Perceived Stress and Need for Social Relationships in University Students in Pandemic

Pandemide Üniversite Öğrencilerinin Algıladıkları Stres ve Sosyal İlişki İhtiyacı

Alev BAKIR[1], Ayşe Deniz ULUTÜRK[2], Ece UÇDU[2], Işılay BEKTAŞ[2], Melih MANDACI[3], Melis Seliha TANRIVERDİ[2], Mustafa Baran ÇELİK[2], Ufuk Ersin CAYNAK[2], Zeynep Bilge YURDAER[2]

[1]İstanbul University Institute of Child Health, Department of Social Pediatrics, İstanbul, Turkey
[2]Haliç University Faculty of Medicine, İstanbul, Turkey
[3]Üsküdar University Faculty of Medicine, İstanbul, Turkey

ABSTRACT

Aim: The spread of infectious diseases has become inevitable with the increase in international cooperation, commerce and cultural values via the technological developments through the World. Coronavirus disease-2019 (COVID-19) pandemic has created stress and anxiety all over the World. Young adults are one of the most affected social groups in the isolation days. This study aimed to evaluate the university students' perceived stress and need for relatedness with the profound change in educational and social life conditions.

Materials and Methods: In order to determine the socialization needs and stress levels of university students, university students throughout Turkey were reached. Demographic characteristics, and the scores of Perceived Stress Scale and The Need for Relatedness Scale were collected by applying a web-based questionnaire in 402 students.

Results: It was observed that the COVID-19 timeframe increased the stress levels and social needs of university students. The perceived stress of female students was found to be higher than that of male students (p<0.001) while no statistically significant difference was found among regions and departments.

Conclusion: It has become necessary to consider the fact that the educational lives of university students are affected by the parameters of anxiety, stress and needs during this new normalization process and has become necessary to improve their psychological status.

Keywords: COVID-19, need for relatedness, perceived stress, university students

ÖZ

Amaç: Dünya genelinde, teknolojik gelişmeler ile birlikte ülkeler arası iş birliklerinin, alışverişin, bilgi ve kültürel paylaşımların artması ile beraber bulaşıcı hastalıkların da yayılması kaçınılmaz olmuştur. Koronavirüs hastalığı-2019 (COVID-19) pandemisi hızla yayılırken hastalığın tanımı, bulaş yolları ve alınan önlemler değiştikçe tüm dünyada stres ve kaygı yaratmıştır. Sosyal izolasyonun çözüm olarak görüldüğü bu günlerde gençlerin en çok etkilenen sosyal gruplardan biri olduğu görülmüştür. Bu çalışma kapsamında, üniversiteye giden gençlerin eğitim ve sosyal yaşam koşullarının derinden değişmesi ile algıladıkları stres ve sosyal iletişim gereksinimlerinin araştırılması amaçlanmıştır.

Gereç ve Yöntem: Sosyalleşme gereksinim ve stres düzeylerinin üniversite okuyan öğrencilerde belirlenmesi için Algılanan Stres ve Sosyal İletişim Gereksinim ölçekleri kullanılarak Türkiye genelinde farklı bölgelerdeki üniversite ve farklı bölümlerde okuyan öğrencilere ulaşıldı. Web tabanlı anket uygulanarak 402 öğrencinin demografik özellikleri, Algılanan Stres Ölçeği ve Sosyal İlişki Gereksinimi Ölçeği puanları toplandı.

Bulgular: COVID-19 sürecinde üniversite öğrencilerinin stres ve sosyal gereksinim skorlarının arttığı görüldü. Kız öğrencilerin algıladıkları stres erkek öğrencilerden daha yüksek bulundu (p<0,001), bölgeler ve bölümler arasında anlamlı bir farka rastlanmadı.

Sonuç: Yeni normalleşme sürecinde tüm dünyadaki üniversite öğrencilerinin eğitim ve öğretim hayatları için kaygı, stres ve gereksinim parametrelerinin etkilendiğinin göz önüne alınmasına ve psikolojik durumlarının iyileştirilmesine ihtiyaç duyulmuştur.

Anahtar Kelimeler: COVID-19, sosyal ilişki gereksinimi, algılanan stres, üniversite öğrencileri

Address for Correspondence: Alev BAKIR MD, İstanbul University Institute of Child Health, Department of Social Pediatrics, İstanbul, Turkey
Phone: +90 212 414 20 00 **E-mail:** alevbakir@yahoo.com **ORCID ID:** orcid.org/0000-0003-0664-5822

INTRODUCTION

This age, in which cooperation and exchange among countries have accelerated with technological changes, has paved the way for diseases to find a way of easy and quick transmission. The best example of this is the Coronavirus disease-2019 (COVID-19) pandemic, which is still in effect today and started in Wuhan, China. The disease rapidly affected the whole world, and with the increase in the number of cases and deaths, the disease was declared as a pandemic by the World Health Organization on March 11, 2020[1].

The effects of the disease on the society, especially on health, social and psychological aspects, were felt. The uncertain and sudden change of the life order has affected the daily functioning, and the change in the ordinary situation in education and working life has affected the sociological structure and this has brought some global problems[2]. Countries have sought to provide quality, fair and uninterrupted education, and online education has been started to be used instead of face-to-face education[2,3]. It has been stated that compulsory social isolation has negative effects on learning, development and communication at every stage from primary education to higher education, mental health problems of the young population in particular have increased at least twice, and depression and anxiety have increased by 30-80% compared to adults[4,5].

It is reported that young adults exhibit higher levels of anxiety, depression, substance use and irregular eating habit during the university years compared to the general population, when they gain new experiences in terms of finding solutions to the changes and difficulties they encounter in their lives and it is suggested that there are significant changes in parameters such as anxiety, fear and worry in public health emergencies such as epidemics and pandemics[6-8]. In the COVID-19 pandemic, it was observed that university students tried to adapt to online lessons and exams, and they were one of the groups that were most affected psychologically due to both the disruption of their routine and the unequal new conditions[9]. In addition, the fact that there are studies reporting a significant increase in the depression and anxiety levels and in the general suicidal tendency, observing an increase in the time of sleep but a worsening of its quality and a decrease in the quality of life reveals the seriousness of the issue[10,11]. When it comes to university students, the negative effects of stress on health, emotions, learning and memory also gain importance[12]. Studies examining the perceived stress and social isolation needs of university students living in various regions of Turkey and studying in different departments during the COVID-19 period were observed to be limited[13]. In this study, it is aimed to examine the psychological status and social relationship needs of university students in detail according to some demographic characteristics during this ongoing pandemic process.

MATERIALS AND METHODS

The research was designed as a prospective study and was carried out using a web-based questionnaire created by examining the literature. Volunteer participants reached through social media groups of university students were included in the survey. The survey was conducted in such a way that if they said yes to the "I have read, I approve" option, which was the purpose of the study and the informative text in the first part, they could continue. It was also stated in the informative text that personal and contact information was not collected from the participants, that the questions in the survey were not compulsory and that they could leave whenever they wanted.

Study Population and Sample

While determining the sampling criteria, groups that were socially severely affected by the pandemic conditions were evaluated and young people were decided according to the literature review. Since the socioeconomic criteria of the young people who went to and did not go to university were not the same, the young people who were not in the education life were not included in the sample, and the age range of 18-25 years, which covered the general age range of those who went to university, was chosen in order to obtain the data set for our purpose in a homogeneous and healthy way.

Based on 921,886 university students who settled in the university chosen as the population, or more than seven and a half million university students who were currently students, it was determined that at least 385 people were needed as the sample number, with 95% reliability and 5% confidence interval, while the mean and variance of the population were unknown[14].

Data

University students at the age range of 18-25 years were reached through a web-based survey between January 1 and February 29, 2020 across Turkey. The Perceived Stress Scale (PSS) scores and the Need for Relatedness Scale (NRS) scores of the university students were measured, and demographic parameters (age, gender, faculty, region of residence, monthly income, and family history of COVID-19), which were thought to have an impact, were also added to the survey. In the 407 questionnaires collected, 5 people were excluded from the data set because they left their demographic characteristics and most of the scale questions blank, and analyses were carried out with 402 people. Since some of the scale questions were left blank, the PSS scale was studied with 399 people and the NRS scale with 390 people (acceptance subscale with 390, intimacy subscale with 393), and the gap filling method for missing data was not used.

Perceived Stress Scale

The PSS was originally developed by Cohen et al.[15] in 1983, and its Turkish adaptation was published in 2013 by Eskin et al.[16].

PSS, consisting of fourteen items, was created to measure how stressful the situations experienced by the individual were perceived. A 5-point Likert-type scale is applied to individuals to evaluate each item ranging from "Never (0)" to "Very often (4)". In the scale, 7 items (4., 5., 6., 7., 9., 10. and 13.) with positive expressions are evaluated in reverse. The total score of the PSS-14 scale ranges from 0 to 56, and an increasing score indicates that the individual's perceived stress is high.

Need for Relatedness Scale

It is a scale developed by Richer and Vallerand[17] (1996) on the basis of the Self-Determination Theory, and its original form was developed in English in Canada as "The NRS-10". It was adapted into Turkish by Karagüven et al.[18] in 2020.

NRS-10 was created to evaluate the social relationship levels of individuals in different environments. It is a scale consisting of 10 items, 5 of which (items 1., 3., 5., 7., 9.) are included in the sub-dimension of "acceptance" and 5 of which (items 2., 4., 6., 8., 10.) in the sub-dimension of "intimacy". The expression at the beginning of the scale (such as with my colleagues, with my schoolmates) can be changed so that the scale could be used easily in different environments. Each item is evaluated between 1 (strongly disagree) and 7 (strongly agree).

The scores of the NRS-10 scale range from 10 to 70, and the increasing scale score indicates a high level of social relationship.

For this study, official approval was obtained from the Non-Invasive Clinical Research Ethics Committee of Haliç University with the number 242 on 24.12.2020.

Statistical Analysis

Descriptive statistics results were given as frequency and percentage for categorical variables, and as mean, standard deviation, median, minimum and maximum for continuous variables. The Shaphiro-Wilk test results were used to examine the normality distribution of continuous variables, and the comparison of continuous variables between the two groups was performed with the Independent Samples t-test for normally distributed data and with the Mann-Whitney U Test for not normally distributed data. The Pearson or Spearman's correlation analysis was applied according to the distribution of the variables in the analysis of the correlation between the variables. The Cronbach's alpha values of the scales were given and principal components, factor loads and explained coefficients of variance were calculated with the help of Factor Analysis. Statistical analyses were performed with the

Statistics Package for Social Sciences (SPSS) version 24.0 and the R programming language (4.0.3 version) "psych" program, and the p<0.05 value was considered statistically significant.

RESULTS

Demographic characteristics of 402 students participating in the study are presented in Table 1. The mean age of the students was 20.22 ± 1.58 years. There was no significant difference between 139 male students [20.34 ± 1.76 20 (18-25) years] and 263 female students [20.16 ± 1.48 20 (18-25) years] in terms of age (p=0.587). While 28.6% of the participating students had a family history of COVID-19, 71.4% did not.

Table 1. Demographic characteristics of the students participating in the study			
		n	%
Gender	Male	139	34.6
	Female	263	65.4
Faculty of education	Distance Education Faculty	1	0.2
	Faculty of Dentistry	34	8.5
	Faculty of Pharmacy	3	0.7
	Faculty of Education	8	2.0
	Faculty of Science and Literature	35	8.7
	Faculty of Fine Arts	3	0.7
	Faculty of Law	5	1.2
	Faculty of Administrative and Economic Sciences	16	4.0
	Faculty of Theology	3	0.7
	Faculty of Communication	1	0.2
	Faculty of Business Administration	5	1.2
	Faculty of Architecture	34	8.5
	Faculty of Engineering	64	15.9
	Faculty of Health Sciences*	24	6.0
	Faculty of Political Sciences	1	0.2
	Faculty of Medicine	132	32.8
	Others	33	8.2
Region of Residence	Mediterranean Region	36	9.0
	Eastern Anatolia Region	8	2.0
	Aegean Region	31	7.7
	Southeastern Anatolia Region	23	5.7
	Central Anatolia Region	40	10.0
	Black Sea Region	12	3.0
	Marmara Region	252	62.7
Monthly income (TL)	<2,200	138	34.3
	2,200-3,000	54	13.4
	3,000-4,000	48	11.9
	4,000-7,500	60	14.9
	7,500-10,000	37	9.2
	10,000-15,000	23	5.7
	>15.000	38	9.5
History of COVID-19	Yes	115	28.6
	No	287	71.4
Age, year**	20.22±1.58 20 (18-25)		
*Nursing, anesthesia, midwifery, nutrition and dietetics, child development.			
**Mean±standard deviation, median (minimum-maximum).			
COVID-19: Coronavirus disease-2019			

The PSS and NRS scores are presented in Table 2 and it was seen that their averages were above the mean values of the scales (28 for PSS, 40 for NRS). Cronbach's alpha values were calculated as 87% for PSS and 97% for NRS, and the scales were found to have high reliability (Table 2)[19].

As a result of examining the scale scores according to demographic characteristics, a significant difference was found only between the genders in terms of PSS scores (p<0.001). It was observed that the PSS scores of the female students were higher than the PSS scores of the male students (Table 3).

In order to avoid problems in both meaning integrity and statistical analyses in group comparisons, the faculty type was grouped as "medical faculty and other", as well as "medical faculty and health sciences faculty students and other"; region of residence as "Marmara Region and other"; and income status as "low (<2.200) and high (≥2.200)". There was no significant difference in terms of PSS, NRS and NRS subscales (acceptance and intimacy) between those with and without a family history of COVID-19, between medical faculty students and others, between health sciences faculty students in addition to medical faculty students and others, between those residing in the Marmara region and other regions, and between those with low and high income (Tables 3, 4).

When medical faculty students were examined within themselves, it was found that the stress levels of female students were higher than those of male students, but there was no significant difference in terms of family history of COVID-19, income status and residence region (p<0.001, 0.780, 0.949, p 0.420, respectively).

When the relationship between the two scales was examined, a significant, reverse and very weak relationship was found between NRS and PSS (p<0.001, -0.208). It was observed that this relationship was insignificant only in male participants, but significant, reverse and very weak (-0.237) in female students. When examined in terms of COVID-19 history, a significant and reverse relationship, which was very weak in those without history of COVID-19 while weak in those with a history of COVID-19 although it was slightly higher, was found (-0.167, -0.344, respectively) (Table 5).

Factor Analysis, Principal Component Analysis

- For the NRS scale, the Cronbach's alpha was 97%, the explained variance was 76%, the Kaiser-Meyer-Olkin (KMO) value was 0.952, and the Barlett's test of Sphericity analysis result was p<0.001. Component coefficients varied between a minimum of 0.718 and a maximum of 0.926. For the subscales, the Cronbach's alpha values were observed as 94% for the acceptance subscale and 93% for the intimacy subscale.

- For the PSS scale, the Cronbach's alpha was 87%, the explained variance was 54%, the KMO value was 0.905, and the Barlett's test of Sphericity result was p<0.001.

Table 2. PSS and NRS scale scores, Cronbach's alpha values

		n	Mean±SD Median (min–max)	Cronbach's alpha
PSS		399	35.08±9.36 35 (1–56)	0.874
NRS		390	45.81±16.49 49 (10–70)	0.965
NRS	Acceptance	393	22.93±8.26 24 (5–35)	0.935
	Intimacy	390	22.89±8.56 25 (5–35)	0.933

min-max: Minimum-maximum, SD: Standard deviation, PSS: Perceived Stress Scale, NRS: Need for Relatedness Scale

Table 3. Comparison of PSS and NRS scales according to demographic characteristics

		PSS	p	NRS	p
Gender	Male	31.59±9.19 31.5	<0.001[a]	45.87±17.09 48.50	0.876[a]
	Female	36.92±8.92 37		45.78±16.20 49	
History of COVID-19	No	34.79±9.73 35	0.401[a]	46.01±16.67 48	0.719[a]
	Yes	35.79±8.35 35.5		45.32±16.10 50	
Faculty type (medicine)	Faculty of Medicine	34.88±9.82 35.5	0.766[b]	46.35±15.77 49	0.783[a]
	Other	35.18±9.13 35		45.54,±16.88 48.5	
Faculty type (health)	Faculties of Medicine and Health Sciences	34.66±9.88 35	0.489[a]	46.14±16.04 49	0.871[a]
	Others	35.35±9.02 35		45.60±16.82 48	
Region of residence	Marmara Region	35.33±9.81 35.5	0.426[a]	46.17±16.55 49	0.533[a]
	Others	34.65±8.55 35		45.21±16.43 49	
Income status	Low	36.30±9.19 36	0.058[b]	45.11±17.62 49	0.786[a]
	High	34.43±9.40 35		46.18±15.89 49	

[a]Mann-Whitney U test, [b]Independent sample t-test.

PSS: Perceived Stress Scale, NRS: Need for Relatedness Scale

DISCUSSION

In our study, which revealed that routine lives of 402 university students, whose average age was 20.22±1.5 years and 65.4% were female students, and who participated in the survey from different geographical regions and different faculties, were affected during the COVID-19 pandemic, and which evaluated the levels of social relations and stress that they experienced while adapting to digital transformations, it was found that PSS scores of female students were higher than those of male students.

As a result of the prospective cohort study conducted by Savage et al.[20] on the mental health and physical behaviors of university students during the pandemic, a decrease in the mental health of young people, students and women, who are more sensitive than the general society, and an increase in their stress and sedentary states were observed. Moreover, in the same study, it was stated that female students were more stressed than male students[20]. In the current study, PSS scores of female students were detected to be higher, which was found to be consistent with the literature.

When only medical faculty students were examined within themselves, it was found that the stress levels of female students were higher than those of male students, but no significant difference was found in terms of income status. In the study conducted by Torun and Torun[21] with medical faculty students, it was emphasized that the perceived stress level of female students was higher than that of male students, and that low income also affected students' perceived stress and anxiety. The income level, which was found to be significant In a single-center study conducted with only medical faculty students, was observed to have lost its significance on COVID-19 considering the students studying in medical faculties throughout Turkey, and it was observed to be at a trend level among students studying in all regions and faculties in Turkey. It is thought that more comprehensive studies on perceived stress depending on income are needed.

In the study of perceived stress conducted by Tuğut et al.[22] with a web-based survey on 295 university students studying only in the field of health, excluding the medical faculty, in a university in the period of COVID-19, and in the study of perceived stress conducted by Bayar et al.[23] on only 565 university students, mostly studying in the field of health at Mardin Artuklu University, it was stated that the PSS scores were above the average level.

Compared to the study conducted by Hancıoğlu[24] in 2017 with students at Ankara University Faculty of Political Sciences, Department of Business Administration before COVID-19, it was found that the stress perceived by university students during the COVID-19 period increased even more. In the PSS validation study conducted by Eskin et al.[16] with students studying at Adnan Menderes University Aydın Health High School and Faculty of Science and Literature in 2013, it was observed that the perceived stress scores of university students during the pandemic were even higher. In our study, which also included students studying in health-related and other departments and from other regions, it was observed that university students' PSS scores were even higher during the

Table 4. Comparison of NRS subscales according to demographic characteristics

		Acceptance	p	Intimacy	p
Gender	Male	22.64±8.58 24	0.705ᵃ	23.23±8.90 25	0.441ᵃ
	Female	23.08±8.10 24		22.71±8.39 25	
History of COVID-19	No	23.06±8.32 24	0.677ᵃ	22.93±8.70 24	0.832ᵃ
	Yes	22.60±8.12 24		22.78±8.25 25	
Faculty type (medicine)	Faculty of Medicine	23.04±7.86 24	0.993ᵃ	23.31±8.24 25	0.577ᵃ
	Other	22.87±8.47 24		22.67±8.73 24.5	
Faculty type (health)	Faculties of Medicine and Health Sciences	23.09±7.99 24.5	0.808ᵃ	23.09±8.36 25	0.819ᵃ
	Others	22.82±8.45 24		22.76±8.71 25	
Region of residence	Marmara Region	22.98±8.29 24	0.914ᵃ	23.18±8.59 25	0.332ᵃ
	Other	22.84±8.24 25		22.39±8.52 24	
Income status	Low	22.22±8.77 24	0.344ᵃ	22.84±9.20 25	0.835ᵃ
	High	23.30±7.97 24		22.91±8.23 24.5	

ᵃMann–Whitney U test.

PSS: Perceived Stress Scale, NRS: Need for Relatedness Scale

Table 5. The relationship between NRS and PSS scales

		p	r
General		<0.001	–0.208
Gender	Male	0.113	–0.137
	Female	<0.001	–0.237
History of COVID-19	No	0.005	–0.167
	Yes	<0.001	–0.344

Spearman's correlation test.

COVID-19: Coronavirus disease-2019, PSS: Perceived Stress Scale, NRS: Need for Relatedness Scale

COVID-19 period. It was concluded that university students were negatively affected by the pandemic, independent of region, faculty, department and income level, except for gender.

Study Limitations

The lack of knowledge on the pre-pandemic stress and social relationship status of the university students participating in the study was determined as a limitation of the study.

CONCLUSION

As a result, in our study, an increase was observed in the stress and social needs scores of university students during the COVID-19 process, it was clearly observed that this increase was not a determinant in terms of demographic characteristics except for gender, and all university student groups were similarly affected by the restrictions brought by the pandemic. It is thought that there is a need to make common arrangements for university students in general, to consider the anxiety and stress parameters in their education lives, and to improve their psychological status.

Acknowledgement

Ethics

Ethics Committee Approval: For this study, official approval was obtained from the Non-Invasive Clinical Research Ethics Committee of Haliç University with the number 242 on 24.12.2020.

Informed Consent: Survey study.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept - Design - Data Collection or Processing - Analysis or Interpretation - Literature Search - Writing: A.B., A.D.U., E.U., I.B., M.M., M.S.T., M.B.Ç., U.E.C., Z.B.Y.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

REFERENCES

1. WHO (2020a). WHO Director-General's opening remarks at the media briefing on COVID-19 -11 March 2020. Erişim tarihi: 29/03/2021. Erişim adresi: https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020

2. Can E. Coronavirüs (Covid-19) pandemisi ve pedagojik yansımaları: Türkiye'de açık ve uzaktan eğitim uygulamaları. AUad. 2020;6:11-53.

3. UNESCO (2020a). COVID-19 educational disruption and response. Erişim tarihi: 29/03/2021. Erişim adresi: https://en.unesco.org/news/covid-19-educational-disruption-and-response

4. World Education Blog. How are countries addressing the Covid-19 challenges in education? A snapshot of policy measures. Erişim tarihi: 02/04/2021. Erişim adresi: https://gemreportunesco.wpcomstaging.com/2020/03/24/how-are-countries-addressing-the-covid-19-challenges-in-education-a-snapshot-of-policy-measures/

5. OECD, Tackling coronavirus (COVID-19). Supporting young people's mental health through the COVID-19 crisis. Erişim tarihi: 05/05/2021. Erişim adresi: https://www.oecd.org/coronavirus/policy-responses/supporting-young-people-s-mental-health-through-the-covid-19-crisis-84e143e5/

6. Stoliker BE, Lafreniere KD. The influence of perceived stress, loneliness, and learning Burnout on university students' educational experience. College Student Journal. 2015;49:146-60.

7. Browning MHEM, Larson LR, Sharaievska I, Rigolon A, McAnirlin O, Mullenbach L, et al. Psychological impacts from COVID-19 among university students: Risk factors across seven states in the United States. PLoS One. 2021;16:e0245327.

8. Cao W, Fang Z, Hou G, Han M, Xu X, Dong J, et al. The psychological impact of the COVID-19 epidemic on college students in China. Psychiatry Res. 2020;287:112934.

9. OECD, Tackling coronavirus (COVID-19). What have countries done to support young people in the COVID-19 crisis? Erişim tarihi: 05/05/2021. Erişim adresi: https://www.oecd.org/coronavirus/policy-responses/what-have-countries-done-to-support-young-people-in-the-covid-19-crisis-ac9f056c/

10. Islam MA, Barna SD, Raihan H, Khan MNA, Hossain MT. Depression and anxiety among university students during the COVID-19 pandemic in Bangladesh: A web-based cross-sectional survey. PLoS One. 2020;15:e0238162.

11. Kaparounaki CK, Patsali ME, Mousa DV, Papadopoulou EVK, Papadopoulou KKK, Fountoulakis KN. University students' mental health amidst the COVID-19 quarantine in Greece. Psychiatry Res. 2020;290:113111.

12. Schneiderman N, Ironson G, Siegel SD. Stress and health: psychological, behavioral, and biological determinants. Annu Rev Clin Psychol. 2005;1:607-28.

13. Hamza CA, Ewing L, Heath NL, Goldstein AL. When Social Isolation Is Nothing New: A Longitudinal Study On Psychological Distress During COVID-19 Among University Students With and Without Preexisting Mental Health Concerns. Canadian Psychology/Psychologie Canadienne. 2021;62:20-30.

14. 2018-2019 Öğretim Yılı Yükseköğretim İstatistikleri. Ulaşım: https://istatistik.yok.gov.tr/

15. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. J Health Soc Behav. 1983;24:385-96.

16. Eskin M, Harlak H, Demirkıran F, Dereboy Ç. Algılanan stres ölçeğinin Türkçeye uyarlanması: güvenirlik ve geçerlik analizi. New/Yeni Symposium Journal. 2013;51:132-40.

17. Richer SF, Vallerand RJ. Construction and validation of the perceived relatedness scale. European Review of Applied Psychology. 1998;48:129-37.

18. Karagüven MHÜ, Ekşioğlu MK, Gül Ç. Özerklik teorisi ve sosyal ilişki gereksinimi ölçeğinin Türkçeye adaptasyonu. IBAD Sosyal Bilimler Dergisi. 2020;6:366-77.

19. Kılıç S. Cronbach'ın Alfa Güvenirlik Katsayısı. Journal of Mood Disorder. 2016;6:47-8.

20. Savage MJ, James R, Magistro D, Donaldson J, Healy LC, Nevill M, et al. Mental health and movement behaviour during the COVID-19 pandemic in UK university students: prospective cohort study. Mental Health and Physical Activity. 2020;19:100357.

21. Torun F, Torun SD. The psychological impact of the COVID-19 pandemic on medical students in Turkey. Pak J Med Sci. 2020;36:1355-9.

22. Tuğut F, Tuğut N, Çelik BY. Sağlık alanında okuyan öğrencilerin Covid-19 pandemi sürecinde durumluk süreklilik kaygı, algılanan stres ve depresyon düzeylerinin belirlenmesi. Cumhuriyet Üniversitesi Sağlık Bilimleri Enstitüsü Dergisi. 2021;6:136-44.

23. Bayar BD, Can SY, Erten M, Ekmen M. Covid-19 Pandemi sürecinde üniversite öğrencilerinin depresyon ve stres düzeylerinin belirlenmesi. Paramedik ve Acil Sağlık Hizmetleri Dergisi. 2021;2:12-25.

24. Hancıoğlu Y. Üniversite öğrencilerinin algıladıkları stres düzeyleri ile stresle başa çıkma tarzları arasındaki ilişkinin incelenmesi. Yönetim ve Ekonomi Araştırmaları Dergisi. 2017;15:130-49.