

## ARAŞTIRMA / RESEARCH

**Investigating Anxiety, Depression, and Stress Levels of Nursing Students During the COVID-19 Outbreak***COVID-19 Salgını Sürecinde Hemşirelik Öğrencilerinin Anksiyete, Depresyon ve Stres Düzeylerinin İncelenmesi*Mustafa DURMUŞ 

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**Abstract**

**Objective:** The present study was conducted to examine the anxiety, depression, and stress levels of nursing students during the COVID-19 outbreak.

**Material and Method:** This cross-sectional study was performed between 01.01.2021 and 10.01.2021. The sample of the study consisted of 213 nursing students continuing their education in a state university located in the Eastern Anatolia Region of Turkey. Data were collected using a structured demographic information form and the Depression Anxiety Stress Scale (DASS-21).

**Results:** Most of the participants were women between the ages of 20-22 years and had a good income. Anxiety ( $5.87 \pm 3.80$ ), depression ( $7.81 \pm 4.65$ ), and stress levels ( $7.68 \pm 4.10$ ) of the students were below the average level. Significant differences were detected in anxiety, depression, and stress levels according to family attitudes, income levels, and having enough friends ( $p < 0.05$ ).

**Conclusion:** Depression, anxiety, and stress levels of the nursing students were detected at low levels for the investigated period. However, providing education programs that include methods of coping with stress and anxiety which students may encounter during the COVID-19 pandemic may be important.

**Keywords:** COVID-19, anxiety, depression, stress, nursing.

**Öz**

**Amaç:** Bu araştırma hemşirelik öğrencilerinin COVID-19 salgını sırasındaki kaygı, depresyon ve stres düzeylerini incelemek amacıyla yapıldı.

**Gereç ve Yöntem:** Bu kesitsel çalışma 01.01.2021 ile 10.01.2021 tarihleri arasında gerçekleştirildi. Çalışmanın örneklemini Türkiye'nin Doğu Anadolu Bölgesi'nde yer alan bir devlet üniversitesinde öğrenimine devam eden 213 hemşirelik öğrencisi oluşturdu. Veriler, yapılandırılmış bir demografik bilgi formu ve Depresyon Anksiyete Stres Ölçeği (DASS-21) kullanılarak toplandı.

**Bulgular:** Katılımcıların çoğu 20-22 yaş arasında kadın öğrencilerdi ve gelir düzeyleri iyiydi. Öğrencilerin anksiyete ( $5,87 \pm 3,80$ ), depresyon ( $7,81 \pm 4,65$ ) ve stres ( $7,68 \pm 4,10$ ) düzeylerinin ortalamanın altındaydı. Aile tutumu, gelir düzeyi ve yeterli arkadaşına sahip olma durumuna göre anksiyete, depresyon ve stres düzeylerinde anlamlı farklılıklar saptandı ( $p < 0,05$ ).

**Sonuç:** İncelenen dönem açısından hemşirelik öğrencilerinin depresyon, anksiyete ve stres düzeyleri düşük düzeyde saptanmıştır. Bununla birlikte, öğrencilerin COVID-19 pandemisi sürecinde karşılaşılabilecekleri stres ve anksiyete ile baş etme yöntemlerini içeren eğitim programlarının verilmesi önemli olabilir.

**Anahtar Kelimeler:** COVID-19, endişe, depresyon, stres, hemşirelik.

**1. Introduction**

"Coronavirus Disease 2019 (COVID-19)" virus was first identified in China in December 2019. Then, it rapidly spread all over the world and the World Health Organization (WHO) characterized COVID-19 as a pandemic on March 11, 2020 (1). While coronavirus can infect people from all ages, nursing students may have higher risks of being affected (2). Nurses usually choose their profession because of their desires to help people. On the other hand, COVID-19 is a serious and contagious disease, and nurses may not put their maximum

effort. The inability to save lives at the front line may affect nurses both physically and emotionally (3). Students face many problems during university years (4,5). Studies have shown that students have been highly vulnerable to mental health issues during the COVID-19, and mental health problems have increased during COVID-19 (6). If the students are not equipped with the sufficient skills to protect themselves against to the emotional strain they are exposed to, they may experience depression symptoms, anxiety, and stress (4).

Nursing education is a systematic program that covers educational skills in terms of both clinical and theoretical knowledge, and it teaches nursing profession through improving skills (7,8). Being aware of the bio-psycho-social processes experienced by university students is an important point in coping with depression (9). The study by Bai et al. revealed that nursing students presented anxiety and depression during the COVID-19 pandemic (10). Moreover, nursing education has consistently been associated with anxiety among students (11). It has been determined that nursing students have problems related to remote education and clinical practices during the COVID-19 pandemic process. These problems include infrastructure problems of remote education, limited resources, communication problems of asynchronous education, academic assignments and exams (12).

Heavy course loads, stringent examinations, continued pressure to attain a high academic grade, complex interpersonal relationships, challenges of the clinical environment, caring for chronic and terminally ill patients may result in greater anxiety among nursing students than among students from other healthcare disciplines (13,14). Thus, it is crucial to determine the anxiety, depression, and stress levels and to identify the related variables in nursing students who struggle with many problems prompted by the university life. Therefore, the purpose of the present study was to investigate anxiety, depression, and stress levels and to determine the related factors in nursing students during COVID-19 outbreak.

## 2. Material and Method

### 2.1. Type of the study

This cross-sectional study was conducted between the dates of January 1, 2021 and January 10, 2021 with the nursing students from a state university located in the Eastern Anatolia region of Turkey.

### 2.2. Universe and sample of the study

The G\*Power program version 3.1.9.4 (Heinrich-Heine-Universität Düsseldorf, Germany) was used to determine the sample size. A total of 213 nursing students were included in the study, with a power of  $\beta = 80\%$  and  $\alpha = 0.05$  error rate based on similar articles (15).

### 2.3. Data collection tools

#### 2.3.1. Structured personal information form

A structured personal information form, which was prepared by the researcher, consisted of eight questions (age, gender, educational status of the parents, income level of the family, perception of academic achievement, communication status with friends, and of the family) was used to capture personal data.

#### 2.3.2. Depression, anxiety, and stress scale - 21 items (DASS-21)

The Depression Anxiety Stress Scale, which was developed by Lovibond and Lovibond in 1995, is composed of 42 items (16). The Turkish adaptation of the Depression Anxiety Stress Scale Short Form was performed by Yılmaz et al. in 2017 and was named as DASS-21. DASS-21 consists

of 21 items. It is scored in a 4-point Likert-type scale. The Cronbach's alpha internal consistency coefficients of the three sub-dimensions of the scale were found to be .84 for the anxiety sub-dimension, .91 for the depression sub-dimension, and .90 for the stress sub-dimension. The sub-dimensions and item distributions are as follows: Depression: 3rd, 5th, 10th, 13th, 16th, 17th, and 21st items; Anxiety: 2nd, 4th, 7th, 9th, 15th, 19th, and 20th items; and Stress: 1st, 6th, 8th, 11th, 12th, 14th, and 18th items. There are no reverse items in the scale (17). In the present study, the Cronbach's alpha coefficient of the depression sub-dimension was .86, the Cronbach's alpha coefficient of the anxiety sub-dimension was .81, and the Cronbach's alpha coefficient of the stress sub-dimension was .81. Higher scores indicate higher anxiety, depression, and stress.

#### 2.3.3. Collection of data

An online link of the data collection tools was sent via e-mail to the students. The data were collected based on students' self-report.

#### 2.3.4. Evaluation of data

The statistical analyses were performed by IBM SPSS V.20 (IBM Inc, Chicago, IL, USA).  $p < 0.05$  value was considered as statistically significant. Independent sample t test, and one way ANOVA test were used to analyze the data. The compliance of the data to normal distribution was evaluated with skewness and kurtosis values. Depression, Anxiety, and Stress sub-scales showed normal distribution.

#### 2.3.5. Ethical aspect of the research

The approval of Scientific Research and Publication Ethics Committee was obtained (date: 30.12.2020, number: E-10879717-050.01.04-15704) prior to the study. The individuals who participated in the research were informed about the purpose and method of the research, the time needed for the survey, that participation in the research would not cause any harm to them, and that the participation was completely on a voluntary basis. The principles outlined in the Declaration of Helsinki were followed and informed consents were obtained prior to the study. Institutional permission was obtained for the study to be carried out.

## 3. Results

Average age of the participants was  $20.53 \pm 2.20$  years, 70.9% were female, 69.5% had a good income level, 40.8% had a mother and 58.7% had a father with a primary school level education, 62.9% had a perception of academic success at a moderate level, 62% had good communication with their friends, and 45.5% had an understanding family (Table 1).

A statistically significant difference was found between anxiety levels according to age ( $p < 0.05$ , Table 2). Participants aged 23 years and over presented lower mean scores than the other age groups (Table 2). Statistically significant differences were detected depression, anxiety, and stress levels according to family attitudes ( $p < 0.05$ , Table 2). The depression, anxiety, and stress levels of the participants who have reported to have understanding family attitude were found to be lower than the other groups (Table 2).

**Table 1. Demographic Characteristics of the Students (n = 213)**

Variables	Number	%
<b>Age (years)</b>		
17-19	53	24.9
20-22	141	66.2
23 and above	19	8.9
<b>Gender</b>		
Male	62	29.1
Female	151	70.9
<b>Grade Level</b>		
1	68	31.9
2	69	32.4
3	27	12.7
4	49	23.0
<b>Family's Income Level</b>		
Good	148	69.5
Bad	65	30.5
<b>Mother's educational level</b>		
Illiterate	111	52.1
Primary School	87	40.8
Secondary Education	5	2.4
Undergraduate and Postgraduate	10	4.7
<b>Perception of academic achievement</b>		
Good	20	9.4
Insufficient	59	27.7
Average	134	62.9
<b>Communication status with friends</b>		
Good	132	62.0
Average	65	30.5
Bad	16	7.5
<b>Father's educational status</b>		
Illiterate	20	9.4
Primary School	125	58.7
Secondary Education	49	23.0
Undergraduate and Postgraduate	19	8.9
<b>Family's attitude</b>		
Oppressive	29	13.6
Overprotective	51	23.9
Perfect	27	12.7
Indifferent	9	4.2
Understanding	97	45.5

A statistically significant difference was found in depression levels according to income levels of the family ( $p < 0.05$ , Table 2). Depression, anxiety, and stress levels of participants who had poorer incomes were higher than those with higher economic incomes (Table 2). Statistically significant differences were found depression, anxiety, and stress levels according to having sufficient number of friends ( $p < 0.05$ , Table 2).

**Table 2. Comparison of the Average Scores of Anxiety, Depression, and Stress Levels of the Participants According to Their Demographic Characteristics**

Demographic Characteristics	Depression	Anxiety	Stress Level
	±SD	±SD	±SD
<b>Age</b>			
17-19	7.88 ± 4.94	5.28 ± 3.49	7.69 ± 3.78
20-22	8.04 ± 4.64	6.30 ± 3.90	7.94 ± 4.28
23 and above	5.94 ± 3.50	4.36 ± 3.32	5.68 ± 3.07
<b>F value</b>	1.717	3.097	2.603
<b>p value</b>	0.182	<b>0.047</b>	0.076
<b>Gender</b>			
Male	7.66 ± 4.12	5.54 ± 3.72	7.04 ± 3.66
Female	7.88 ± 4.86	6.01 ± 3.83	7.94 ± 4.25
<b>t value</b>	-.312	-.810	-1.302
<b>p value</b>	0.755	0.419	0.168
<b>Mother's education level</b>			
Illiterate	7.52 ± 4.39	6.01 ± 3.92	7.84 ± 4.16
Primary School	8.25 ± 4.91	5.71 ± 3.68	7.13 ± 4.05
Secondary Education	8.20 ± 5.76	6.40 ± 3.28	8.60 ± 4.72
University	7.10 ± 4.97	5.50 ± 4.06	7.20 ± 4.02
<b>F value</b>	0.490	0.167	0.237
<b>p value</b>	0.690	0.918	0.870
<b>Father's education level</b>			
Illiterate	7.95 ± 6.07	5.05 ± 3.33	6.80 ± 5.22
Primary School	7.62 ± 4.39	5.64 ± 3.68	7.64 ± 4.06
Secondary Education	8.46 ± 4.53	7.00 ± 3.82	7.95 ± 4.43
University	7.26 ± 5.10	5.42 ± 4.57	8.10 ± 4.79
<b>F value</b>	0.484	2.023	0.524
<b>p value</b>	0.693	0.112	0.666
<b>Family's attitude</b>			
Oppressive	9.51 ± 6.25	7.62 ± 4.31	9.17 ± 4.27
Overprotective	9.45 ± 5.94	6.72 ± 3.86	8.84 ± 4.04
Perfect	5.22 ± 6.08	3.85 ± 2.61	5.44 ± 2.53
Indifferent	12.44 ± 4.74	7.11 ± 3.17	10.11 ± 5.13
Understanding	6.74 ± 4.59	5.36 ± 3.62	7.36 ± 3.89
<b>F value</b>	9.461	5.133	6.445
<b>p value</b>	<b>0.000</b>	<b>0.001</b>	<b>0.000</b>
<b>Income Level</b>			
Good	7.31 ± 4.12	5.62 ± 3.44	7.89 ± 3.98
Bad	8.96 ± 5.00	6.44 ± 4.47	8.46 ± 4.36
<b>t value</b>	-2.423	-1.450	-.922
<b>p value</b>	<b>0.016</b>	0.149	0.358
<b>Having a sufficient number of friends</b>			
Yes	7.32 ± 4.52	5.11 ± 3.27	7.23 ± 4.07
No	9.76 ± 4.50	7.47 ± 3.94	8.94 ± 3.82
Undecided	8.14 ± 4.99	8.12 ± 4.85	8.59 ± 4.42
<b>F value</b>	4.017	11.955	2.318
<b>p value</b>	0.019	0.000	0.042

\* p < 0.05 significant.

Participants who did not have a sufficient number of friends had higher depression and stress levels compared to the other groups (Table 2). There were no statistically significant differences in depression, anxiety, and stress levels according to the gender nor educational status of the parents ( $p>0.05$ ).

The total scores were  $5.87\pm 3.80$ ,  $7.81\pm 4.65$  and  $7.68\pm 4.10$  for anxiety sub-dimension, depression sub-dimension, and stress sub-dimension, respectively (Table 3).

**Table 3. Average Scores of Anxiety, Depression, and Stress Levels of the Participants**

Scale	Lowest Value	Highest Value	Average
Anxiety	0.00	20.00	$5.87 \pm 3.80$
Depression	0.00	20.00	$7.81 \pm 4.65$
Stress Level	0.00	21.00	$7.68 \pm 4.10$

#### 4. Discussion

Bu The present study was conducted to determine the anxiety, depression and stress levels and the related factors in nursing students during the COVID-19 pandemic. Mean scores of depression, anxiety, and stress levels of nursing students were below the average levels in the present level which indicating that nursing students experience low levels of depression, anxiety, and stress symptoms during COVID-19 pandemic. While the depression, anxiety and stress levels of nursing students were reported at a moderate level before the pandemic, these levels were found at a low level in the present study. Nursing students perceived moderate stress levels during the COVID-19 outbreak (18). On the other hand, some authors reported that the anxiety levels of nursing students were found to be at moderate levels (19-21). Besides, Tekir et al. and Yavuzer et al. found that the depression levels of nursing students were at a moderate level (22,23). Nursing students, have stressful professional experiences during their education, and they are more prone to have a higher risk for depression than other students (24-26). Karaca et al. reported high stress levels in nursing students (8). Engaging in e-learning activities during lockdowns in the pandemic, the fear of making mistakes in clinical placements, and graduating as incompetent nurses due to finite knowledge and poor quality of clinical training due to online courses are major stressors for nursing students (27,28). Anxiety and depression may also be prevalent among less experienced trainees including nursing students. Studies conducted with nursing students during the pandemic process revealed that rates of anxiety and depression were higher among nursing students than the students from other disciplines, primarily because of their potentially higher risk for exposure to infection (10, 21). Therefore, it is important among nursing undergraduate students to be aware of how the experience of stress affects their future careers as nursing professionals (29). The ability of effectively care for patients is expected from students as they prepare for their careers as professional nurses (30). During the COVID-19 pandemic, Maqbal et al. examined the anxiety, depression, and stress levels of nurses and reported that nurses were at high risk of stress and anxiety due to having important responsibilities in the execution of treatment and care services and during their more intense interactions with the patients (31).

A significant difference was found between the anxiety levels of nursing students according to age in the present study. It was determined that as the age of nursing students increases, their stress, anxiety and depression levels decrease. No significant differences were detected in anxiety according to age in the previous studies conducted by Deveci et al. and Yılmaz and Çokluk before the pandemic period (32,33). This difference may be related to the fact that nurse students spent more time with their families during the COVID-19 pandemic process and the increased levels of the awareness of the responsibilities by aging. Significant differences were also detected in depression, anxiety, and stress levels according to family attitudes of the participants in the present study. The depression, anxiety, and stress levels of the participants who reported themselves as having understanding families were low. Other authors also reported similar findings. A significant difference was found between anxiety, depression, and stress levels and family attitudes in studies conducted before the pandemic period (34-36). A significant difference in depression was detected according to income levels in the present study. Having poor economic conditions resulted higher depression, anxiety, and stress levels compared to having a good income level. Before the COVID-19 pandemic, Akpınar also detected a significant difference in stress levels according to the economic condition and highlighted that individuals with insufficient economic conditions may present higher stress levels (37). Similarly, Bayram and Bilgel reported that individuals who grew up in families with an above-average income level have lower anxiety levels (38).

A significant difference was detected in depression, anxiety, and stress levels according to having a sufficient number of friends in the present study. Students who did not have a sufficient number of friends had higher depression and stress levels. Having limited knowledge regarding to COVID-19 and being overwhelmed by the negative media attitudes may cause anxiety and fear in the community. In general, distress, frustration, and irritability may occur in people during isolation measures. Quarantine periods may lead to loneliness, physical distancing from loved ones, grief, anxiety, and chronic stress, and these psychological effects may last in long-term (39, 40). Moreover, negative relationships with the peers, may increase the anxiety level (41). Elkin also stated that negative relationships with friends may cause an increase in anxiety, depression, and stress levels (42).

No significant differences were detected in anxiety, depression, and stress levels according to parental education level in the present study. Elkin also found (42) no significant difference between the parents' education levels and anxiety, depression, and stress. On the other hand, Kaya et al. stated that the higher educational levels of their fathers may cause depression in individuals (43).

No significant differences were found in anxiety, depression, and stress levels according to gender in the present study. Besides, female participants reported more anxiety, depression, and stress levels than males. Hançer et al., also emphasized that the stress levels of female students may be higher than male students (44). It is thought that female nursing students are emotionally more loaded along with the chores such as cooking, laundry, and cleaning during the COVID-19 pandemic. Similarly, Elkin, and Çakmak and

Hedevanlı, reported no differences in anxiety according to gender, even though, the anxiety levels of females were higher than males (41,42).

The COVID-19 pandemic has been affecting the whole world, while it has affected nursing students in different ways. Nursing students should have the ability to cope with stress in conditions such as pandemic. By dealing with stress in proper ways, nursing students will contribute to help individuals in society cope with the stress as well (45). Being aware of the anxiety, depression, and stress levels of nursing students may allow using more effective coping strategies in conditions as pandemic.

## 5. Conclusion

In the present study, depression, anxiety, and stress levels of the nursing students were found below the average level during COVID-19 pandemic. Significant differences were found in anxiety, depression, and stress levels according to family attitudes, income levels, and having sufficient number of friends. Offering psychosocial care to nursing students during the pandemic seems important. It may also be beneficial to organize activities for increasing the effective communication within the family of nursing students who are exposed to social isolation and to perform programs that will strengthen interpersonal relations. Training programs including methods of coping with stress and anxiety which are the factors students may encounter during their clinical experiences should be considered. Since the present study was conducted during the COVID-19 pandemic, the students did not have enough field experience. Additionally, conducting these programs may strengthen the interfamilial relationship competences.

## 6. Contribution to the field

It is crucial to be aware of stress, anxiety, and depression levels of nursing students during crisis periods. Knowing their reactions under difficult conditions will form the infrastructure of a better-quality care in their professional life. In addition, the results of the present study may guide students for coping with problems and may prevent them from experiencing mental problems.

## Ethics Committee Approval

The Scientific Research and Publication Ethics Committee approval (number: 30.12.2020/15704) was obtained from the Muş Alparslan University. The study was carried out in accordance with the Helsinki Declaration of Principles. The written permissions and consents were obtained from the university where the research was conducted.

## Financial Disclosure

There is no person/organization supporting the present study financially.

## Conflict of Interest

There is no conflict of interest to declare.

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## Author Contributions

This study was prepared by a single author. Therefore, all processes of writing, data collecting, and statistical analyses were carried out by this author.

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