

ORIGINAL ARTICLE / ORIJINAL MAKALE

# Investigation of psychological characteristics of young adults during the COVID-19 pandemic period

## COVID-19 pandemisi döneminde genç erişkinlerin psikolojik özelliklerinin araştırılması

 Ayşe Sonay Türkmen<sup>a</sup>,  Ali Ceylan<sup>b</sup>,  Ayşe Topuz<sup>c</sup>

<sup>a</sup> Assoc. Prof., Karamanoğlu Mehmetbey University Faculty of Health Sciences Nursing Department, Karaman, Turkey

<sup>b</sup> Msc., Karamanoğlu Mehmetbey University Health Services Vocational School Physiotherapy Program, Karaman, Turkey

<sup>c</sup> Msc., Karamanoğlu Mehmetbey University Health Services Vocational School Dialysis Program, Karaman, Turkey

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### ABSTRACT

**Objective:** Aim of this study was to investigate the possible effects of changing living conditions due to COVID-19 in young adult individuals. **Methods:** The study was conducted as a descriptive relation-seeker-type. A total of 551 young people were reached. Questionnaire, Perceived Stress Scale, Health Anxiety Scale-Short Form and Maudsley Obsessive Compulsive Question List were used. For Analysis was used number, percentage, mean, standard deviation, chi-square, t test, ANOVA, Tukey-HSD and Pearson correlation tests. **Results:** The average age of the participants was 22.60 ± 3.49 years. 74% are women, 88.6% are single, 53.4% are students (health). The average stress score of individuals is 30.44±7.86, the average HAS-1 is 14.32±6.22, the average HAS-2 is 3.43±2.34 and the average MOCQ is 17.79±7.19. In terms of obsessive-compulsive disorder, 10% (n=55) of the participants showed low trends, 29.9% (n=165) moderate, and 60.1% (n=331) showed a high level of trend. It was determined that individuals' perceived stress, anxiety and obsessive-compulsive behavior levels changed according to variables such as age, gender, marital status, occupation, presence of chronic disease, smoking and quarantine status (p<0.05). **Conclusion:** It was determined that young people experienced psychological problems due to the COVID-19 outbreak, and these problems changed according to demographic characteristic.

**Keywords:** COVID-19, young adult individual, perceived stress, anxiety, obsessive-compulsive behavior

**Correspondence:** Ayşe Sonay TÜRKMEN, Karamanoğlu Mehmetbey University Faculty of Health Sciences Nursing Department, Karaman, Turkey. **E-mail:** asonaykurt@gmail.com. **Tel:** +90 0505 378 20 41.

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**ÖZ**

**Amaç:** Bu çalışmanın amacı, genç erişkin bireylerde COVID-19 nedeniyle değişen yaşam koşullarının olası etkilerini araştırmaktır. **Yöntem:** Araştırma, tanımlayıcı ilişki arayan tipinde yürütülmüştür. Toplam 551 gence ulaşıldı. Veriler anket formu, Algılanan Stres Ölçeği, Sağlık Anksiyete Ölçeği-Kısa Form ve Maudsley Obsesif Kompulsif Soru Listesi kullanılarak toplandı. Analiz için sayı, yüzde, ortalama, standart sapma, ki-kare, t testi, ANOVA, Tukey-HSD ve Pearson korelasyon testleri kullanıldı. **Bulgular:** Katılımcıların yaş ortalaması  $22.60 \pm 3.49$  yıl idi. %74'ü kadın, %88.6'sı bekar, %53.4'ü öğrencidir(sağlık). Bireylerin ortalama PSS puanı  $30.44 \pm 7.86$ , HAS-1  $14.32 \pm 6.22$ , HAS-2  $3.43 \pm 2.34$  ve MOCQ  $17.79 \pm 7.19$ 'dur. Obsesif kompulsif bozukluk açısından katılımcıların %10'u (n=55) düşük, %29.9'u (n=165) orta ve %60.1'i (n=331) yüksek düzeyde eğilim göstermiştir. Bireylerin algıladıkları stres, kaygı ve obsesif-kompulsif davranış düzeylerinin yaş, cinsiyet, medeni durum, meslek, kronik hastalık varlığı, sigara ve karantina durumu gibi değişkenlere göre değiştiği belirlendi ( $p < 0.05$ ). Ayrıca PSS, HAS ve MOCQ ortalama puanları arasında pozitif ve istatistiksel olarak anlamlı bir ilişki vardı. **Sonuç:** Gençlerin COVID-19 salgını nedeniyle psikolojik sorunlar yaşadıkları ve bu sorunların demografik özelliklere göre değiştiği belirlendi.

**Anahtar kelimeler:** COVID-19, genç yetişkin birey, algılanan stres, kaygı, obsesif-kompulsif davranış

**Introduction**

The new coronavirus disease, which was first detected in the Wuhan city of Hubei province of China, has spread to the whole world in a short time and an unknown microbial pathogen has been reported to cause viral pneumonia in individuals.<sup>1,2</sup> It has been reported that symptoms such as fever, cough, difficulty in breathing, joint pain and fatigue may occur in individuals 2-14 days after contact with the pathogen.<sup>3</sup> As of June 2020, scientists continue to work for effective treatment and vaccination in the fight against COVID-19, while countries continue to work to reduce the effects of the epidemic in line with their own treatment protocols and decisions.

This global epidemic, which shook the world deeply, not only affected the health of infected individuals, but also brought significant psychological, sociological and economic consequences on society in all areas of modern life.<sup>4</sup> Knowing that an invisible microorganism causes disease, loss or death can lead to unreal fears, stress and panic in individuals.<sup>5</sup> Many people may exhibit cognitive responses and psychological behaviors such as anxiety,

stress and obsessively when faced with such health-threatening situations.<sup>6,7</sup> The first of the reactions given in unexpected situations and against changing life conditions is the thoughts that occur uncontrollably, mostly compulsive actions, and the other is anxiety and stress, which causes the ability to understand.<sup>8</sup> In a study conducted during the SARS outbreak in Hong Kong in 2003, it was stated that psychological reactions such as high levels of stress, helplessness and post-traumatic symptoms were common in individuals.<sup>9</sup> In a study involving university students and employees in Spain and investigating the psychological effects of the epidemic and quarantine; individuals have been reported to experience moderate or severe anxiety, depression and stress.<sup>1</sup> In a study examining the effect of COVID-19 on mental health in young individuals, it was stated that individuals are prone to psychological problems and show signs of posttraumatic stress.<sup>2</sup> In a comprehensive study conducted during the epidemic in China, it was stated that all parameters of the psychological stress elements of healthcare workers were significantly higher than university students.<sup>10</sup>

Quarantine is an application that reduces the risk of transmission to other people by isolating them from other people and limiting their movements in order to determine whether individuals who are likely to carry infectious diseases are sick. In studies conducted on the psychological effects of long-term quarantine restrictions, it was reported that individuals who were treated with quarantine had negative behaviors such as post-traumatic stress symptoms, confusion, anxiety, and anger.<sup>11-13</sup>

In these days when the COVID-19 epidemic continues, it is thought that individuals' mental health may be affected due to the restrictions of their freedom, losing their jobs and loved ones, or fear of losing their loved ones, becoming infected, and death. In the literature review, no study investigating the effects of COVID-19 outbreak in young adult individuals was found in Turkey. For this reason, this study was conducted to investigate the psychological state of young adult individuals during the COVID-19 period.

## Methods

The study was conducted as a descriptive relation-seeker-type. The population of the study consists of individuals between the ages of 18-30 living in the country. According to the sample calculation guide in the descriptive studies published by the World Health Organization; a minimum sample size of 384 was determined at  $\pm 2$  error level (d), 50% disease prevalence, and 95% confidence interval.<sup>14</sup> A total of 551 young individuals were included in the study. The Questionnaire developed by the researchers, Perceived Stress Scale (PSS), Health Anxiety Scale-Short Form (HAS-SF) and Maudsley Obsessive Compulsive Questionnaire (MOCQ) were used as data collection tools. Data collection tools were sent to all individuals between the ages of 18-30 living in a city center, randomly designated and available online. Individuals who volunteered to participate in the study and provided feedback were included in the study. The time to fill the forms is on average 10 minutes.

## The Questionnaire

It consists of questions including demographic information such as age, gender, marital status, educational status, smoking and alcohol use, quarantine status, place of residence and knowledge levels about COVID-19 created by researchers.

## Perceived Stress Scale (PSS)

This scale, which was developed by Cohen et al in 1983, was adapted to Turkish society by Eskin et al in 2013. This scale, consisting of 14 items in total, is designed to measure how stressful a number of situations in a person's life are perceived. The participants evaluate each item on a 5-point Likert scale ranging from "Never (0)" to "Very often (4)". 7 items with positive statements are scored in reverse (4,5,6,7,9,10,13). Total score varies between 0 and 56. As the scale score increases, the perceived stress level also increases.<sup>15</sup>

## Health Anxiety Scale-Short Form (HAS)

The Turkish validity and reliability study of this scale, which was developed by Salkovskis et al in 2002, was conducted by Aydemir et al in 2013. It is a self-report scale consisting of 18 items. Scoring of the scale is between 0-3 in each item, and a high score indicates a high level of health anxiety. It consists of two factors; the first factor (HAS-1) includes the first 14 items of the scale and is called the body size, which represents the dimension of hypersensitivity and anxiety to physical symptoms. The second factor (HAS-2) includes the last 4 items of the scale and is called the dimension associated with the negative results of the disease. Cronbach's alpha value of the scale is 0.91.<sup>16</sup>

## Maudsley Obsessive Compulsive Questionnaire (MOCQ)

Developed in 1977 by Hodgson and Rachman, this scale consists of 4 subscales and 30 items. It is a self-report scale that is measured by answering true / false type. The "true" answer is 1, the "false" answer is 0 points. This scale, which was made in 1988 by Erol and Savaşır in our country, became 37 items by adding 7 items to this scale. The scale's total score (MOCQ-T) ranges from 0 to 37. Scale; consists of control (MOCQ-C) (2, 6,

8, 14, 15, 20, 22, 26 and 28 items), cleaning (MOCQ-CI) (1, 4, 5, 9, 13, 17, 19, 21, 24, 26 and 27 items), slowness (MOCQ-S) (2, 4, 8, 16, 23, 25 and 29 items), doubt (MOCQ-D) (3, 7, 10, 11, 12, 18 and 30) and rumination (MOCQ-R)(2, 8,31-37. items) subscales. The highest score is 37. It is 9 points for checking, 11 points for cleaning, 7 points for slowness and 7 points for doubt. Those who scored 8 or less in total show low tendency to obsessive compulsive symptoms, those who score between 9 and 15 have a medium level trend, and those who score 16 or above show a high level obsessive compulsive trend. The more points obtained from the scale, the more frequently the obsessive-compulsive symptoms occur.<sup>17</sup>

Analysis of the data was evaluated on computer. Descriptive data are given as a percentage and are reported as mean  $\pm$  standard deviation. The Chi-squared test was used to analyse the categorical data, whereas the Student's t-test and One-Way Analysis of Variance were used to analyse interval/ratio data. Tukey's HSD (honestly significant difference) test was conducted for post hoc analysis. Pearson's correlation analysis was implemented to determine the direction and level of the relationship between the continuous variables of measurement. Significance level  $p < 0.05$  was accepted.

## Results

The average age of the young people who participated in the study was determined as  $22.60 \pm 3.49$  years. The majority of the participants were female (74%), single (88.6%), health student (53.4%), not in quarantine (57.5%) and without any chronic disease (91.8%).

The average stress score of individuals is  $30.44 \pm 7.86$ , the average HAS-1 is  $14.32 \pm 6.22$ , the average HAS-2 is  $3.43 \pm 2.34$  and the average MOCQ is  $17.79 \pm 7.19$ . Also according to MOCQ-T score status; In terms of obsessive-compulsive disorder, 10% (n=55) of the participants showed low trends, 29.9% (n=165) moderate, and 60.1% (n=331) showed a high level of trend.

The stress levels of women, single, those with any chronic disease and those left in quarantine were higher (Table 1). In advanced analysis; it found that the 18-20 years old had a significantly higher PSS score than 26-30 years old ( $p=0.027$ ). In addition, it was determined that students *studying* in health-related departments received higher scores than healthcare professionals ( $p=0.027$ ) and public employees ( $p=0.011$ ).

Female had higher HAS-Hypersensitivity and anxiety to physical symptoms. Accordingly, female are more susceptible to disease-specific physical symptoms (Table 2). Furtherly, public employees received higher scores than non-employed HAS-Negative consequences of the disease ( $p < 0.001$ ).

Female also scored higher than the MOCQ-CI and MOCQ-R. All MOCQ subscales mean scores of smokers and those who did not go out on the streets were higher (Table 3).

For MOCQ-C subscale; it was determined that young people between the ages of 18-20 years received higher scores than those between 21-25 years ( $p = 0.029$ ) and 26-30 years ( $p = 0.042$ ); that students studying outside the field of health received higher scores than public employees ( $p = 0.036$ ).

For MOCQ-CI subscale; it was determined that young people between the ages of 18-20 years received higher scores than those between 21-25 years ( $p=0.047$ ); that students studying in departments outside the field of health received higher scores than Healthcare workers ( $p = 0.001$ ), public workers ( $p = 0.008$ ) and non-workers ( $p = 0.047$ ).

For MOCQ-S subscale; it was determined that students studying in the field of health ( $p = 0.020$ ), students studying outside the field of health ( $p = 0.014$ ) and private sector employees ( $p = 0.036$ ) received higher scores than health workers.

For MOCQ-D subscale; it was determined that young people between the ages of 18-

**Table 1.** Distribution of PSS mean scores and differences between the groups

Demographic characteristics	n	%	PSS Mean $\pm$ SD
<b>Age of the participants</b>			
18-20 year	207	37.6	31.37 $\pm$ 7.38
21-25 year	216	39.2	30.35 $\pm$ 8.35
26-30 year	128	23.2	29.09 $\pm$ 7.61
<i>F</i>			3.378
<i>p</i>			<b>0.035</b>
<b>Gender</b>			
Female	408	74.0	31.07 $\pm$ 7.92
Male	143	26.0	28.64 $\pm$ 7.40
<i>t</i>			3.218
<i>p</i>			<b>0.001</b>
<b>Marital status</b>			
Single	488	88.6	30.74 $\pm$ 7.88
Married	63	11.4	28.10 $\pm$ 7.30
<i>t</i>			-2.530
<i>p</i>			<b>0.012</b>
<b>Profession Groups</b>			
Student (Health)	294	53.4	31.61 $\pm$ 7.63
Student (Other)	56	10.2	31.21 $\pm$ 8.72
Health Profession	89	16.2	28.73 $\pm$ 7.76
Public employee	30	5.4	26.63 $\pm$ 6.81
Private Sector Employee	40	7.3	28.35 $\pm$ 7.29
Non-employed	42	7.6	29.57 $\pm$ 8.08
<i>F</i>			4.464
<i>p</i>			<b>0.001</b>
<b>Any chronic disease</b>			
Yes	45	8.2	34.02 $\pm$ 7.77
No	506	91.8	30.12 $\pm$ 7.80
<i>t</i>			3.217
<i>p</i>			<b>0.001</b>
<b>Status of Quarantine</b>			
Yes	234	42.5	31.93 $\pm$ 7.45
No	311	57.5	29.34 $\pm$ 7.98
<i>t</i>			3.875
<i>p</i>			<b>&lt;0.001</b>

PSS: Perceived Stress Scale

20 years received higher scores than those between 26-30 years ( $p=0.004$ ); that students studying in the field of health ( $p = 0.018$ ) and students studying outside the health field ( $p = 0.019$ ) received higher scores than the healthcare professionals.

field of health were to have higher scores than healthcare workers ( $p = 0.000$ ); that students studying outside of the field of health received significantly higher scores from healthcare workers ( $p < 0.001$ ), public employees ( $p = 0.005$ ) and non-workers ( $p = 0.015$ ).

**Table 2.** Distribution of HAS mean scores and differences between the groups

Demographic characteristics	n	%	HAS-1 Mean $\pm$ SD	HAS-2 Mean $\pm$ SD
<b>Gender</b>				
Female	408	143	15.01 $\pm$ 6.19	3.51 $\pm$ 2.37
Male	74.0	26.0	12.38 $\pm$ 5.89	3.20 $\pm$ 2.24
<i>t</i>			4.418	1.352
<i>p</i>			< 0.001	0.177
<b>Profession Groups</b>				
Student (Health)	294	53.4	14.71 $\pm$ 6.56	3.42 $\pm$ 2.22
Student (Other)	56	10.2	15.11 $\pm$ 5.21	4.00 $\pm$ 2.51
Health Profession	89	16.2	13.40 $\pm$ 5.41	3.18 $\pm$ 2.21
Public employee	30	5.4	14.40 $\pm$ 6.61	4.23 $\pm$ 2.74
Private Sector Employee	40	7.3	13.63 $\pm$ 5.86	3.45 $\pm$ 3.07
Non-employed	42	7.6	13.21 $\pm$ 5.56	2.69 $\pm$ 1.83
<i>F</i>			1.162	2.450
<i>p</i>			0.326	0.033

HAS-1: Health anxiety scale-Hypersensitivity and anxiety to physical symptoms,

HAS-2: Health anxiety scale-Negative consequences of the disease

For MOCQ-R subscale; it was determined that young people between the ages of 18-20 years received higher scores than those between 26-30 years ( $p<0.001$ ); that students studying in the field of health received higher scores than healthcare workers ( $p < 0.001$ ) and public employees ( $p = 0.045$ ); that students studying outside the field of health were also found to score higher than healthcare professionals ( $p < 0.001$ ) and public employees ( $p=0.015$ ).

For MOCQ-T; it was determined that young people between the ages of 18-20 years received higher scores than those between 21-25 years ( $p = 0.010$ ) and 26-30 years ( $p = 0.002$ ); that students studying in the

Of the participants, 8.6% were high school, 41.7% were associate degree, 43.7% were undergraduate and 6% were master graduates. 37.2% were living in metropolitan cities, 20.9% in city centers, 25.4% in districts, 16.5% in towns / villages. The difference between the groups in terms of scale mean scores by both demographic features was found insignificant ( $p> 0.05$ ).

65 participants (11.8%) who participated in the study stated that there was a relative in the immediate vicinity who was diagnosed with COVID-19, and 14 participants (2.5%) reported that they lost their lives due to COVID-19. It was determined that the diagnosis of COVID-19 in the immediate

**Table 3.**Distribution of MOCQ mean scores and differences between the groups

Demographic characteristics	n	%	Control Mean±SD	Cleaning Mean ± SD	Slowing Mean ± SD	Doubt Mean ± SD	Rumination Mean ± SD	Total Mean ± SD
<b>Age Group</b>								
18-20 year	207	37.6	4.14±2.27	5.93±2.17	2.57 ± 1.71	3.89±1.56	4.96±2.36	19.22±6.48
21-25 year	216	39.2	3.56±2.29	5.39±2.41	2.38±1.70	3.55±1.47	4.38±2.74	17.19±7.36
26-30 year	128	23.2	3.51±2.55	5.38±2.47	2.32±1.84	3.34±1.64	3.84±2.63	16.52±7.65
<i>F</i>			4.308	3.466	1.080	5.619	7.670	6.985
<i>p</i>			<b>0.014</b>	<b>0.032</b>	<b>0.340</b>	<b>0.004</b>	<b>0.001</b>	<b>&lt;0.001</b>
<b>Gender</b>								
Female	408	143	3.83±2.35	5.72±2.32	2.46±1.73	3.64±1.58	4.62±2.61	18.12±7.17
Male	74.0	26.0	3.59±2.39	5.22±2.39	2.38±1.75	3.60±1.50	4.06±2.57	16.87±7.20
<i>t</i>			1.062	2.176	0.478	0.253	2.196	1.796
<i>p</i>			<b>0.289</b>	<b>0.030</b>	<b>0.633</b>	<b>0.800</b>	<b>0.029</b>	0.073
<b>Profession Groups</b>								
Student(Health)	294	53.4	3.95 ±2.23	5.72 ±2.22	2.53 ±1.71	3.78 ±1.54	4.85 ±2.14	18.60±6.61
Student(Other)	56	10.2	4.38 ±2.61	6.50 ±2.26	2.84 ±1.86	4.02 ±1.80	5.30 ±2.46	20.64±7.81
Health working	89	16.2	3.19 ±2.23	4.93 ±2.31	1.88 ±1.57	3.18 ± 1.47	3.44 ±2.54	15.00±6.73
Public working	30	5.4	2.93 ±2.49	4.70 ±2.82	2.27 ±1.72	3.27 ±1.60	3.43 ±2.97	14.93±8.20
Private Sector	40	7.3	4.08 ±2.85	5.98 ±2.28	2.85 ±2.05	3.43 ±1.43	4.13 ±2.84	18.20±8.13
Non-employed	42	7.6	3.19 ±2.17	5.14 ±2.56	2.14 ±1.51	3.50 ±1.38	4.02 ±2.90	15.98±7.08
<i>F</i>			3.639	4.801	3.469	3.285	6.832	7.051
<i>p</i>			<b>0.003</b>	<b>&lt; 0.001</b>	<b>0.004</b>	<b>0.006</b>	<b>&lt;0.001</b>	<b>&lt; 0.001</b>
<b>Smoking</b>								
Yes	112	20.3	4.32±2.61	5.67±2.71	2.96±1.92	3.89±1.54	5.24±2.77	19.35±8.32
No	439	79.7	3.63±2.27	5.57±2.25	2.31±1.66	3.56±1.56	4.28±2.53	17.40±6.83
<i>t</i>			2.800	0.403	3.575	2.008	3.524	2.573
<i>p</i>			<b>0.005</b>	<b>0.687</b>	<b>&lt; 0.001</b>	<b>0.045</b>	<b>&lt;0.001</b>	<b>0.010</b>
<b>Quarantine</b>								
Yes	234	42.5	4.10±2.29	5.86±2.22	2.66±1.74	3.84±1.48	5.01±2.55	19.08±6.65
No	311	57.5	3.52±2.38	5.39±2.42	2.27±1.71	3.48±1.60	4.08±2.58	16.85±7.44
<i>t</i>			2.881	2.360	2.628	2.706	4.231	3.634
<i>p</i>			<b>0.004</b>	<b>0.019</b>	<b>0.009</b>	<b>0.007</b>	<b>&lt; 0.001</b>	<b>&lt; 0.001</b>

vicinity or the burning from the immediate environment did not affect the mean scores of the scale ( $p > 0.05$ ).

### Discussion

It is possible that pandemics such as COVID-19 can cause many psychological problems such as stress, anxiety, and obsessive behaviors on individuals. It found that the average stress score of individuals is  $30.44 \pm 7.86$ , the average HAS-1 is  $14.32 \pm 6.22$ , the average HAS-2 is  $3.43 \pm 2.34$  and the average MOCQ is  $17.79 \pm 7.19$ . In a study conducted with 442 healthcare workers during the COVID-19 pandemic process, it was reported that individuals showed symptoms of depression, 224 (51.6%) of anxiety, and 182 (41.2%) of stress. In addition, factors such as being female, young and single, lack of professional experience, and working in the front line with the epidemic have been associated with high scores.<sup>18</sup> In the study conducted by Bakioğlu et al. in 970 individuals with an average age of  $29.74 \pm 9.64$  year, they stated that fear of COVID-19 increased the intolerance of depression, anxiety, stress and uncertainty and decreased positive mood.<sup>19</sup> These findings of the study are similar to the literature.

In this study, which was conducted in order to examine the possible effects of changing life conditions due to the outbreak of COVID-19 in young adult individuals, it was determined that the individuals' age, gender, marital status, occupation, presence of chronic disease, smoking and quarantine status of individuals affect their stress, anxiety and obsessive-compulsive behavior levels.

It was determined that young people between the ages of 18-20 years had significantly higher PSS scores than those between the ages of 26-30 years. This indicates that stress decreases as the age progresses during the COVID-19 outbreak. In the study of Bin-Li et al., Where they examined the emotional and behavioral effects of COVID-19 in the Chinese people, it was reported that age had a significant relationship with perception and decrease in positive emotion.<sup>20</sup> This result is similar to this study. In the study conducted with 103 healthcare workers during the COVID-19 epidemic period, anxiety levels

were shown to be higher in individuals over the age of 29.<sup>21</sup> Otherwise Ekiz et al. COVID-19 outbreak in the process of a study conducted in Turkey has been shown to be a significant correlation in individuals' age and level of anxiety.<sup>6</sup> The fact that there are different results in the literature regarding the situation between age and anxiety suggests that more information is needed on this subject.

The stress level of females was higher than males. According to the report of the American Psychological Association in 2017, it was stated that females experience more stress than males.<sup>22</sup> In studies conducted during the SARS and H1N1 outbreak, it has been reported that women have high post-traumatic stress and anxiety levels and exhibit behaviors such as panic and depression.<sup>9,23</sup> Similarly, studies conducted in the COVID-19 process have been shown to increase the negative emotions, stress, anxiety and sensitivities in women.<sup>20,21,24</sup> Differently, in a study of Zhang et al with healthcare workers; it has been reported that there is no significant relationship in the anxiety levels of men and women against COVID-19 outbreak.<sup>25</sup> It is likely that working in the health sector in the epidemic period removed the significance between the genders.<sup>6</sup> In this case, it can be said that everyone working in the health field has similar stress levels, but women working in other sectors experience more stress. The study also found that the female HAS- Hypersensitivity and anxiety to physical symptoms mean score was higher. High stress causes more physical symptoms related to stress.

The study also revealed that the stress level of single participants was higher. There are studies publishing different results in the literature. Liang et al. In a study conducted with young individuals on COVID-19, it was reported that divorced and widowed individuals had higher post-traumatic stress disorder.<sup>2</sup> In another study, it was stated that married people tend to worsen their mental health status due to the SARS outbreak.<sup>9</sup> Wang et al. reported that marital status was not related to anxiety, stress and depression.<sup>26</sup> It is thought that doing this study in young individuals, the inexperience of single young



people of our country, especially in health issues, their anxiety more than the epidemic, their failure to develop strategies to cope with the negative situations they face, and the need for support units may be an indicator of this result.

When the scale mean scores of the participants were compared by profession groups, the difference between the groups was found to be significant in almost all scales. It was observed that the stress levels of the students studying in the field of health, HAS-negative consequences of the disease of the public employees, and the obsessive behaviors of the students in the other fields were higher. In the study conducted by Cao et al with 7143 university students in the COVID-19 period, they reported that stated 75.1% (5367) of university students did not show symptoms, 21.3% (1518) were weak, 2.7% (196) moderate and 0.9% (62) had severe anxiety levels.<sup>27</sup> In a study involving university students and employees in Spain and investigating the psychological effects of the epidemic and quarantine, individuals were reported to experience moderate or severe anxiety, depression and stress.<sup>1</sup> In a comprehensive study conducted by Wu et al., It has been shown that healthcare professionals score significantly higher in all parameters of psychological stress than university students.<sup>10</sup> It is thought that the availability of different information in the literature may result from cultural differences.

Individuals with chronic disease and quarantine had higher mean PSS scores. This finding is similar to the literature.<sup>26,28</sup> In one study, it was stated that the presence of chronic disease did not affect the stress level of individuals.<sup>6</sup> In a study, it was found that 7% of individuals during quarantine showed symptoms of anxiety, 17% showed anger, and after a quarantine (after 4-6 months), anxiety decreased to 3% and anger status to 6%.<sup>12</sup> In a study conducted on hospital personnel thought to be in contact during the SARS period, it was stated that quarantine administration was the most determinant factor of acute stress disorder after quarantine ended (9 days).<sup>29</sup> There are similar studies on the effects of

quarantine.<sup>13,30</sup> Presence of chronic disease is an important criterion for quarantine. Therefore, it is expected that these two variables were give the same result. It is known that the presence of chronic disease increases the negative effects of COVID-19 disease. In this reason, individuals with this cryonic disease are expected to experience more stress.

It was seen that alcohol consumption of the participants did not affect the level of obsessive behavior, but smoking status affected these behaviors. COVID-19 revealed that cough, shortness of breath, and the risk of death are reported to be higher in smokers, which may have caused these individuals to be more obsessive.

It was also determined that those between the ages of 18-20, women, students and quarantine remained more obsessive. Similarly, in the face of any uncertainty, it has been reported that obsessive behaviors and self-harm behaviors are high in children, young adults, women, prisoners or quarantine.<sup>31-33</sup> It is reported that depression, anxiety, anger, irritability, unrest in interpersonal relations and obsessive-compulsive-like behavior disorders are observed intensively in university students due to uncertainty.<sup>34</sup>

It was found that 10% (n = 55) of the participants showed a low tendency, 29.9% (n = 165) were moderate and 60.1% (n = 331) showed a high level of trend in terms of obsessive compulsive disorder. In studies conducted, it is reported that individuals may tend to some obsessive compulsive strategies such as accusing themselves and others, focusing on thoughts, comparing with other events or emphasizing their relativity to reduce the importance of events.<sup>8,9,35,36</sup> This indicates that obsessive behaviors have increased significantly due to the epidemic.

### Conclusion

As a result of the study, it is seen that the psychological state of young adults may be adversely affected due to the changing living conditions during the COVID-19 epidemic process. It was determined that those who experienced the most intense stress among

the participants were 18-20 years old, female, single, student, people with chronic diseases and those who were in quarantine. Hypersensitivity and anxiety to physical symptoms were women and experienced negative consequences of the disease were public employees.

The reflections of stress on behavior were evaluated with obsessive-compulsive symptoms in this study. It was determined that the best control status for the disease was individuals between the ages of 18-20, students, smokers, and in quarantine. Regarding cleaning, it was found that women, students and quarantine individuals between the ages of 18-20 were better. Private sector employees, smokers and those in quarantine are slower; 18 and 20 years old, students, smokers and in quarantine were more skeptical. The individuals who showed the most obsessive compulsive behaviors in general were 18-20 years old, students, smokers and in quarantine.

As a result of the study, it was revealed that the COVID-19 epidemic may affect some individuals (for high stress levels: 18-20 years old, female, single, student, people with chronic diseases and those who were in quarantine; for experience the negative consequences of the disease: women and public employees; for obsessive-compulsive symptoms: 18-20 years, students, smokers, and in quarantine) more intensely than others.

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### References

1. Odriozola-González P, Planchuelo-Gómez Á, Irurtia MJ, de Luis-García R. Psychological effects of the COVID-19 outbreak and lockdown among students and workers of a Spanish university. *Psychiatry Research* 2020;290:1-8.
2. Liang L, Ren H, Cao R, Hu Y, Qin Z, Li C, Mei S. The effect of COVID-19 on youth mental health. *Psychiatr Q* 2020;91(3):841-852.
3. Rahman J, Muralidharan A, Quazi SJ, Saleem H, Khan S. Neurological and psychological effects of coronavirus (COVID-19): An overview of the current era pandemic. *Cureus* 2020;12(6):1-15.
4. Yang Y, Peng F, Wang R, Yang M, Guan K, Jiang T, Xu G, Sun J, Chang C. Corrigendum to "The deadly coronaviruses: The 2003 SARS pandemic and the 2020 novel coronavirus epidemic in China". *J Autoimmun* 2020;111:102487.
5. Sarı D, Khorshid L. Bulaşıcı hastalıklarda kaynak izolasyonunun psikolojik sonuçları. *Ege Üniversitesi Hemşirelik Yüksek Okulu Dergisi* 2008;24(3):83-91.
6. Ekiz T, İlman E, Dönmez E. Bireylerin sağlık anksiyetesi düzeyleri ile COVID-19 salgını kontrol algısının karşılaştırılması. *Uluslararası Sağlık Yönetimi ve Stratejileri Araştırma Dergisi* 2020;6(1):139-154.
7. Leventhal H, Meyer D, Nerenz D. The common sense representation of illness danger. *Contributions to Medical Psychology* 1980;2:7-30.
8. Bunevicius A, Katkute A, Bunevicius R. Symptoms of anxiety and depression in medical students and in humanities students: Relationship with big-five personality dimensions and vulnerability to stress. *Int J Soc Psychiatry* 2008;54(6):494-501.
9. Lau JT, Yang X, Pang E, Tsui HY, Wong E, Wing YK. SARS-related perceptions in Hong Kong. *Emerging Infectious Diseases* 2005;11(3):417-424.
10. Wu W, Zhang Y, Wang P, Zhang L, Wang G, Lei G, Xiao Q, Cao X, Bian Y, Xie S, Huang F, Luo N, Zhang J, Luo M. Psychological stress of medical staffs during outbreak of COVID-19 and adjustment strategy. *J Med Virol* 2020: Accepted article.

11. Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, Rubin GJ. The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *Lancet* 2020;395(10227):912-920.
12. Jeong H, Yim HW, Song YJ, Ki M, Min JA, Cho J, Chae JH. Mental health status of people isolated due to middle east respiratory syndrome. *Epidemiol Health* 2016;38:1-7.
13. Wu P, Fang Y, Guan Z, Fan B, Kong J, Yao Z, Liu X, Fuller CJ, Susser E, Lu J, Hoven CW. The psychological impact of the SARS epidemic on hospital employees in China: Exposure, risk perception, and altruistic acceptance of risk. *Can J Psychiatry. Revue Canadienne de Psychiatrie* 2009;54(5):302-311.
14. Lwanga SK, Lemeshow S. Sample size determination in health studies. World Health Organization, Genevre, 1991. p. 1-3.
15. Eskin M, Harlak H, Demirkıran F, Dereboy Ç. Algılanan stres ölçeğinin Türkçe'ye uyarlanması: Güvenirlilik ve geçerlik analizi. In *New Symposium Journal* 2013;51(3):132-140.
16. Aydemir Ö, Kırpınar I, Satı T, Uykur B, Cengisiz C. Sağlık Anksiyetesi Ölçeği'nin Türkçe için güvenilirlik ve geçerlilik çalışması. *Archives of Neuropsychiatry* 2013;50(4):325-331.
17. Erol N, Savaşır I. Maudsley obsesif kompulsif soru listesi. XXIV. Ulusal Psikiyatri ve Nörolojik Bilimler Kongresi Bildiri Kitabı, Ankara, GATA Basımevi 1988:107-114.
18. Elbay RY, Kurtulmuş A, Arpacıoğlu S, Karadere E. Depression, anxiety, stress levels of physicians and associated factors in COVID-19 pandemics. *Psychiatry Res* 2020;290:1-5.
19. Bakioğlu F, Korkmaz O, Ercan H. Fear of COVID-19 and positivity: Mediating role of intolerance of uncertainty, depression, anxiety, and stress. *Int J Ment Health Addiction* 2020; May 28:1-14.
20. Li JB, Yang A, Dou K, Wang L, Zhang M, Lin X. Chinese public's knowledge, perceived severity, and perceived controllability of the COVID-19 and their associations with emotional and behavioural reactions, social participation, and precautionary behaviour: A national survey. *BMC Public Health* 2020;20:1-30.
21. Uzun N, Tekin M, Sertel E, Tuncar A. Psychological and social effects of COVID-19 pandemic on obstetrics and gynecology employees. *J Surg Med* 2020;4(5):355-358.
22. American Psychological Association (APA). Stress in america 2017 snapshot: Coping with change. [https://www.apa.org/news/press/releases/stress/2016/coping\\_with-change.pdf](https://www.apa.org/news/press/releases/stress/2016/coping_with-change.pdf). 10 August 2018.
23. Çırakoğlu OC. Domuz gribi (H1N1) salgınıyla ilişkili algıların, kaygı ve kaçınma düzeyi değişkenleri bağlamında incelenmesi. *Türk Psikoloji Dergisi* 2011;26(67):49-64.
24. Liu X, Luo WT, Li Y, Li CN, Hong ZS, Chen HL, et al. Psychological status and behavior changes of the public during the COVID-19 epidemic in China. *Infect Dis Poverty* 2020;9(1):1-11.
25. Zhang WR, Wang K, Yin L, Zhao WF, Xue Q, Peng M, et al. Mental health and psychosocial problems of medical health workers during the COVID-19 epidemic in China. *Psychother Psychosom* 2020;89:242-250.
26. Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, Ho RC. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *Int J Environ Res Public Health* 2020;17(5):1-25.
27. Cao W, Fang Z, Hou G, Han M, Xu X, Dong J, Zheng J. The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Res* 2020;287:1-5.
28. Karayurt Ö, Dicle A, Malak AT. Paylaşılmamış deneyim: deprem bölgesinde kronik hastalığı olan bireylerin yaşam kalitesini etkileyen etmenler. *FÜ Sağlık Bilimleri Dergisi* 2008;22(6):327-332.

29. Bai Y, Lin CC, Lin CY, Chen JY, Chue CM, Chou P. Survey of stress reactions among health care workers involved with the SARS outbreak. *Psychiatr Serv* 2004;55(9):1055–1057.
30. Wang Y, Xu B, Zhao G, Cao R, He X, Fu S. Is quarantine related to immediate negative psychological consequences during the 2009 H1N1 epidemic?. *Gen Hosp Psychiatry* 2011;33(1):75–77.
31. Shafran R, Coughtrey A, Whittal M. Recognising and addressing the impact of COVID-19 on obsessive-compulsive disorder. *The Lancet Psychiatry* 2020;7(7):570–572.
32. Freeman S, Seymour M. ‘Just waiting’: the nature and effect of uncertainty on young people in remand custody in Ireland. *Youth Justice* 2010;10(2):126–142.
33. Hawton K, Linsell L, Adeniji T, Sariaslan A, Fazel S. Self-harm in prisons in England and Wales: An epidemiological study of prevalence, risk factors, clustering, and subsequent suicide. *Lancet* 2014;383(9923):1147–1154.
34. Ateş SS. Anxiety of unemployment before the graduation: Research on university students in the aviation departments. *International Journal of Entrepreneurship and Management Inquiries* 2019;3(5):165-174.
35. Abdi S, Taban S, Ghaemian A. Cognitive emotion regulation questionnaire: validity and reliability of Persian translation of CERQ-36 item. *Procedia-Social and Behavioral Sciences* 2012;32:2-7.
36. Garnefski N, Kraaij V, Spinoven P. Negative life events, cognitive emotion regulation and emotional problems. *Personality and Individual Differences* 2001;30(8):1311-1327.