicians registered as members of our Medical Chamber. We also got written informed consent from the participants via e-mail. Data from 337 physicians who filled out the questionnaire completely were included in the study.

Inclusion criteria: membership in the Sivas-Erzincan Medical Chamber, complete questionnaire

Exclusion criteria: Incomplete questionnaire

### Collecting Data

Our questionnaire consisted of two parts: the first part, which collected the demographic information of the participants, and the 2nd part, which included the CAS (Appendix 1). Participants' age, gender, job title, professional experience, marital status, vaccination status, smoking status, alcohol use, whether or not they had COVID-19, whether they received psychiatric support during or after the pandemic, and whether

they had a relative who died due to COVID-19 were recorded.

### Determination of Anxiety

The anxiety status of the participants was designated by the CAS <sup>10,11</sup>. Participants who scored nine or above on the scale were determined to have anxiety.

### Statistical analysis

The study data were analyzed with the IBM SPSS Statistics Data Editor ver. 23.0. Numerical data were expressed as mean  $\pm$  standard deviation, median and interquartile range (IQR), and frequency (n) data were expressed as percentages (%). According to the scores obtained from the questionnaire, the participants were divided into two groups: one without anxiety (Group 1) and the other with anxiety (Group 2). The distribution of continuous data was tested using the Kolmogorov-Smirnov test. The Mann-Whitney U test was used to compare two independent groups for continuous data, and Pearson's chi-square and Fischer's exact tests were used for frequency data. A p value of  $<0.05$  was considered statistically significant.

### Results

A total of 337 physicians, including 114 practitioners, 20 research assistants, 162 specialist physicians, and 41 faculty members, participated in our study. Anxiety was present in 10.9% of the respondents. Their mean age was  $38.83 \pm 9.1$  years. The median age of those in Group 1 was 42.00 (11.0), and the median age of those in Group 2 was 38.00 (13.8). However, after statistical analysis, no significant difference was found between the two groups in terms of age ( $p=0.132$ ). The mean length of professional experience was  $13.95 \pm 9.2$  years. The median professional experience of Group 1 was 12.00 (13.0), and the median professional experience of Group 2 was 16.00 (12.0), but this difference did not reach statistical significance ( $p=0.098$ ). The anxiety rate in women was significantly higher than in men ( $p=0.008$ ). The demographic data of the two groups of study participants are summarized in Table 1. We did not find a statistically significant difference between the groups according to marital status ( $p=0.308$ ), having a child ( $p=0.500$ ), alcohol use ( $p=0.088$ ), smoking status ( $p=0.354$ ), having COVID-19 ( $p=0.764$ ), getting vaccinated ( $p=0.490$ ), getting psychiatric support before the pandemic, bereavement ( $p=0.120$ ), or the job position of the participant ( $p=0.397$ ) (Table 1).

The anxiety rate of participants who received psychiatric support during the pandemic was statistically significantly higher than those who did not receive any support ( $p=0.001$ ). We did not find a statistically significant correlation between total anxiety scores and age or professional experience ( $r=0.021$ ,  $p=0.377$ ;  $r=0.049$ ,  $p=0.226$ ).

**Table 1: Analysis of categorical measures to detect early postoperative recurrence**

Variable	Group 1 n (%)	Group 2 n (%)	P value
<b>Gender</b>			
Male	211 (92.1)	18 (7.9)	0.008
Female	89 (82.4)	19 (17.6)	
<b>Marital Status</b>			
Single	71 (92.2)	6 (7.8)	0.308
Married	229 (88.1)	31 (11.9)	
<b>Has Children</b>			
Yes	211 (88.3)	28 (11.7)	0.500
No	89 (80.8)	9 (9.2)	
<b>Alcohol Use</b>			
No	202 (88.1)	30 (12.9)	0.088
Yes	98 (91.4)	7 (8.6)	
<b>Smoking status</b>			
No	196 (87.9)	27 (12.1)	0.354
Yes	104 (91.2)	10 (8.8)	
<b>Covid-19 History</b>			
No	186 (89.4)	22 (10.6)	0.764
Yes	114 (88.4)	15 (11.6)	
<b>Covid-19 Vaccination</b>			
No	20 (95.2)	1 (4.8)	0.490
Yes	280 (88.6)	36 (11.4)	
<b>Bereavement due to Covid-19</b>			
No	146 (91.8)	13 (8.2)	0,120
Yes	154 (86.5)	24 (13.5)	
<b>Psychiatric Support before pandemic</b>			
No	284 (88.8)	36 (11.2)	0.706
Yes	16 (94.1)	1 (5.9)	
<b>Psychiatric Support during pandemic</b>			
No	270 (91.2)	26 (8.8)	0,001
Yes	30 (73.2)	11 (26.8)	
<b>Job Title of the Participant</b>			
Practitioner	101 (88.6)	13 (11.4)	0,397
Research Assistant	19 (95)	1 (5)	
Specialist	141 (87)	21 (13)	
Lecturer	39 (95.1)	2 (4.9)	

## Discussion

The primary aim of this study was to determine the anxiety levels of doctors who are members of the Sivas-Erzincan Medical Chamber. Anxiety was present in 10.9% of the physicians who participated in the study. The anxiety rate of female physicians was higher than that of male physicians. In addition, the anxiety rates of

participants who received psychiatric support during the pandemic were higher than those who did not.

After the beginning of the COVID-19 pandemic, symptoms of anxiety were clearly seen rising throughout the ranks of health care workers<sup>5,6</sup>. Anxiety rates have been reported to range from 8 to 44.6% of

health care workers<sup>5-7,12-18</sup>. We detected an anxiety level of 10.9% in physicians who answered our questionnaire. This wide range of anxiety rates may be due to discrepancies in the dates of the pandemic period or differences in ethnic or geographical study populations, vaccination or therapeutic development during different periods of pandemic, or physician's eventual acceptance and habituation to the pandemic.

In our study, despite the fact that anxiety levels were higher in older physicians, we did not find any statistically significant difference according to age. This finding contrasts with research reporting that COVID-19 anxiety is higher in young people, and that this rate decreases with age<sup>11,19</sup>. The reason for anxiety in older subjects might be that the disease can be fatal in the elderly, and they may be thinking of future plans that they may not achieve. The reason for anxiety in the younger population may stem from thoughts of having much longer to live and worrying about having a long way to go before the situation improves.

In other studies on gender-based variations in anxiety, it has been determined that there are differences in mood, memory, learning, fear, and anxiety states, and these differences cause changes in emotion management<sup>20,21</sup>. In our study, we found that anxiety was higher in female physicians during the COVID-19 pandemic period. Similarly, in other studies conducted on healthcare professionals, the rate of anxiety was found to be higher in women than in men<sup>12,19,22-25</sup>. The reason for higher anxiety in women may be neurohormonal differences.

In our study, the length of time in the profession was higher in the group with anxiety than in the group without anxiety, but this difference failed to reach statistical significance. Some research has suggested that more experience on the job reduces anxiety<sup>22,26,27</sup>, but there are other studies that show no relationship between anxiety and professional experience<sup>28</sup>. Differences in the time when the survey was taken might have affected the relationship between experience and anxiety levels.

We did not detect any link between marital status or having children and anxiety. Onur et al. also reported that the relationship between these two parameters was insignificant<sup>12</sup>. On the other hand, some researchers have reported that anxiety rates were higher in married people<sup>23,29</sup>. It could be thought that there must be more anxiety for married workers or participants who have children because of the responsibility they feel for their partners and children.

It is known that people have a tendency to use alcohol or other substances when facing a situation with which they cannot cope. In our study, participants who did not use alcohol or cigarettes had more anxiety than participants who used alcohol or cigarettes, but this

difference was not statistically significant. In other studies, it has been reported that some participants using alcohol during the COVID-19 pandemic had higher anxiety levels<sup>22,30-33</sup>. Onur et al. reported lower anxiety levels in participants who used alcohol and cigarettes<sup>12</sup>. Our results are in line with those of this study. Both studies were conducted while the spread of the virus was slowing down, similar times when vaccinations and new treatments were being found. During the pandemic, it has been thought that alcohol users and smokers fight better than the others with anxiety.

In our study, 93.8% of participants were vaccinated, and 38.3% had had COVID-19. However, getting vaccinated or having a positive history of COVID-19 did not create any difference in terms of anxiety. Other studies have reported that having a history of COVID-19 was associated both with<sup>26,34,35</sup> and without anxiety<sup>11,12</sup>. Anxiety created by contracting a disease might be exhibited differently in divergent communities. Differences in questionnaires may be another reason for these contrasting findings.

In our study, the rate of anxiety was found to be higher in those receiving psychiatric support during the COVID-19 pandemic. In addition, although the anxiety rates of the participants who received psychiatric support before the pandemic were lower than those of the other participants, this difference was not statistically significant. In some previous studies, it has been reported that there is a relationship between receiving psychiatric support and using antidepressant medication before and during COVID-19 and COVID-related anxiety<sup>22,35</sup>. It is quite natural for people who need help coping with the problems they have experienced to receive psychiatric support against an unknown and extremely deadly disease such as COVID-19.

In our study, 178 (52.8%) of the participants had lost at least one relative due to COVID-19. However, in our study, we did not find any difference in anxiety frequency between these participants and those who had not experienced loss of loved ones. Different results have been reported in research on the relationship between COVID-19 anxiety and the loss of a close relative due to the virus. Some authors reported that anxiety increased<sup>11</sup>, while others reported that this increase was not statistically significant<sup>12,36</sup>. While the loss of a close relative or friend caused more anxiety in the early stages of the pandemic, these losses may have caused desensitization in later periods.

When the frequency of anxiety was analyzed according to the job titles of the physicians, we did not find any differences between the groups. Gomez et al. reported that the prevalence of anxiety increased as the level of education increased<sup>23</sup>. On the other hand, Ding et al. reported no relationship between education level and

anxiety<sup>37</sup>. In the recent literature, we did not find any studies about COVID anxiety from the perspective of doctors only. In studies conducted on healthcare professionals, high anxiety rates were reported in nurses<sup>12,22,25,27</sup> and pharmacists<sup>38</sup>. Matilda reported that anxiety was higher in healthcare workers working at the university hospital<sup>25</sup>. Since all physicians of different job positions are involved in the care and treatment of COVID-19, it can be thought that the anxiety rates are similar because they have similar knowledge about disease prevention, treatment, and immunization.

In our study, we did not find a statistically significant difference between the education levels of physicians and their anxiety rates. Some authors have reported that the prevalence of anxiety increased as the level of education increased<sup>23,29</sup>. Ding et al. reported no relationship between anxiety and level of education<sup>37</sup>. Since all of the participants in our study were physicians, we may not have found a significant relationship between education level and anxiety rate. As the level of education increases, anxiety rates may increase due to an increase in social awareness and intellectual level.

### Limitations

An e-mail survey carried out the study. Different results may have been obtained if the study had been done through face-to-face interviews. It also involved members of a single medical association. If this study could be replicated on all members of the Turkish Medical Association, which is the umbrella organization, more robust results could be obtained and generalizable to healthcare workers in the whole country.

### Conclusion

During the COVID-19 pandemic, approximately one-tenth of our member physicians experienced anxiety. Anxiety rates were higher in women and those who received psychiatric support during the pandemic.

### Declarations

#### Author contribution statement

Sedat Ozbay: Conceived and designed the experiments; Performed the experiments; Wrote the paper; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools

Mustafa Ayan; Conceived and designed the experiments, proofreading

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#### Data availability statement

Data will be made available on request.

#### Declaration of Interests statement

The authors declare no conflict of interest.

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