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DETERMINING THE DEPRESSION, ANXIETY AND STRESS LEVELS OF UNIVERSITY STUDENTS DURING THE COVID-19 PANDEMIC

COVID-19 PANDEMİSİ SIRASINDA ÜNİVERSİTE ÖĞRENCİLERİNİN DEPRESYON, KAYGI VE STRES DÜZEYLERİNİN BELİRLENMESİ

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ABSTRACT

Objective: This study aimed to assess the impact of the COVID-19 pandemic on depression, anxiety, and stress levels among university students in Türkiye.

Methods: This descriptive and correlational study was conducted with 359 students from Istanbul Gelisim University between July 2021 and May 2022. Data were collected using a sociodemographic form and the 21-item Depression, Anxiety, and Stress Scale (DASS-21).

Results: The mean age of participants was 21.76±1.87 years, and 70.2% were female. The findings revealed that 66.9% of students experienced mild to extremely severe depression and anxiety, while 47.4% reported mild to extremely severe stress. Students with a pre-existing psychological disorder exhibited extremely severe anxiety, along with severe depression and stress. Those who underwent quarantine or felt psychologically negative effects reported moderate anxiety and depression with mild stress. Students who described their psychological state during the pandemic as "very bad" experienced severe depression and anxiety, alongside moderate stress.

Conclusion: These results demonstrate a significant psychological burden on university students during the pandemic. The study underscores the critical need to identify psychosocial distress in this population and highlights the importance of developing targeted mental health interventions and support strategies for students in Türkiye and similar contexts facing global emergencies.

Keywords: Covid-19, depression, anxiety, stress, university student.

ÖZET

Amaç: Bu çalışma, COVID-19 pandemisinin Türkiye'deki üniversite öğrencilerinde depresyon, anksiyete ve stres düzeyleri üzerindeki etkisini belirlemeyi amaçlamıştır.

Gereç ve Yöntem: Bu tanımlayıcı ve ilişki arayıcı çalışma, Temmuz 2021 ile Mayıs 2022 tarihleri arasında İstanbul Gelişim Üniversitesi'nden 359 öğrenci ile gerçekleştirilmiştir. Veriler, sosyodemografik bir form ve 21 maddelik Depresyon, Anksiyete ve Stres Ölçeği (DASS-21) kullanılarak toplanmıştır.

Bulgular: Katılımcıların ortalama yaşı 21,76±1,87 yıl olup, %70,2'si kadındır. Bulgular, öğrencilerin %66,9'unun hafif ile çok şiddetli depresyon ve anksiyete yaşadığını, %47,4'ünün ise hafif ile çok şiddetli stres bildirdiğini ortaya koymuştur. Önceden psikolojik bozukluğu olan öğrenciler, şiddetli depresyon ve stresin yanı sıra çok şiddetli anksiyete sergilemiştir. Karantinaya giren veya psikolojik olarak olumsuz etkiler hissedenler, hafif stresle birlikte orta düzeyde anksiyete ve depresyon bildirmiştir. Pandemi sırasında psikolojik durumlarını "çok kötü" olarak tanımlayan öğrenciler, orta düzeyde stresin yanı sıra şiddetli depresyon ve anksiyete yaşamıştır.

Sonuç: Bu sonuçlar, pandemi sırasında üniversite öğrencilerinin önemli bir psikolojik yük altında olduğunu göstermektedir. Çalışma, bu popülasyonda psikososyal sıkıntının belirlenmesinin kritik önemini vurgulamakta ve Türkiye'de ve küresel acil durumlarla karşı karşıya kalan benzer durumlarda öğrenciler için ruh sağlığına yönelik müdahaleler ve destek stratejileri geliştirmenin önemini ortaya koymaktadır.

Anahtar kelimeler: Covid-19, depresyon, anksiyete, stres, üniversite öğrencisi.

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INTRODUCTION

The coronavirus disease (COVID-19), caused by the SARS-CoV-2 virus, was declared a global pandemic by the World Health Organization (WHO) on March 11, 2020. This virus has resulted in significant mortality worldwide. According to the most recent WHO data, global COVID-19 cases have reached 777,637,340, with 7,090,480 fatalities attributed to the pandemic (World Health Organization, 2025). The pandemic has profoundly impacted individuals' physical and mental health, as well as economic stability, across the globe (Priego-Parra et al., 2020; UNICEF, 2020a; Wang et al., 2020). Measures implemented to curb viral transmission—such as lockdowns, social distancing, and remote work/education—have drastically altered daily life (Duman, 2020; Kumar et al., 2021). Among the most affected groups are students, whose academic, social, and psychological well-being has been uniquely disrupted by these changes.

According to a UNICEF report (UNICEF, 2020b), approximately 1.5 billion children and adolescents worldwide have been adversely affected by school closures implemented as part of regional quarantine measures. These disruptions have led to significant fluctuations in students' academic performance. In response, various mitigation strategies have been adopted, including the suspension of in-person university instruction in favor of distance learning (Barğı et al., 2021). Consequently, students have emerged as one of the groups most severely impacted by the pandemic (Duman, 2020).

The 18–24 age group, which largely encompasses university students, faces unique individual and societal challenges, including uncertainty about the future and heightened anxiety. Furthermore, this period is regarded as one of the lowest psychological well-being phases due to increased academic pressure. The abrupt transition to online education, modifications in assessment methods, travel restrictions, reduced social interaction, and financial instability have compounded these difficulties (Sahu, 2020). Such challenges have contributed to a rise in mental health issues among students, including anxiety, depression, stress, sleep disturbances, and fear (Mukantwali et al., 2024). Left unaddressed, these conditions can lead to declining academic performance, diminished quality of life, higher dropout rates, increased substance use, and, in extreme cases, suicidal behavior (Wiljer et al., 2020; Arafat et al., 2024). Empirical evidence suggests that university students are more vulnerable to mental health disorders and exhibit higher levels of stress, anxiety, and depression compared to the general population. Research indicates an increase in students seeking psychological counseling services, with one-third experiencing depression, a decline in regular physical activity, and rises in alcohol and tobacco use, poor nutrition, risky reproductive health behaviors, and interpersonal relationship problems (Wald et al., 2014). It is essential to examine the psychosocial well-being of university students, encompassing physical, economic, social, mental, emotional, cultural, and spiritual determinants of their health. The COVID-19 pandemic is anticipated to exacerbate these challenges.

Research conducted during the pandemic has consistently highlighted the prevalence of psychological distress among university students (Li et al., 2025; Hamaideh et al., 2022). Numerous studies exist at national and international levels addressing the mental health of university students. A 2021 study conducted in Turkey found that 68.3% of students exhibited depression, 55.9% anxiety, and 46.3% significant stress levels. Another study in 2022 reported that a majority of students were physically inactive, had good sleep quality, perceived moderate stress levels, and experienced minimal to mild depression (Barğı et al., 2021; Bayar et al., 2021). International studies reveal that in a U.S.-based study on COVID-19, young individuals with higher education levels were found to exhibit high levels of anxiety related to the pandemic. Similarly, a meta-analysis of pandemic-era studies revealed that psychological symptoms were more pronounced among younger populations. In China, students surveyed at the onset of the pandemic exhibited moderate-to-severe psychological distress and anxiety (Wang et al., 2020). Globally, over half of students reported mild-to-severe symptoms of depression, anxiety, or stress, with medical students in Oman experiencing particularly high levels of these conditions. Furthermore, the loss of internship and employment opportunities has intensified students' uncertainty about their future careers, with potential long-term implications for their professional success (Boggiano et al., 2020). The shift from traditional classroom settings to remote learning has further exacerbated these anxieties during a critical developmental period.

Given these findings, assessing the psychosocial well-being of university students in Türkiye during the COVID-19 pandemic is of paramount importance. WHO declared the end of the COVID-19 pandemic phase on May 5, 2023. However, as the data collection for this study was conducted prior to this date, the COVID-19 pandemic was ongoing at that time. Consequently, the data reflect the pandemic period.

This study was designed as a cross-sectional descriptive investigation to determine the depression, anxiety, and stress levels of university students during the COVID-19 pandemic and to examine their association with factors influencing this process. In this context, we believe that the study will contribute to the existing literature.

MATERIALS AND METHODS

Research Design

This research was designed as a cross-sectional descriptive study to determine the depression, anxiety, and stress levels of university students during the COVID-19 period and to examine their relationship with factors influencing this process.

Location and Time of the Study

This study was conducted between July 2021 and May 2022 at Istanbul Gelişim University Faculty of Health Sciences and Vocational School of Health Services

Population and Sample

This study's target population comprised 1,254 students enrolled at Istanbul Gelişim University's Faculty of Health Sciences and Vocational School of Health Services between July 2021 and May 2022. Using standard sample size calculation methods for known populations, we determined that 295 participants would be required to achieve a 5% margin of error at a 95% confidence interval with 80% statistical power. In this context, the study sample consisted of 359 volunteer students who met the inclusion criteria, including being enrolled at Istanbul Gelişim University Faculty of Health Sciences and Vocational School of Health Services between July 2021 and May 2022, having received education during the pandemic period, being able to read and understand Turkish, and having completed the informed consent form to participate in the study. Students who did not meet these criteria were excluded. Data were collected online via a Google Forms survey link from 124 students and through face-to-face surveys from 235 students.

Data Collection Tools

The data for the study were collected using the Socio-Demographic Characteristics Form created by the researcher and the 21-item short version of the Depression, Anxiety, and Stress Scale (DASS-21).

Socio-Demographic Characteristics Form: The Socio-Demographic Characteristics Form consists of 27 questions asked to participants regarding their age, gender, education and employment status, income level, smoking status, average sleep, presence of any psychological disorders, positive coronavirus test results, and quarantine status due to coronavirus. The form was created by the researcher and administered as an online and face-to-face survey.

The Depression, Anxiety, and Stress Scale: Originally named the "Depression Stress and Anxiety Scale (DASS)," is a 42-question measure developed by Lovibond and Lovibond (1995). The scale evaluates total scores for depression, stress, and anxiety. Each item in the scale has a 4-point scoring system, with 0, 1, 2, or 3 points corresponding to the severity of the symptom. The DASS-21 scale, whose reliability and validity were assessed by Yılmaz et al. (2017), is a short version of the 42-item scale consisting of 21 items. Although the questions in the scale are not arranged in any particular order, it is recommended that the questions on depression, stress, and anxiety be asked in a mixed order (Yılmaz et al., 2017). The DASS-21 scale, consisting of a total of 21 items, has subscales for depression, anxiety, and stress, each consisting of seven items. Responses to the items are scored as 0 (never), 1 (sometimes and occasionally), 2 (quite often), and 3 (always) (Lovibond & Lovibond, 1995). In the scale's scoring, 0–4 points indicate a normal level, 5–6 points indicate a mild level, 7–10 points indicate a moderate level, 11–13 points indicate a severe level, and 14 or more points indicate a very severe level of depression; 0–3 points indicate a normal level, 4–5 points indicate a mild level, 6–7 points indicate a moderate level, 8–9 points indicate a severe level, 10 and above indicate very severe anxiety; 0–7 indicate normal level, 8–9 indicate mild level, 10–12 indicate moderate level, 13–16 indicate severe level, and 17 and above indicate very severe stress. The Cronbach Alpha values for the dimensions of the study were 0.808 for the anxiety subscale, 0.819 for the depression subscale, and 0.755 for the stress

subscale (Yılmaz et al., 2017). The internal consistency analyses conducted to test the reliability of the scale for this research sample resulted in a total Cronbach's Alpha value of 0.948. When examined in terms of subscales, the anxiety subscale had a value of 0.847, the depression subscale had a value of 0.873, and the stress subscale had a value of 0.886.

Ethical Issues

Ethical approval for the study was obtained from Istanbul University-Cerrahpasa Social and Human Sciences Ethics Committee (dated January 22, 2021, and numbered 2021/18). Institutional approvals for the study were obtained from the Ministry of Health Scientific Research Platform on January 21, 2021, and from the Rectorate of Istanbul Gelişim University on September 20, 2021. In addition, permission to use the DASS-21 scale was obtained from Assoc. Prof. Dr. Özer Yılmaz on January 13, 2021, and all students participating in the study were asked to fill out an informed consent form.

Data Analysis

Data analysis was performed using the SPSS (Statistical Package for Social Sciences) statistical program, version 24.0. The Kolmogorov-Smirnov Normality Test was performed to examine the normality of the scale scores. As a result of the analyses, it was found that the data were not normally distributed, and for this purpose, the Kruskal-Wallis, Chi-square, and Mann-Whitney U tests were used to examine the relationship between the total scale score and the subscale scores. To assess the reliability of the DASS-21 scale, Cronbach's alpha coefficient was calculated, and the tests were tested for statistical significance at $p<0.05$.

RESULTS

The socio-demographic characteristics of participants are presented in Table 2. The mean age of study participants was 21.76±1.87 years, with females comprising 70.2% of the sample. COVID-19 related experiences are detailed in Table 3. The results indicate that 31.2% of respondents had contracted COVID-19. Regarding educational impacts, 93.3% reported transitioning to distance learning during the pandemic, with 49.9% perceiving negative psychological consequences from this shift. Furthermore, 82.5% reported alterations in their social relationships due to pandemic restrictions. When assessing psychological states, 38.3% retrospectively rated their pre-pandemic mental health as "good," while only 29.5% described their pandemic psychological state as "moderate."

Mental health outcomes measured by the DASS-21 scale appear in Table 1. The data reveal that 66.9% of students exhibited mild to extremely severe depressive symptoms. Similarly, 66.9% demonstrated mild to extremely severe anxiety symptoms, with 47.4% reporting mild to extremely severe stress levels.

Table 1. Depression, Anxiety, and Stress Levels of Students During the COVID-19 Pandemic

	Anxiety		**Depression**		**Stress**	
	n	**%**	**n**	**%**	**n**	**%**
Normal	119	33.1%	119	33.1%	189	52.6%
Mild	59	16.4%	53	14.8%	33	9.2%
Moderate	64	17.8%	89	24.8%	52	14.5%
Severe	35	9.7%	36	10.0%	48	13.4%
Extreme	82	22.8%	62	17.3%	37	10.3%

The Relationship Between University Students' Socio-Demographic Characteristics and Their Levels of Depression, Anxiety, and Stress

Table 2 presents the associations between university students' socio-demographic characteristics and their mean scores for depression, anxiety, and stress. Analysis of family income levels revealed that students from low-income households exhibited significantly higher anxiety levels (M=8.88, SD=6.03) compared to their peers from other income brackets (χ^2=7.538, p=0.023). The data further demonstrated that tobacco users reported significantly elevated mean scores across all three psychological measures relative to non-smoking students (Z=-2.346, p=0.019). Additionally, two notable patterns emerged regarding health behaviors: students with irregular eating patterns showed markedly higher depression, anxiety, and stress scores than those maintaining balanced diets (Z=-4.034, p<0.001), while physically

inactive students scored significantly higher on all mental health measures compared to their active counterparts (Z=-2.530, p=0.011).

Table 2. Relationship Between Students' Socio-Demographic Characteristics and Depression, Anxiety and Stress Levels

Variable	n(%)	Anxiety X̄±SD	Depression X̄±SD	Stress X̄±SD	Total X̄±SD
Gender					
Male	107 (29.8)	5.81 ± 5.04	7.45 ± 5.55	8.07 ± 5.34	21.33 ± 15.05
Female	252 (70.2)	6.37 ± 4.56	7.81 ± 5.26	8.48 ± 5.40	22.65 ± 14.10
p		0.126	0.426	0.589	0.274
Z		-1,529	-0,796	-0,540	-1,094
Income Level					
Low	32 (8.9)	8.88 ± 6.03	9.66 ± 5.65	10.41 ±5.89	28.94 ± 16.95
Middle	312 (86.9)	5.96 ± 4.45	7.58 ± 5.28	8.16 ± 5.25	21.70 ± 13.90
High	15 (4.2)	5.60 ± 5.25	6.00 ± 5.22	8.00 ± 6.24	19.60 ± 15.50
p		0.023*	0.050*	0.084	0.045*
χ^2		7,538	5,986	4,965	6,181
Education Status					
Undergraduate	341 (95)	6.30 ± 4.75	7.82 ± 5.34	8.40 ± 5.38	22.52 ± 14.45
Graduate	18 (5)	4.39 ± 3.27	5.39 ± 4.97	7.50 ± 5.47	17.28 ± 12.24
p		0.110	0.032*	0.404	0.116
Z		-1,600	-2,141	-0,835	-1,571
Smoking Status					
Yes	90 (25.1)	7.12 ± 4.78	8.86 ± 5.62	9.42 ± 5.51	25.40 ± 14.89
No	269 (74.9)	5.89 ± 4.65	7.32 ± 5.20	8.00 ± 5.29	21.20 ± 14.08
p		0.022*	0.027*	0.027*	0.019*
Z		-2,296	-2,215	-2,204	-2,346
Balanced Diet					
Yes	145 (40.4)	5.10 ± 3.82	6.08 ± 4.57	7.03 ± 4.68	18.21 ± 12.02
No	214 (59.6)	6.94 ± 5.09	8.80 ± 5.55	9.25 ± 5.64	25.00 ± 15.21
p		<0.001*	<0.001*	<0.001*	<0.001*
Z		-3,206	-4,718	-3,497	-4,034
Physical Activity					
Yes	90 (25.1)	5.23 ± 4.65	6.67 ± 5.16	7.38 ± 5.03	19.28 ± 13.80
No	269 (74.9)	6.52 ± 4.69	8.05 ± 5.36	8.68 ± 5.46	23.25 ± 14.46
p		0.010*	0.024*	0.052	0.011*
Z		-2,571	-2,254	-1,942	-2,530

*X̄: Mean; SD: Standard Deviation; z: Mann-Whitney U test value; χ^2: Chi-square test value; *p*<0.05*

The Relationship Between University Students' Characteristics Related to the COVID-19 Pandemic Process and Their Depression, Anxiety, and Stress Levels

Table 3 presents the relationships between students' COVID-19 pandemic-related characteristics and their depression, anxiety, and stress levels. Analysis of the data revealed that students who reported having pre-existing psychological disorders ("yes" responders) exhibited significantly higher anxiety (10.3 ± 5.81), depression (13.17 ± 5.83), and stress levels (13.43 ± 5.89) compared to those without such disorders (Z = -4.845; p < 0.001).

Students who experienced negative psychological effects from quarantine reported moderate anxiety (7.12 ± 4.6), moderate depression (8.67 ± 5.04), and mild stress (9.25 ± 5), with statistically significant differences compared to those who did not report such effects (Z = -3.901; p < 0.001).

Similarly, students who reported changes in social relationships due to COVID-19 demonstrated moderate anxiety (6.46 ± 4.68), moderate depression (8.17 ± 5.41), and mild stress (8.77 ± 5.4), with significant differences compared to those who did not experience such changes (Z = -3.370; p = 0.001).

Students who perceived distance learning as psychologically detrimental showed moderate anxiety (6.68 ± 4.94), moderate depression (8.52 ± 5.35), and mild stress (8.91 ± 5.5), differing significantly from those who did not report negative effects (Z = -2.411; p = 0.016).
Additionally, students who underwent quarantine due to COVID-19 exhibited moderate anxiety (6.87 ± 4.77), with significant differences in depression, anxiety, and stress levels compared to non-quarantined students (5.72 ± 4.61) (Z = -2.135; p = 0.033).

Table 3. Relationship Between Students' COVID-19 Pandemic-Related Characteristics and Depression, Anxiety, and Stress Levels

Variable	n(%)	Anxiety X̄±SD	Depression X̄±SD	Stress X̄±SD	Total X̄±SD
Pre-existing psychological disorder?					
Yes (n=30)	30 (8.4)	10.30 ± 5.81	13.17 ± 5.83	13.43 ± 5.89	36.90 ± 16.69
No (n=329)	329 (91.6)	5.83 ± 4.41	7.20 ± 5.02	7.89 ± 5.09	20.92 ± 13.40
p		<0.001*	<0.001*	<0.001*	<0.001*
Z		-4,159	-5,033	-4,728	-4,845
Diagnosed with COVID-19?					
Yes (n=112)	112 (31.2)	6.98 ± 5.16	8.03 ± 5.36	8.75 ± 5.48	23.75 ± 15.00
No (n=247)	247 (68.8)	5.85 ± 4.45	7.55 ± 5.34	8.17 ± 5.33	21.57 ± 14.06
p		0.068	0.385	0.280	0.200
Z		-1,824	-0,868	-1,080	-1,282
Quarantined due to COVID-19?					
Yes (n=150)	150 (41.8)	6.87 ± 4.77	8.22 ± 5.36	8.84 ± 5.35	23.92 ± 14.44
No (n=209)	209 (58.2)	5.72 ± 4.61	7.33 ± 5.31	8.00 ± 5.38	21.05 ± 14.24
p		0.013*	0.085	0.068	0.033*
Z		-2,498	-1,725	-1,826	-2,135
Psychological impact of quarantine?					
Yes (n=163)	163 (45.4)	7.12 ± 4.69	8.67 ± 5.04	9.25 ± 5.00	25.04 ± 13.65
No (n=196)	196 (54.6)	5.43 ± 4.67	6.89 ± 5.46	7.61 ± 5.58	19.93 ± 14.58
p		<0.001*	<0.001*	<0.001*	<0.001*
Z		-3,958	-3,760	-3,431	-3,901
Change in social relationships?					
Yes (n=296)	296 (82.5)	6.46 ± 4.68	8.17 ± 5.41	8.77 ± 5.40	23.39 ± 14.42
No (n=63)	63 (17.5)	4.98 ± 4.64	5.52 ± 4.45	6.41 ± 4.88	16.92 ± 12.97
p		0.008*	<0.001*	0.001*	0.001*
Z		-2,634	-3,579	-3,229	-3,370
Psychological impact of remote education?					
Yes (n=179)	179 (49.9)	6.68 ± 4.94	8.52 ± 5.35	8.91 ± 5.50	24.10 ± 14.66
No (n=180)	180 (50.1)	5.73 ± 4.43	6.89 ± 5.22	7.81 ± 5.21	20.42 ± 13.88
p		0.112	0.003*	0.077	0.016*
Z		-1,588	-2,998	-1,768	-2,411

*X̄: Mean; SD: Standard Deviation; z: Mann-Whitney U test value; *p*<0.05*

Table 4. Relationship Between Participants' Psychological Status Before and During the COVID-19 Pandemic

		During Pandemic Psychological Status											
		Very Bad		Bad		Moderate		Good		Very good		Total	
Pre-Pandemic Psychological Status		**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
	Very Bad	14	58.3	1	4.2	7	29.2	2	8.3	0	0	24	6.7
	Bad	2	9.6	10	47.6	7	33.3	2	9.5	0	0	21	5.9
	Moderate	20	21.3	25	26.6	36	37.2	10	10.6	4	4.3	95	26.3
	Good	17	12.4	58	42.3	34	24.8	25	18.2	3	2.2	137	38.3
	Very good	12	14.6	10	12.2	23	28.0	18	22.0	19	23.2	82	22.9
	Total	65	18.2	104	29.1	107	29.6	57	15.9	26	7.3	359	100
	p	<0.001*											

	χ^2	96,238	

χ^2= Chi- square test value ; *p*<0.05*

DISCUSSION

Findings on Depression, Anxiety, and Stress Rates Among University Students Receiving Education During the COVID-19 Pandemic.

This study revealed high prevalence rates of psychological distress among university students during the COVID-19 pandemic, with 66.9% exhibiting depressive symptoms, 66.9% reporting anxiety, and 47.4% experiencing stress (Table 1). These findings align with similar studies conducted during the pandemic period. Research at medical school found 66.3% of students had moderate-to-severe depression, 62% showed moderate-to-severe anxiety, and 58.2% experienced moderate-to-severe stress. Similarly, Hakami et al. (2021) reported depression in 60.64%, anxiety in 37.02%, and stress in 34.92% of participants. A longitudinal study of Greek university students demonstrated increasing rates from 2020 (depression: 47%; anxiety: 27.2%; stress: 37.4%) to 2021 (depression: 55%; anxiety: 41.1%; stress: 47.3%), with particularly notable increases in extreme symptom severity (Kavvadas et al., 2022). These consistent findings across multiple studies clearly demonstrate the pandemic's detrimental impact on student mental health. The data indicate that university students, who already represented a vulnerable population for psychological distress, experienced exacerbated symptoms during the COVID-19 crisis. Multiple pandemic-related factors likely contributed to this deterioration, including: uncontrolled viral transmission, frequent exposure to mortality, universal infection risk, quarantine measures, social isolation, bereavement, transition to online education, financial instability, disrupted daily routines, and restrictions on personal freedoms.

The Relationship Between the COVID-19 Pandemic Process and Anxiety, Depression, and Stress Levels

The study found that students with psychological disorders exhibited significantly higher levels of depression and anxiety, along with elevated stress levels (Table 3). These results align with findings from Kavvadas et al. (2022), who reported increased stress, anxiety, and depression among individuals receiving psychological or psychiatric treatment, particularly during the second year of the pandemic. Similarly, a Malaysian study observed substantially higher depression, anxiety, and stress levels in students with a history of depression.

Multiple studies have confirmed this pattern among university students. Research has demonstrated that students with pre-existing psychological conditions showed more severe depression, anxiety, and stress symptoms. Keskin and Birsel (2021) specifically noted that increasing anxiety and depressive symptoms correlated with decreasing psychological well-being during the pandemic period. Koç et al. (2021) further supported these findings, reporting high rates of depressive symptoms among individuals with psychiatric histories.

The severity of this issue is particularly evident in Wang et al.'s (2020) U.S. study, which documented alarming levels of depression, anxiety, and suicidal ideation among university students during the COVID-19 crisis. These collective findings underscore the heightened vulnerability of students with psychological disorders during the pandemic, demonstrating their increased risk for mental health deterioration. The research consistently indicates that the psychological impacts of COVID-19 may elevate suicide risk in this population. These results emphasize the critical need for targeted interventions and additional mental health resources to support affected students. The current study contributes to this body of knowledge by identifying specific risk factors and necessary support measures for students with pre-existing psychological conditions.

The study demonstrated that quarantine negatively affected depression, anxiety, and stress levels (Table 3). These findings are consistent with Tükel's (2020) research, which reported higher average depression and anxiety levels among hospitalized quarantine patients compared to non-quarantined individuals. Similar results emerged from many studies where 57.1% of quarantined participants reported poor sleep quality, 32.1% experienced severe anxiety, 41.8% showed psychological distress, and 7.6% exhibited Post-Traumatic Stress Disorder (PTSD) symptoms (Casagrande et al., 2020; Barğı et al., 2021; Bayar et al., 2021). Previous research has documented increased prevalence of severe psychological symptoms among quarantined individuals, including PTSD, panic attacks, psychotic symptoms, and suicidal ideation. Brooks et al. (2020) further identified multiple psychological

consequences of quarantine, including distress, psychiatric symptoms, anxiety, exhaustion, irritability, cognitive impairment, reduced work performance, and insomnia. A Bangladeshi study (Afrin et al., 2022) highlighted quarantine's particularly detrimental effects on adolescent mental health and emphasized the need for counseling interventions. These collective findings support our observation of elevated depression, anxiety, and stress symptoms among students undergoing COVID-19 quarantine, confirming their heightened psychological vulnerability.

The study also revealed that students experiencing pandemic-related changes in social relationships exhibited moderate depression and anxiety levels, along with mild stress (Table 3). While social isolation effectively controls infection spread, it carries significant psychosocial consequences. Pandemic conditions simultaneously increased the need for social support while restricting access to support systems. Compounding factors included disrupted daily routines and constant exposure to alarming pandemic-related media coverage. Research indicates that 50% of cohabitating individuals reported worsened relationships during the pandemic, with psychologically vulnerable individuals experiencing greater relational difficulties (Kavvadas et al., 2022). Browning et al. (2021) specifically documented higher anxiety, stress, and loneliness among university students with reduced social interaction. These findings collectively demonstrate that diminished social connections during the pandemic contributed to negative psychological outcomes, including depression, anxiety, and stress.

Findings Showing the Relationship Between Participants' Psychological States Before and During the COVID-19 Pandemic

The study found that 6.7% of participants rated their pre-pandemic psychological state as "very poor," 5.9% as "poor," and 26.3% as "moderate." During the pandemic, these percentages increased to 18.2% ("very poor"), 29.1% ("poor"), and 29.6% ("moderate"). While a small proportion of participants who previously reported "very poor" or "poor" well-being showed improvement, the majority of those who initially described their state as "moderate," "good," or "very good" experienced deterioration. These changes were statistically significant (Table 4).

These findings align with research by Topçu et al. (2021), which identified pandemic-related concerns, reduced socialization, home confinement, economic challenges, and educational disruptions as key factors negatively impacting psychological well-being. A longitudinal study documented worsening mental health among university students, with severe stress increasing from 37.4% (2020) to 47.3% (2021), severe anxiety from 27.2% to 41.1%, and depression from 47% to 55% (Kavvadas et al., 2022). Other studies reported depression rates reaching 48%, anxiety between 41–69%, and stress exceeding 30%, attributing these increases to social isolation, financial uncertainty, and diminished social support.

Risk factors for psychological distress included proximity to high-risk areas, caregiving responsibilities, single status, female gender, and inability to work remotely. Constant exposure to pandemic-related media coverage further impaired emotional regulation (Doğan & İmamoğlu, 2020). Economic hardships, disrupted routines, and the transition to home-based education constrained personal freedoms, particularly affecting university students who lost their independence after returning to family homes while managing academic obligations. The pervasive uncertainty during COVID-19 exacerbated anxiety and fears, worsening existing mental health conditions and increasing vulnerability to new psychological problems (Kurt & Karaaziz, 2021; Mukantwali et al., 2024).

Consistent with the literature, this study confirms that the pandemic significantly deteriorated the psychological well-being of university students, with most participants describing their overall mental state as "very poor" or "poor" during this period.

CONCLUSIONS AND RECOMMENDATIONS

Assessing the psychosocial well-being of university students in Türkiye during the COVID-19 pandemic is critically important. This study, which examined depression, anxiety, and stress levels among students engaged in distance education, found that 66.9% exhibited mild to severe depression, 66.9% experienced mild to severe anxiety, and 47.4% reported mild to severe stress. Given these findings, evaluating the psychological impact of such unexpected circumstances on students in Türkiye remains essential.

Measuring the psychosocial effects of emergencies like COVID-19 on university students in Türkiye is necessary to develop effective mental health interventions and strategies. Additionally, the

potential for secondary psychological consequences arising from pandemic control measures, such as social isolation, should be acknowledged, warranting further research to explore alternative solutions.

To mitigate the disruptions in social relationships and communication caused by pandemic-related restrictions, universities should facilitate structured social activities and create supportive environments where students can express themselves freely. These measures may help alleviate the adverse psychosocial effects observed during this challenging period.

Limitations of the Study

This study, which aimed to determine the depression, anxiety, and stress levels of university students during the COVID-19 pandemic, encountered methodological limitations due to the combined use of online and face-to-face survey methods during data collection. Specifically, significant challenges were faced in reaching students for face-to-face surveys due to pandemic-related restrictions. The closure of campuses and the necessity of maintaining social distancing limited both the potential number and diversity of participants. This may have resulted in a sample consisting primarily of students from specific regions or with certain privileges, potentially compromising the sample's ability to represent the general population. These access difficulties prolonged the data collection period and hindered the achievement of the planned sample size.

The lack of direct interaction and observational opportunities in online surveys may have prevented participants from fully conveying their current psychological state. Additionally, the reliance on voluntary participation may have introduced self-selection bias, further limiting the representativeness of the sample.

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Data availability

All data supporting the findings of this study are available within the paper. The datasets generated and/or analyzed during the current study are available from the corresponding author on request.

Ethics approval and consent to participate

Ethical approval for the study was obtained from the Istanbul University-Cerrahpasa Social and Human Sciences Ethics Committee (dated January 22, 2021, and numbered 2021/18). Institutional approvals for the study were obtained from the Ministry of Health Scientific Research Platform on January 21, 2021, and from the Rectorate of Istanbul Gelişim University on September 20, 2021. In addition, permission to use the DASS-21 scale was obtained from Assoc. Prof. Dr. Özer Yılmaz on January 13, 2021, and all students participating in the study were asked to fill out an informed consent form. The article uses correct referencing for all cited materials, and the Declaration of Helsinki was followed at all stages of this research.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests

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