

The Impact of the COVID-19 Pandemic on Stress in Anesthesiology and Reanimation Specialists and Research Assistants

COVID-19 Pandemisinin Anesteziyoloji ve Reanimasyon Uzmanları ve Araştırma Görevlilerindeki Stres Üzerine Olan Etkisi

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Ankara University Faculty of Medicine, Department of Anesthesiology and Reanimation, Ankara, Türkiye

Abstract

Objectives: In this study, we aimed to evaluate the change in anxiety levels of anesthesiology and reanimation physicians who worked in the initial fight against the coronavirus disease-2019 (COVID-19) pandemic in Türkiye while trying to understand the factors affecting the change in anxiety.

Materials and Methods: An online survey of two parts was conducted between December 2020 and March 2021. The first part included questions to identify the sociodemographic information, while the second part included the State-Trait Anxiety Scale Inventory.

Results: 19.2% (n=233) of 1210 anesthesiology and reanimation physicians responded to the questionnaire. The mean age of the participants was 37.61±9.36, and the survey was mainly answered by research assistants (39.4%) and specialists (39.4%). A negative significant relationship was found between age and the State (p=0.001) and the Trait Anxiety Scale (p=0.017). The State-Trait Anxiety Scale scores among research assistants differed significantly from those of professors (p=0.043 and p=0.039, respectively). The State Anxiety Scale scores were also significantly higher in participants in daily shifts than those who worked night shifts (p=0.011). The State-Trait Anxiety Scale scores of the participants living alone were significantly higher than those living with family and friends (p=0.003 and p=0.049, respectively).

Conclusion: Psychological care and treatment for anesthesiology and reanimation physicians, especially young research assistants and specialists living away from the support of their families during a pandemic becomes more important but is clearly neglected.

Key Words: Anesthesiologists, anxiety, COVID-19, pandemic, State-Trait Anxiety Scale survey

Öz

Amaç: Bu çalışmada, Türkiye'de koronavirüs hastalığı-2019 (COVID-19) pandemisi ile ilk mücadelede görev alan anesteziyoloji ve reanimasyon hekimlerinin anksiyete düzeylerindeki değişimi değerlendirmeyi ve anksiyete değişimini etkileyen faktörleri ortaya çıkarmayı amaçladık.

Gereç ve Yöntem: Aralık 2020 ve Mart 2021 tarihleri arasında iki bölümden oluşan çevrimiçi bir anket gerçekleştirildi. İlk bölümde sosyodemografik bilgileri belirlemeye yönelik sorular yer alırken, ikinci bölümde Durumluk-Sürekli Kaygı Ölçeği Envanteri yer aldı.

Bulgular: Ankete 1210 anesteziyoloji ve reanimasyon hekiminin %19,2'si (n=233) yanıt verdi. Katılımcıların yaş ortalaması 37,61±9,36 olup anketi ağırlıklı olarak araştırma görevlileri (%39,4) ve uzmanlar (%39,4) yanıtladı. Yaş ile Durumluk (p=0,001) ve Sürekli Kaygı Ölçeği (p=0,017) arasında negatif yönde anlamlı bir ilişki bulundu. Araştırma görevlilerdeki Durumluk-Sürekli Kaygı Ölçeği puanları, öğretim üyelerinin puanlarından anlamlı düzeyde farklıydı (sırasıyla p=0,043 ve p=0,039). Gece vardiyasında görev alan katılımcılarda Durumluk Kaygı Ölçeği puanları da gündüz vardiyasında görev alanlara göre anlamlı derecede daha yüksekti (p=0,011). Yalnız yaşayan katılımcıların Durumluk-Sürekli Kaygı Ölçeği puanları, ailesi ve arkadaşlarıyla yaşayanlara kıyasla anlamlı düzeyde yüksekti (sırasıyla p=0,003 ve p=0,049).

Address for Correspondence/Yazışma Adresi: Gözde Cingiz, Ankara University Faculty of Medicine, Department of Anesthesiology and Reanimation, Ankara, Türkiye
Phone: +90 505 705 82 37 E-mail: gosde89@hotmail.com ORCID ID: orcid.org/0000-0002-5759-5645

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Sonuç: Anesteziyoloji ve reanimasyon hekimlerinin psikolojik olarak desteklenmesi oldukça önemlidir fakat açıkça ihmal edildiği görülmektedir. Bu durum pandemi dönemi içerisinde aile desteğinden uzak kalmış, genç araştırma görevlileri ve uzmanlar için çok daha fazla önem taşımaktadır.

Anahtar Kelimeler: Anestezist, anksiyete, COVID-19, pandemi, Durumluk Sürekli Kaygı Ölçeği

Introduction

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) caused the coronavirus disease-2019 (COVID-19) pandemic, which emerged in the Wuhan province of China in 2019. It caused approximately 770 million people to be infected and 7 million people to die, and according to the World Health Organization, the highest mortality and morbidity seen in recent years (1). The first case of COVID-19 in Türkiye was reported on March 9, 2020, and the first death due to it was on March 16, 2020 (1).

As in the rest of the world, healthcare professionals are one of the most affected groups as they undertook the most fundamental task in the initial fight against the COVID-19 pandemic and had to overcome many difficulties including, but not limited to, increased responsibilities, accumulated workload, unknowns about the use of personal protective equipment, inadequacy in their numbers leading to extended working hours in critical patient care, lack of adequate access to social support, and increased mortality and morbidity reported in media in this profession (2).

Anesthesiology and reanimation specialty is undoubtedly one of the specialties at the forefront of the fight against the COVID-19 pandemic. It can easily be assumed that stress and anxiety levels increased in anesthesiology and reanimation physicians working in intensive care units with a higher risk of viral exposure during the COVID-19 pandemic as they worked with patients infected or potentially infected with COVID-19 in operating rooms, performed invasive and non-invasive airway interventions on those patients, and were responsible for code blue applications including interventions of in-hospital cardiopulmonary arrest and peri-arrest situations (3). However, there is no report on the changes of anxiety levels of this group in Türkiye during the pandemic. Therefore, this descriptive study aimed to determine the anxiety experienced by anesthesiology and reanimation physicians due to the COVID-19 pandemic and reveal the factors affecting anxiety, ultimately to increase the awareness of anxiety and psychosocial changes affecting anesthesiologists due to the pandemic.

Materials and Methods

The survey study was carried out in the Department of Surgical Medical Sciences, Anesthesiology and Reanimation at Ankara University, Faculty of Medicine, and was approved

by Ankara University, Faculty of Medicine Clinical Research Ethics Committee with the decision number: İ10-652-20 on 27.11.2020. The questionnaire was conducted through the website SurveyMonkey® (SurveyMonkey, San Mateo, CA) and directed to the members of the Turkish Society of Anaesthesiology and Reanimation (TARD). The self-administered anonymous voluntary answers from anesthesiology and reanimation physicians were collected between December 2020 and March 2021.

The survey contained 36 questions consisting of two main parts and aimed to collect demographic data and identify the causes of anxiety among anesthesiology and reanimation physicians during the pandemic. The first part of the survey included multiple-choice or direct-answer questions to identify the sociodemographic information, occupational, health, and lifestyle characteristics, and changes in the working conditions of the participants during the COVID-19 pandemic. The second part of the questionnaire included the State-Trait Anxiety Scale Inventory to compare the changes in emotions and behaviors of anesthesiology and reanimation physicians during the pandemic (4). The State Trait Anxiety Scale Inventory is a test/questionnaire and shows the strength of a person's feelings of anxiety. State anxiety (S-anxiety) can be defined as fear, nervousness, discomfort, etc. and other situations resulting in the activation of the autonomic nervous system. This anxiety type refers to how a person is feeling at the time of a threat and is temporary (5).

Stress, worry, discomfort, etc. that one experiences on a normal daily basis can be defined as Trait anxiety (T-anxiety). This type of anxiety usually refers to how people react to typical situations that can be experienced daily (6). This inventory is made up of 40 questions and differentiates between a person's state anxiety and their trait anxiety. The inventory separates the two forms of anxiety and both forms are given 20 separate questions.

The results were evaluated to correspond to a value between 20 and 80 points, with a high score indicating a high level of anxiety. The information obtained from the survey was used only for scientific purposes and was not shared with third parties.

Statistical Analysis

Statistical analyses were performed using SPSS version 11.5 (SPSS Inc., Chicago, IL, USA). G*Power program was used for power analysis to determine the number of samples to be used to determine the effect on changes in stress levels. When the sample size of the difference between physicians with the title

of research assistant, Specialist Dr., Lecturer Dr., Assoc. Prof. Dr. and Prof. Dr. in terms of Trait Anxiety Scale score was taken as 0.25 (medium) and the sample calculation was performed using One Way ANOVA test with a power of 0.80 at 0.05 significance level, a minimum sample of 200 people was found sufficient for the study. No similar study was found in the literature at the time of this study, therefore analysis was performed as mentioned above.

Qualitative variables were presented as percentages, and quantitative variables were expressed as mean \pm standard deviation and median (minimum-maximum). The Mann-Whitney U test was used to compare non-normally distributed qualitative variables, and the Kruskal-Wallis test was used for non-normally distributed quantitative variables. Pearson's correlation coefficient was used for normally distributed groups, whereas Spearman's correlation analysis was conducted for non-normally distributed variables. Differences were considered statistically significant for p-values less than 0.05.

Results

A total of 1210 anesthesiology and reanimation physicians were reached through TARD in early December 2020. Responses were received from 233 participants between December 2020 and March 2021. The response rate of this voluntary survey was 19.2%.

Sociodemographic factors and occupational, health, and lifestyle characteristics of the anesthesiology and reanimation physicians who participated in the study were given in Table 1. Accordingly, the mean age of the participants was 37.61 ± 9.36 . 59.9% (n=133) were female, and 40.1% (n=89) were male. More than half of the participants were married (57.8%, n=133), and 47.8% (n=110) had at least one child. The survey was answered mainly by research assistants (39.4%, n=87) and specialists (39.4%, n=87), and only 16 of the participants (7.2%) were professors. The mean working period as an anesthesiology and reanimation physician was 10.48 ± 8.08 years. Half of the participants worked in a university hospital (49.7%, n=98), and the other half worked in public (17.8%, n=35) or training and research (24.4%, n=48) hospitals. The mean number of beds in intensive care units in these hospitals was 32.94 ± 24.00 . The number of people monitoring COVID-19-positive patients in the operating room or intensive care unit was 91.6% (n=197). The mean number of COVID-19-positive patients the study participants had contacted was 207.18 ± 326.39 . Only a small number of the participants of the study were on paid/unpaid leave during the pandemic (1.4%, n=3) or working from home (1.0%, n=2), and the rest of them were either at normal working (57.5%, n=119) or worked with flexible working hours (40.1%, n=83).

Table 2 summarizes the questions and answers related to the changes in consumption habits and daily lifestyle during the COVID-19 pandemic. More than half of the participants (52.7%, n=123) stated the loss of the habit of going out due to concern about being infected with the virus. The rate of participants who avoided physical contact with their friends was also high (51.9%, n=121). The rate of the anesthesiology and reanimation physicians taking a shower every time they came home was 45.4% (n=106), and the rate of the participants who stated that they separated their personal cleaning materials from other family members was 34.7% (n=81). The increase in online shopping ranked first among the answers regarding shopping habits with 63.9% (n=149). Most participants stated they had stopped doing sports (40.7%, n=95), and only 17 (7%) stated that they continued regular exercise at home. The rate of those who stated that their sleeping patterns were disrupted during the pandemic was 45.4% (n=106), and the ratio of those who stated that their eating habits were disrupted was 18.4% (n=43).

The relationship between the State-Trait Anxiety Scale scores and quantitative variables is given in Table 3. Accordingly, a negative significant relationship was found between age and the State Anxiety Scale ($r=-0.240$, $p=0.001$). A similar relationship was also found between time spent as an anesthesiology and reanimation physician and the State Anxiety Scale ($r=-0.290$, $p=0.002$). There was a negative significant relationship between age and the Trait Anxiety Scale ($r=-0.178$, $p=0.017$).

Table 4 shows the relationship between the State-Trait Anxiety Scale scores and qualitative variables. The highest mean of the State Anxiety Scale was among research assistants (52.11 ± 9.23), and the lowest was found in the participants with a professor title (44.73 ± 10.15). The difference in the State Anxiety Scale score between these two titles was statistically significant ($p=0.043$). A similar result was obtained in the Trait Anxiety Scale evaluation (46.81 ± 10.24 vs. 39.21 ± 7.84 , $p=0.039$). The State Anxiety Scale scores of anesthesiology and reanimation physicians who worked only during the day were significantly higher than those who worked night shifts (47.17 ± 7.98 vs. 51.20 ± 8.62 , $p=0.011$). The State Anxiety Scale scores of the participants who stated that their weekly working hours changed during the COVID-19 pandemic were significantly higher than those whose weekly working hours decreased (52.25 ± 9.48 vs. 47.29 ± 7.43 , $p=0.018$). There was a significant difference ($p=0.02$) between the mean State Anxiety Scale scores of the participants who stated that their cigarette and/or alcohol consumption increased during the pandemic (53.91 ± 8.67) and those who stated no change (49.40 ± 8.53). While the mean State Anxiety Scale score for the anesthesiology and reanimation physicians who were concerned about being re-infected with COVID-19 was 51.18 ± 8.20 , the mean score for those who did not have this concern was 44.71 ± 9.14 ($p=0.001$). The Trait Anxiety Scale of the participants having

Table 1: Sociodemographic factors and occupational, health, and lifestyle characteristics of anesthesiology and reanimation physicians participated in the survey		
Characteristics		
Age (year)	Mean \pm SD	37.61 \pm 9.36
	Median (min-max)	34 (23 – 63)
Gender, n (%)	Male	89 (40.1)
	Female	133 (59.9)
Marital status, n (%)	Married	133 (57.8)
	Unmarried	89 (42.2)
Parenthood, n (%)	Yes	110 (47.8)
	No	111 (50.2)
Professional title, n (%)	Research assistant	87 (39.4)
	Specialist	87 (39.4)
	Assistant professor	13 (5.9)
	Associate professor	18 (8.1)
	Professor	16 (7.2)
Time spent as an assistant (year)	Mean \pm SD	4.02 \pm 2.97
	Median (min-max)	4 (0.5-20)
Time spent as a specialist (year)	Mean \pm SD	10.48 \pm 8.08
	Median (min-max)	10 (0.25-30)
Workplace, n (%)	Public hospital	35 (17.8)
	University hospital	98 (49.7)
	Training and research hospital	48 (24.4)
	Private hospital	12 (6.1)
	Foundation university hospital	3 (1.5)
	Affiliated training and research hospital	1 (0.5)
Number of intensive care beds	Mean \pm SD	32.94 \pm 24.00
	Median (min-max)	30 (1-180)
Status of COVID-19 patients monitored in operating room or intensive care unit, n (%)	Yes	197 (91.6)
	No	18 (8.4)
Number of COVID-19 patients contacted	Mean \pm SD	207.18 \pm 326.39
	Median (min-max)	100 (1-2000)
Working style during pandemic, n (%)	At home	2 (1.0)
	Normal	119 (57.5)
	With flexible hours	83 (40.1)
	Paid/unpaid leave	3 (1.4)
Working hours, n (%)	Day	47 (22.7)
	Day and night	160 (77.3)
Change in weekly working hours during the pandemic, n (%)	Changed	59 (28.5)
	Not changed	49 (23.7)
	Increased	59 (28.5)
	Decreased	40 (19.3)
Having a chronic disease, n (%)	None	167 (80.3)
	Have one or more	41 (19.7)
Regular exercise, n (%)	Yes	50 (24.6)
	No	153 (75.4)

Table 1: Continued		
Smoking, n (%)	Yes	49 (24.1)
	No	154 (75.9)
Alcohol consumption, n (%)	Yes	104 (51.2)
	No	99 (48.8)
Increase in smoking and/or alcohol consumption during the pandemic, n (%)	Yes	62 (38.5)
	No	99 (61.5)
History of COVID-19 in a first-degree relative, n (%)	Yes	84 (42.2)
	No	115 (57.8)
Worry about being re-infected with COVID-19, n (%)	Yes	170 (85.4)
	No	29 (14.6)
Type of residence before the pandemic, n (%)	Alone	42 (21.1)
	With family or friends	157 (78.9)
Moving to a separate residence during the pandemic, n (%)	Yes	34 (18.5)
	No	150 (81.5)
Wish to return the previous residence status after the pandemic, n (%)	Yes	37 (66.1)
	No	19 (33.9)
State Anxiety Scale score	Mean \pm SD	50.23 \pm 8.60
	Median (min-max)	50 (24 - 77)
Trait Anxiety Scale score	Mean \pm SD	44.55 \pm 8.99
	Median (min-max)	45 (21 - 76)

SD: Standard deviation, min: Minimum, max: Maximum

this concern was 45.04 ± 8.86 , while that of those who did not was 41.44 ± 9.53 ($p=0.033$). It was revealed that the mean State Anxiety Scale score of the participants living alone before the pandemic was higher than the mean of those living with family and friends (53.80 ± 8.70 vs. 49.24 ± 8.37 , $p=0.003$). Regarding the Trait Anxiety Scale, the mean score of those living alone was 46.73 ± 10.33 , while the mean score of those living with family and friends was 43.91 ± 8.54 ($p=0.049$). While the mean Trait Anxiety Scale score was 43.42 ± 8.30 in people with children, it was 45.66 ± 9.54 in people without children ($p=0.050$).

Discussion

Anesthesiology and reanimation physicians are among the forefront fighters against the COVID-19 pandemic. The studies before and after the COVID-19 pandemic reported increased mental stress and anxiety in healthcare workers, including anesthesiologists, in different countries resulting from extended and intense working hours, difficulty in clinical work, fear of harming the patient, and a heavy burden of professional responsibilities (2,7-16). A cross-sectional study evaluating the mental health of 237 anesthesiologists across India indicated that 45.8% of participants exhibited anxiety while 73.1% of participants showed depression (12). Among 6331 Chinese anesthesiologists, 52.7% were reported having depression, anxiety, and post-traumatic stress disorder (14). Emotional exhaustion among 1,009 Italian anesthesiologists, where 65%

of participants were females, and the mean age was $43.85 \text{ years} \pm 10.75$ years, was found to be 30.5% of the participants (16). A study of the mental health of in-training anesthesiology residents in the United States showed the prevalence of depression, anxiety, stress, and burnout as 42%, 24%, 31%, and 71%, respectively (11).

Although some studies mention the increase in anxiety levels of healthcare professionals in general (3,17-20), there is no data on the effect of the pandemic on the anxiety levels of anesthesiology and reanimation physicians in Türkiye. The results obtained in this descriptive study proved an increase in anxiety levels among anesthesiology and reanimation physicians during the COVID-19 pandemic in Türkiye, especially among young physicians who worked as research assistants or specialists, worked night shifts, and lived alone. Similarly, the increase in smoking and/or alcohol consumption and concern about re-infection were found to be related to higher levels of anxiety. The results are parallel to a similar study performed with Egyptian anesthesiologists where, among 150 participants, continuous working shifts and young age were reported to be associated with higher stress scores (9). A more recent study with a total of 795 anesthesiologists also showed that longer daily working time was associated with the prevalence of depression and anxiety, which is negatively associated with age (10).

From the first day of the pandemic, when the effects and consequences of the COVID-19 infection was still unknown,

Table 2: Consumption habits and changes in daily lifestyle of the anesthesiology and reanimation physicians during the COVID-19 pandemic

Options	n (%)
No change in going out habits	7 (0.3)
Hesitant to go out for fear of contracting the virus	123 (52)
Warns when sees that social distance rules are not followed	68 (29.1)
Not physically getting together with friends	121 (51.9)
Maintaining social contact with people in the presence of a mask	48 (20)
Always keep disinfectant/cologne in his/her bag	105 (45)
Believing that a surgical mask is enough to go out	116 (49.7)
Using FFP2 – FFP3 – N95 mask when going out	48 (20.6)
Need to use mask outside of mandatory situations	63 (27)
Taking a shower when coming home	106 (45.4)
Separating personal cleaning items (comb, towel, cream etc.) from family members	81 (34.7)
Cleaning the places touched with bleach	19 (8)
Washing the vegetables and fruits with vinegar/ baking soda	48 (20.6)
Making bread at home instead of buying	16 (6)
Thinking that grocery shopping increased more on days when there was a curfew	35 (15)
Thinking that unnecessary shopping increased during curfew	47 (20)
An increased amount of online shopping	149 (63.9)
Thinking that wiping/washing durable consumables is sufficient	67 (28.7)
Using durable consumables by washing them	0 (0)
Thinking that it is sufficient to use durable consumables after ventilating	33 (14.1)
Feeling uncomfortable for not sporting	95 (40)
Stating to be more vigorous by maintaining a sports routine at home	17 (7)
Feeling bad about being inactive for too long	104 (44.6)
Sleep patterns disturbed during the pandemic	106 (45.4)
Cannot sleep at night from worrying about COVID-19	28 (12)
Eating habits disrupted due to worrying about COVID-19	43 (2.4)
Thinking that sharing personal concerns about COVID-19 with someone relieves	70 (4.0)
COVID-19: Coronavirus disease-2019	

senior residents, attendings and professors all took an active part. In order to perform fast and effective intubation on patients with an unknown status of infection, and for the safety of doctors performing these interventions, physicians with less experience and less time spent in this expertise took less duty on these tasks. To reduce exposure and to provide a safer workplace, experienced physicians served more in this field.

The decrease in the State-Trait Anxiety Scale scores with age and the increase with time spent in the profession can be explained as maturity increases with age and medical experience through the years unquestionably reduces anxiety (Tables 3 and 4). Accordingly, the State-Trait Anxiety Scale scores of research assistants were the highest among the survey participants with varying professional titles, and that of professors was the lowest. These results indicated that the experience gained in the profession is a very important factor in a person's ability to cope with stress and anxiety, even if there is a pandemic that creates great chaos in the world. Anesthesiology and reanimation research assistants are usually the primary caregivers in clinics for COVID-19 patients, especially in universities and training and research hospitals, and they play an active role in diagnosis and treatment. These undoubtedly resulted in increased levels of workload and anxiety about being infected by COVID-19. Similarly, a cross-sectional survey study performed in a hospital with tertiary intensive care among the specialist assistants and nurses working in intensive care reported that 23.1% of the participating physicians and 54.3% of the assistant physicians had moderate or severe anxiety (19). The fact that most services, such as invasive procedures, daily physical examinations, and patient care in intensive care conditions, are performed under the supervision of an assistant physician or by the assistant physician him/herself, can explain the increased stress level of this group of physicians during the pandemic, unlike other doctors caring for COVID-19 patients (21).

The results also indicated that one of the highest State Anxiety Scale score averages belonged to the participants whose working patterns changed and who worked day and night shifts during the COVID-19 pandemic (Tables 3 and 4). Shift work, especially night shifts, is a type of work that has devastating effects on health by disrupting the circadian rhythm, which eventually decreases the quality of life (22). In a study conducted by Costa et al. (23), the sleep quality of life and attention problems of resident physicians were evaluated, and it was stated that attention analyses, reaction times, and error rates were significantly higher in anesthesiologists.

The participants of the survey indicated increased levels of smoking and/or alcohol consumption during the COVID-19 pandemic (Tables 3 and 4). Similarly, the results of an e-survey applied to doctors from 4 different departments in hospitals with different COVID-19 burdens, including emergency service, anesthesiology, infectious diseases, and intensive care, reported that 25% of the participants felt more anxious during the COVID-19 pandemic, 20% increased their alcohol consumption, and 5% increased their tobacco consumption (8).

The results of this study indicated that worrying about the risk of re-infection with COVID-19 significantly increased state anxiety levels and was statistically significant in terms of the

Variables	State anxiety scale		Trait anxiety scale	
	Correlation coefficient	p-value	Correlation coefficient	p-value
Age	-0.240	0.001	-0.178	0.017
Time spent as an assistant	-0.004	0.973	0.151	0.192
Time spent as a specialist	-0.290	0.002	-0.135	0.174
Time worked in current position	-0.072	0.328	-0.122	0.104
Number of intensive care beds	-0.028	0.736	0.015	0.854
Number of COVID-19 patients contacted	0.115	0.120	-0.143	0.060

COVID-19: Coronavirus disease-2019

Variables Mean ± SD		State Anxiety Scale			Trait Anxiety Scale		
		Median (min-max)	p-value	Mean ± SD	Median (min-max)	p-value	
Gender	Male	48.79±9.12	49 (24-66)	0.124 ^a	43.24±9.17	43.5 (21-64)	0.236 ^a
	Female	51.17±8.17	51 (36-77)		45.33±8.79	45 (26-76)	
Marital status	Unmarried	52.02±8.68	52.5 (36-74)	0.078 ^a	46.28±9.48	47 (21-69)	0.065 ^a
	Married	49.44±8.48	50 (24-77)		43.75±8.68	44 (24-76)	
Parenthood	No	51.34±8.73	52 (36-74)	0.096 ^a	45.66±9.54	47 (21-69)	0.050^a
	Yes	49.16±8.39	50 (24-77)		43.42±8.30	44 (24-76)	
Professional title	Research assistant	52.11±9.23	51.5 (33-77)	0.043 ^b	46.81±10.24	47 (21-76)	0.039 ^b
	Specialist	50.40±7.27	51 (34-65)		43.84±7.90	44 (26-69)	
	Assistant professor	46.25±8.97	43 (36-60)		42.20±5.55	44.50 (31-48)	
	Associate professor	48.53±6.50	50 (36-61)		43.00±7.14	45 (30-54)	
	Professor	44.73±10.15	45 (24-62)		39.21±7.84	40.5 (24-51)	
Workplace	Public hospital	50.54±7.08	50 (40-63)	0.243 ^b	45.73±8.56	45 (26-67)	0.920 ^b
	University hospital	50.67±8.59	50.5 (33-74)		44.38±9.07	44.5 (21-66)	
	Training and research hospital	49.15±7.93	49 (24-66)		45.24±7.85	45.5 (24-68)	
	Other	55.07±10.82	58 (36-77)		47.20±13.90	45 (26-76)	
Status of COVID-19 patients monitoring in operating room or intensive care unit	No	48.24±7.40	48 (36-59)	0.326 ^a	43.47±7.73	42 (29-62)	0.568 ^a
	Yes	50.42±8.73	50 (24-77)		44.63±9.14	45 (21-76)	
Working style during the pandemic	At home	50±0.0	50 (50-50)	0.920 ^b	48.00±0.0	48 (48-48)	0.832 ^b
	Normal	50.48±9.03	50 (24-77)		44.46±9.35	45 (21-76)	
	Flexible hours	49.94±8.18	50 (34-74)		44.55±8.71	44 (27-67)	
	Paid/unpaid leave	47.50±7.78	47.5 (42-53)		48.00±0.0	48 (48-48)	
Working hours	Day	47.17±7.98	48.50 (24-64)	0.011 ^a	43.74±7.71	45 (24-62)	0.557 ^a
	Day and night	51.20±8.62	51 (32-77)		44.78±9.40	45 (21-76)	
Change in weekly working hours during the pandemic	Changed	52.25±9.48	53.50 (36-77)	0.018 ^b	45.44±10.69	45 (21-76)	0.534 ^b
	Not changed	48.29±8.64	48 (32-66)		43.23±8.10	42 (28-62)	
	Decreased	47.29±7.43	49 (24-61)		43.77±8.14	45 (24-60)	
	Increased	51.87±7.77	51 (36-66)		45.27±8.60	46 (26-68)	

Variables		State Anxiety Scale			Trait Anxiety Scale		
		Mean ± SD	Median (min-max)	p-value	Mean ± SD	Median (min-max)	p-value
Having a chronic disease	No	50.70±8.59	50 (32-77)	0.314 ^a	44.81±9.08	45 (26-76)	0.775 ^a
	Yes	48.51±8.63	50 (24-63)		43.44±8.82	45 (21-61)	
Regular exercise	No	50.84±8.42	51 (32-77)	0.098 ^a	45.05±8.45	45 (26-76)	0.193 ^a
	Yes	48.20±9.15	48 (24-69)		42.91±10.56	44 (21-68)	
Smoking	No	49.67±8.62	50 (24-74)	0.103 ^a	45.01±8.83	45 (21-69)	0.196 ^a
	Yes	51.96±8.60	53 (33-77)		43.07±9.53	43 (28-76)	
Alcohol consumption	No	49.42±8.59	50 (33-77)	0.112 ^a	43.99±8.47	44 (26-76)	0.303 ^a
	Yes	50.96±8.68	52 (24-69)		45.03±9.50	46 (21-69)	
Increase in smoking and/or alcohol consumption during the pandemic	No	49.40±8.53	50 (24-74)	0.002 ^a	44.85±8.88	45 (24-68)	0.884 ^a
	Yes	53.91±8.67	55 (36-77)		45.13±10.45	45 (21-76)	
History of COVID-19 in a first-degree relative	No	50.99±8.30	51 (33-77)	0.166 ^a	45.22±9.06	45 (21-76)	0.418 ^a
	Yes	49.15±9.02	49 (24-74)		43.59±8.93	44 (24-67)	
Worry about being re-infected with COVID-19	No	44.71±9.14	43 (24-63)	0.001 ^a	41.44±9.53	41 (24-67)	0.033 ^a
	Yes	51.18±8.20	51 (33-77)		45.04±8.86	45 (21-76)	
Type of residence before the pandemic	Alone	53.80±8.70	53 (36-74)	0.003 ^a	46.73±10.33	47.5 (21-69)	0.049 ^a
	With family or friends	49.24±8.37	49 (24-77)		43.91±8.54	44 (24-76)	
Moving to a separate residence during the pandemic	No	49.31±8.53	49.5 (24-77)	0.073 ^a	44.01±9.03	45 (21-76)	0.261 ^a
	Yes	52.13±7.30	52 (39-64)		46.75±8.56	45.5 (30-69)	
Wish to return the previous residence status after the pandemic	No	53.89±8.24	54 (39-66)	0.251 ^a	47.59 ± 8.31	48 (30-64)	0.110 ^a
	Yes	51.03±6.64	51 (38-61)		44.53±8.29	44 (28-69)	

^a: Mann-Whitney U test. ^b: Kruskal-Wallis H test.

SD: Standard deviation, min: Minimum, max: Maximum, COVID-19: Coronavirus disease-2019

Trait Anxiety Scale (Tables 3 and 4). It can be concluded that people, in general, have a fear of being infected with this disease again, especially if they are faced with a highly contagious disease that has severe complications and has unknowns about methods of protection and vaccination.

The State and the Trait Anxiety Scale scores obtained in this study were significantly higher in people living alone (Tables 3 and 4). It is clear that one of the most powerful weapons in coping with stress is family, as it is of great importance in providing social support to the person (21,24) and living alone itself is a positive predictor of stress (25). A study conducted via an online survey performed with 310 healthcare professionals revealed that stress and anxiety symptoms were more common in people who were less psychologically prepared and lacked family support (26). A study among 200 healthcare personnel reported that those who stayed away from their families for fear of infecting them were associated with higher anxiety scores (27).

Another result obtained was that there was no significant difference between men and women in terms of anxiety and that being married or single had no effect on the State or the

Trait Anxiety Scale (Table 4). Some studies show the opposite of the results obtained from this study. In a study conducted by Huang et al. (28), among 230 healthcare workers, 23.04% showed symptoms of anxiety disorder, and 27.39% showed symptoms of stress disorder. These symptoms were observed significantly more in women than men and nurses than doctors during the COVID-19 pandemic. Similarly, a study in Türkiye with 291 healthcare workers showed that women's anxiety state was significantly higher than men's (3). There are also reports indicating that stress and anxiety symptoms were more common in female healthcare workers with poor sleep quality (26), and being female and single is associated with higher anxiety scores among physicians (2). In a study conducted with anesthesiology and reanimation physicians, anxiety levels were significantly higher in women, those who were married, those who lived alone due to isolation, those who had increased working hours, and those who feared infecting their relatives with the virus (29). These different results indicate that more comprehensive studies should be conducted with different scales to understand the effects causing stress and anxiety in anesthesiology and reanimation physicians.

Study Limitations

This study has a few limitations. The first one is the short duration of the study between December 2020 and March 2021. Data were collected based on self-administered anonymous voluntary answers from anesthesiology and reanimation physicians of only the TARD members, which limits the number of participants to the region in which we live. Also, physicians participating in the study and answering the questionnaire were not categorized regarding the hospital they work at and the number of patients they see on a daily basis. Therefore, the small sample size and experience and workload of physicians working at different hospitals may limit the statistically significant differences observed in this study. Furthermore, the survey was restricted to the current anxiety situation. The effect of the change in the working and living conditions over time could not be tested, and it did not distinguish the pre-existing anxiety situation of the participants. Finally, the results represent the situation at the beginning of the COVID-19 pandemic.

Conclusion

In this study, the anxiety levels of anesthesiology and reanimation physicians during the COVID-19 pandemic in Türkiye and the factors that caused them were investigated. The results indicated the importance of adequate psychological support for anesthesiology and reanimation physicians during any pandemic, especially for young research assistants and specialists away from family support. Planning work shifts, continuous support for mental health, and areas of responsibility should be carefully organized to ensure the quality of the working environment of healthcare providers, such as anesthesiology and reanimation physicians, fighting on the front lines, especially during such pandemics.

Ethics

Ethics Committee Approval: The study was approved by Ankara University, Faculty of Medicine Clinical Research Ethics Committee with the decision number İ10-652-20 on 27/11/2020.

Informed Consent: Retrospective study.

Authorship Contributions

Concept: G.C., V.B., Design: G.C., V.B., Data Collection and Processing: G.C., M.Ö., S.K.E., Analysis or Interpretation: G.C., M.Ö., S.K.E., V.B., Literature Search: G.C., Writing: G.C., V.B.

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