



Effect of Covid-19 On Students' Stress, Anxiety, Depression, Fear Levels: Systematic Review

Covid-19'un Öğrencilerin Stres, Anksiyete, Depresyon, Korku Düzeylerine Etkisi: Sistematik Derleme

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ABSTRACT

The aim of this study was to examine the stress, anxiety, depression, fear levels and related factors of students during the Covid-19 pandemic process by conducting a literature review. In the research, Electronic databases were searched using the keywords " Covid-19, pandemic, mental health, students" between 27.12.2019-30.12.2020. As a result of the search, 562 studies were reached and 22 articles were included in the study. Students' level of anxiety, fear and depression is determined by gender, disease status, infection-contamination anxiety, level of knowledge about the disease, adequacy of protective equipment, family structure, economic conditions, social support level, living with parents, perspective on illness and substance use has been related. The results generally show that students experience moderate levels of anxiety. Fear, depression and stress levels differ in studies. Anxiety and depression levels in girls are higher than boys.

Keywords: Covid-19, stress, anxiety, depression, fear

ÖZ

Bu araştırmada, Covid-19 pandemisi sürecinde öğrencilerin stres, anksiyete, depresyon, korku düzeyleri ve ilişkili faktörleri, literatür taraması yaparak incelenmesi amaçlanmıştır. Araştırmada, 27.12.2019-30.12.2020 tarihleri arasında elektronik veri tabanları "Covid-19, pandemi, ruh sağlığı, öğrenciler", "Covid-19, pandemic, mental health, students" anahtar sözcükleri kullanılarak taranmıştır. Tarama sonucunda 562 çalışmaya ulaşılmış olup 22 makale çalışmaya dahil edilmiştir. Yaş aralığı 14-33 arasında olan öğrencilerin anksiyete, korku ve depresyon düzeyinin, cinsiyet, hastalık durumu, enfeksiyon bulaşma kaygı düzeyi, hastalık ile ilgili bilgi düzeyi, koruyucu ekipmanların yeterliliği, aile yapısı, ekonomik şartlar, sosyal destek düzeyi, ebeveynler ile yaşama durumu, hastalığa bakış açısı ve madde kullanımı ile ilişkili olduğu saptanmıştır. Sonuçlar, genellikle öğrencilerin orta düzeyde anksiyete yaşadığını göstermektedir. Korku, depresyon ve stres düzeyleri ise çalışmalarda farklılık göstermektedir. Kızlarda anksiyete ve depresyon düzeyi erkeklere göre daha yüksektir.

Anahtar sözcükler: Covid-19, stres, anksiyete, depresyon, korku

Introduction

In December 2019, there was an outbreak of Covid-19 (Coronavirus disease 2019) in Wuhan, China and it caused a global pandemic. Covid-19 causes respiratory tract infection and has negatively affected people both physically and mentally (Askın et al. 2020). Continuation of the pandemic has made social isolation obligatory, which is one of the ways of protection measures, and this situation has caused increase in mental illness cases (Aslan et al. 2020). With the increase in the number of cases, the fear of death and uncertainty towards future have taken a toll on the whole world (Ji et al. 2020). In studies conducted on individuals living in China and Iran, it was stated that the level of stress increased (Wang et al. 2020). It has been determined that

the mental states of individuals were adversely affected during the Covid-19 pandemic period, and they showed symptoms of anxiety and depression (Zhang et al. 2020). Even though there was a decrease in anxiety levels with the decrease in number of cases in June, it was reported that there were individuals with high level of anxiety caused by the fear of Covid-19 (Kleiman et al. 2020).

During the pandemic, schools have been closed and students started distance education. When the studies are analyzed, the first measure taken in previous pandemics was to close the schools. Education was suspended in many countries during Covid-19 pandemic. Many universities in Turkey switched to distance learning from face-to-face classes. With internet, technology replaced the school. Within this period, students

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have experienced many problems at different levels such as; need for computers or tablets, internet outages, conflicts in family, delays in exam dates and classes, psychological problems linked to lockdowns, fear of catching the virus, and economical insufficiencies. In addition, students have stated that their freedoms and socialization were restricted (Cubuk 2020). With the schools closing, protection measures have affected students more than the other parts of the society. It was stated in the studies that students' separating from their friends during quarantine, being indoors continuously have caused the experience of feelings such as anger, desperation, depression (Karatas 2020), anxiety, fear of death, sense of longing for their normal life (Altun Ekiz 2020), and hopelessness. It was observed that factors such as gender, age, knowledge level of the students' (Sever and Ozdemir 2020) and the time spent on the screen to learn new information affect their emotional state (Kecojevic et al. 2020). Studies have reported that knowledge levels about Covid-19 are associated with levels of stress, anxiety, depression and fear (Akman et al. 2020).

The aim of this study is to analyze students' level of stress, anxiety, depression, fear and related factors during the course of Covid-19 pandemic. We think that the results of this study will contribute to studies directed at factors affecting students' stress, anxiety, depression, and fear levels. Three research questions were established according to the aim of this research. These questions are aimed at determining which scientific studies are examining the levels of stress, anxiety, depression and fear on students of the Covid-19 process, the methodological features of the studies mentioned, and which assessment tools are used in the studies.

Method

In this systematic review, among the 562 studies conducted between 27.12.2019 – 30.12.2020, 22 articles were included in the review. 11 of the articles are from foreign resources. Previous to literature review, databases and keywords were determined by the researcher. This review was performed through Google Scholar and Pubmed electronic databases, using the descriptors; "Covid-19, pandemic, mental health, students" in English and their Turkish equivalents. 22 articles that was eligible for this review were read by the researcher, and the summary table of the studies includes "author, aim, sample group, the number of samples, type of the study, data collection tools used in the study, and study results" (Table 1).

The scientific studies, published in English or Turkish, examining the effects of Covid-19 on students' stress, anxiety, depression and fear levels, and studies on high school or university students (14-33 years old) which full text can be accessed were included. Studies conducted that are not in English or Turkish, and articles in which full text could not be accessed, and review articles that did not examine students' levels of stress, anxiety, depression and fear were excluded. The study included accessible research articles and was conducted in accordance with the principles of the Declaration of Helsinki.

Results

As a result of the literature review, 11 international and 11 national studies were identified that matched the eligibility criteria for the research. The characteristics and detailed information of the studies are presented in Table 1.

General Characteristics of the Studies

11 international and 11 national research studies were detected in the literature review. In most of the studies that were analyzed, the aim was to identify the students' stress, anxiety, depression, fear levels and associated factors, during the course of Covid-19. It has been observed in the assessment of the studies that the levels of stress, anxiety, depression, and fear are related to factors such as gender, infection-contamination anxiety, quarantine, staying away from the circle of friends, and insufficiency of personal protective equipment. When the methodologies of the studies are analyzed; scanning, photovoice, phenomenological studies mainly constitute cross-sectional, descriptive, and qualitative studies.

Sample Groups of the Studies

The studies that have been analyzed were conducted with high school and university students. 20 of the studies were conducted with university students, and one of the studies examined a letter written by the students, and another examined paintings illustrated by the students. 6 of the studies were conducted with health sciences students. 2 of the studies were conducted with high school students. The sample number in the studies are comprised of at least 13 and at most 2031 students.

Assessment Tools Used in the Studies

In all of the studies analyzed, an introductory information form or personal information form was used to collect the sociodemographic information of the students. It has been detected in the studies that the most used data collection tools are Generalized Anxiety Disorder Scale (GAD-7), and Patient Health Questionnaire (PHQ-9). Along with these scales, the following scales are also used; The Coping Strategies for Pessimism Activated Events Scale, Positive and Negative Affect Schedule (PANAS), The Satisfaction with Life scale (SWLS), The Intolerance of Uncertainty Scale (IUS-12), smart phone questionnaires, State-Trait Anxiety Inventory, Depression, Anxiety, Stress Scale (DASS 21), Perception of COVID Impact on Student Well-Being Scale (CI), Perceived Stress Scale (PSS-10), The COPE inventory (Coping Orientation to Problems Experienced), Hospital Anxiety and Depression Scale (HADS), Patient Health Questionnaire (PHQ-8), Physical Activity Scale (PA), Brief Symptom Inventory (BSI-18).

Defining Characteristics Affecting Student's Levels of Stress, Anxiety, Depression, Fear

It has been established in accordance with the information obtained from the studies that students' level of stress, anxiety, depression, and fear is linked to gender, disease status, infection-

Table 1. Characteristics of the studies

No	Author	The Aim of the Study	The Sample Group	The Number of Samples	Study Designs	Data Collection Tool	Study Results
1	Cubuk (2020)	To explain the relation of Covid-19 pandemic on lost object, depression and mourning in university students	Students studying at Dogus University and receiving therapy for the duration of Covid-19	13 students	Interpretive Phenomenological	Subjective Discourse of Individuals for the Records	It has been seen that Covid-19 cause psychological problems in university students and in this process, students mostly lose their role and the view of the Other.
2	Karatas (2020)	To analyze the effect of Covid-19 pandemic on the psychological state of students preparing for the LGS (high school entrance exam) and YKS (university entrance exam)	Secondary and High School students (8th grade and 12th grade students) (Students who are 14 and 18 years old)	663 students (392 high school students)	Descriptive and Phenomenological study	Questionnaire and Semi-structured interview form	It has been reported that students generally feel depressed and alone at home during Covid-19 pandemic, and it has been observed that high school seniors' general and exam anxiety have increased.
3	Eryilmaz and Siraz (2020)	To analyze Coping with Pessimism Activated Events and Adolescent Subjective Well-Being in the context of Covid-19	High School students between the ages 14 and 19	246 high school students	Structural equation model	>The coping strategies for Pessimism Activated Event-Situation Scale >Positive and Negative Affect Schedule (PANAS) >The Satisfaction with Life Scale (SWLS)	It has been reported that there is a statistically moderate positive correlation between coping strategies for pessimism activated events.
4	Okuyan et al. (2020)	To determine the health anxiety levels of nursing students	Volunteer nursing students between the ages of 18 and 33	305 students	Descriptive	>Health Anxiety Level Inventory >Information form containing socio demographic characteristics	It has been reported that students' health anxiety levels are high due to the fear of being infected with the virus and fear of death.
5	Altun Ekiz (2020)	To investigate how the coronavirus affects daily lives of students	Students studying Physical Education and Sports Teaching in Hatay Mustafa Kemal University	Students between the ages of 21 and 24	Qualitative research method	Journaling and interview method	It has been observed that students experienced stress, anger and boredom due to being busy with the same things all the time, and yearning for the things they cannot do.
6	Sever and Ozdemir (2020)	To interpret the experiences in the distance education process by embodying them through photographs	Students of Social Service Department in Suleyman Demirel University	12 Photos from 154 students	Qualitative method Photovoice method	Pictures and stories shared by individuals from their own life experiences	It has been observed that students experienced burnout, stress, and pessimism during distance education

Table 1 Continued. Characteristics of the studies

No	Author	The Aim of the Study	The Sample Group	The Number of Samples	Study Designs	Data Collection Tool	Study Results
7	Yayan (2020)	To analyze the what the students of Gazi University, Faculty of Education, Department of Fine Arts, Art Painting Department conveyed in their paintings about Covid-19.	The works of 3rd and 4th year students of Gazi University, Faculty of Education, Department of Fine Arts, Art Painting Department	Works of the 13 students of the 3rd and 4th year students	>Literature review >Analysis of work of art	Students' works were questioned from a social and cultural point of view, and their knowledge, attitudes, and behaviors about Covid-19 from their subjective perspectives	Students reflected the anger, desperation, and fear they felt, as well as the happiness of the healing patients and their hopes for the future, using different colors and tones on the picture.
8	Orgev et al. (2020)	To evaluate the generalized anxiety disorders and some demographic characteristics of the university students during Covid-19.	Students studying at foundation university	493 students aged 18-26 and over	Case Report	>Questionnaire defining demographic data >Generalized Anxiety Disorder Scale (GAD-7)	It has been established that the point average of the anxiety significantly differs according to gender.
9	Duman (2020)	The analysis of university students' Covid-19 fear and uncertainty tolerance levels.	University students selected with simple random sampling technique	100 Students	Survey Model	>Personal information form >Covid-19 fear scale >The intolerance of uncertainty scale (IUS-12)	Students have a moderate fear of Covid-19 and a moderate intolerance of uncertainty.
10	Dogan (2020)	To determine in what way students are affected by the virus in quarantine days by analyzing the 100 letters university students wrote to Covid-19.	Male and female students between the ages of 18-25 from every faculty, every unit, every grade level, every branch, every department, and the participating students, to whom the researcher teaches elective courses	100 out of 190 letters, written by undergraduate students between the ages of 18 and 25, were analyzed.	Qualitative research Phenomenology design	Students sent the letters to the researcher both by uploading them to a homework system opened by the researcher and by e-mailing them in Word/PDF document form.	It was seen in the letters that students mentioned the positive effects of the quarantine as well as the experience of anxiety of virus infection and the fear of death and loneliness.
11	Wang et al. (2020)	To research the mental health status and severity of depression and anxiety of college students during the Covid-19 pandemic in a major university system is the USA.	Undergraduate and graduate students recruited from the Texas A&M University	2031 students between the ages of 18 and 75	Cross-sectional study	>Depression, anxiety, stress scale >Patient Health Questionnaire (PHQ-9) >Generalized Anxiety Disorder Scale (GAD-7)	Participants had moderate depression, moderate anxiety, and 18.04% had suicidal thoughts.

Table 1 Continued. Characteristics of the studies							
No	Author	The Aim of the Study	The Sample Group	The Number of Samples	Study Designs	Data Collection Tool	Study Results
12	Kleiman et al. (2020)	To evaluate the impact of Covid-19 on mental health among a group of university students experiencing the pandemic in real time.	Group of university students experiencing the pandemic	140 students between the ages of 10 and 33	smartphone-based ecological instantaneous assessment of anxiety and optimism	Smartphone Questionnaires	It has been reported that majority of the participants are anxious about Covid-19.
13	Akman et al. (2020)	To analyze the impact of Covid-19 pandemic on the anxiety levels of nursing students.	Nursing students of foundation university	92 students with age average of 22.61 ±1.70	Descriptive, correlational and cross-sectional research	> Sociodemographic and Covid-19 Pandemic Information and Attitude Form > State-Trait Anxiety Inventory	Students' anxiety levels increased as their knowledge levels increased.
14	Aylie et al. (2020)	To evaluate the psychological effects of Covid-19 on the university students from Bench-Sheko Zone in Southwest, Ethiopia	All university students living in the Bench-Sheko zone who fully meet the inclusion criteria	322 students aged 18-25 and over	Cross-sectional study	> Questionnaire to assess sociodemographic, clinical factors and their psychological effects > Depression, Anxiety, Stress Scale (DASS 21)	Depression prevalence is found to be higher in females, students staying at home, and individuals with a history of medical illness.
15	Xiao et al. (2020)	To examine the effect of drastic social distancing measures on the lives of medical students to control the viral spread in China.	Medical school students in two universities, two schools of public health (CCMU in Beijing, and HUST in Wuhan)	933 students aged 17-25 and over	Cross-sectional study	> An 84-item questionnaire > GAD-7 (Generalized Anxiety Disorder Scale) > PHQ-9 (Patient Health Questionnaire)	The risk of developing anxiety disorder and depression was found to be significantly higher in females than males.
16	Safa et al. (2020)	To determine the prevalence of anxiety and depressive symptoms and to examine the psychological effects of Covid-19 pandemic on Bangladeshi medical students	Bangladeshi medical students enrolled in any medical school who can read and understand English and live in Bangladesh during Covid-19	425 students between the ages of 18 and 28	Cross-sectional study	> A questionnaire containing questions about demographic information and Covid-19 > HADS (Hospital Anxiety and Depression Scale)	It has been observed that female students show more anxiety and depressive symptoms than male students.
17	Savitsky et al. (2020)	To evaluate the anxiety levels and coping strategies of the nursing students in Ashkelon Academy College in the Southern District of Israel	All of the students in the nursing department	215 students between the ages of 23,4 and 27,9	Cross-sectional study	> A questionnaire containing questions about demographic information > GAD-7 scale > Eight items from The COPE inventory (Coping Orientation to Problems Experienced) to describe coping strategies	It has been obtained that male students' use of humor is related to low anxiety levels.

Table 1 Continued. Characteristics of the studies

No	Author	The Aim of the Study	The Sample Group	The Number of Samples	Study Designs	Data Collection Tool	Study Results
18	Aslan et al. (2020)	To reveal the prevalence of perceived stress and mental health among students during the pandemic and to investigate the stress level determinants	Undergraduate students	358 students between the ages of 19 and 40	Cross-sectional study	> GAD-7 scale > Patient Health Questionnaire > The Satisfaction with Life scale > Perception of Covid-19 Impact on Students Welfare > Perceived Stress Scale > Sociodemographic Questionnaire	It has been detected that students have high level of stress, mild generalized anxiety, and low satisfaction with life.
19	Husky et al. (2020)	To identify the relation of university students' anxiety and other psychological problems with relocating to a different place during Covid-19	University students aged 18 or older who completed the approval form	291 students aged 18 and over	Cross-sectional study	Online questionnaire form	Individuals who have not relocated during pandemic experienced higher levels of stress than those who have relocated.
20	Kecojevic et al. (2020)	To assess factors associated with increased levels of mental health burden among a sample of northern New Jersey undergraduate university students	Students taking an introductory core curriculum course focused on personal health and taught by the Department of Public Health	162 students between the ages of 18 and 37	Cross-sectional study	> Cross-sectional questionnaire > Brief Symptom Inventory	It has been reported that female students have higher levels of anxiety, and the time spent on news sites regarding Covid-19 is related to anxiety levels.
21	Bashir et al. (2020)	To evaluate the relationship between anxiety and depression of Covid-19 on health science students	Health science students living in Pakistan and abroad	523 students aged 18 and over	Cross-sectional Observational study	> GAD-7 scale > PHQ-9 scale > Questionnaire for students' general information	It has been reported that 23% of the students experienced moderate to severe depression, 44% experienced moderate to severe anxiety, and younger students experienced higher levels of depression and anxiety.
22	Li et al. (2020)	To observe the sleeping habits and mental health status (anxiety and depression) of university students	Undergraduate students of agriculture university in Hebei, China	555 undergraduate students (age average 19,6)	Longitudinal study	> 10-item Positive and Negative Affect Schedule (PANAS) > 4-item Patient Health Questionnaire (PHQ-4) > PANAS-PA and PANAS-NA	It has been reported that quarantine caused fear, anxiety and depression; the fear of virus infection increased after the quarantine, and hand sanitizer deficiency significantly increased both the PANAS-PA and the PHQ-4 average score.

contamination anxiety, level of knowledge about the disease, adequacy of protective equipment, family structure, economic conditions, social support level, living with parents, perspective on illness and substance use.

Outcome Criteria of the Studies

It has been discovered in the analysis of the studies that female students have higher levels of stress, anxiety, depression and fear than male students. It has been established that having increased amount of responsibilities at home, lack of social support, not living with parents, staying in one place during the pandemic, substance use, economic handicap of the students who live in countryside, conflicts in family, delays in the academic calendar, negative feelings towards future, fear of humiliation, having a high level of anxiety about health increase fear, anxiety, stress and depression levels.

Discussion

In this study, 22 studies were analyzed with the aim of determining the stress, anxiety, depression, and fear levels during the course of Covid-19 pandemic. This review was conducted with two electronic databases, "Pubmed" and "Google Scholar". Therefore, it cannot be generalized. Focal point of the studies is to define the fear, anxiety, stress, and depression levels of the students and the factors related. Mainly, cross-sectional researches were included in the studies. It was detected that the most commonly used data collection tools were Generalized Anxiety Disorder Scale (GAD-7), and Patient Health Questionnaire (PHQ-9). While quarantine and other protection measures prevent the transmission of the virus, it could not prevent the increase of fear, anxiety, and depression (Li et al. 2020). When the data in the studies are analyzed, some studies explain that there is a significant relationship between students' emotional state and gender, while in some studies there is no significant difference. For instance, in one of the studies which expressed a relationship between gender and levels of anxiety, stress, depression, and fear, it has been stated that especially female students experience burnout due to the increased amount of responsibility in the home environment (Sever and Ozdemir 2020). In another similar study, it has been established that depression and anxiety levels are higher in females than males (Aylie et al. 2020; Bashir et al. 2020). On the other hand, it was reported as a result of another study that the level of depression is not related to gender (Bashir et al. 2020).

Students' concerns about being infected with the virus, the existence of losses, and the necessity of staying at home for a long time are closely related to mental health. According to a research conducted, students who experienced a loss feel fear at a higher level than students who did not (Duman 2020). In a different research, it has been stated that students are worried about the situations that quarantine can cause during the course of the pandemic. Staying at home all the time caused individuals to feel overwhelmed. The fear of getting infected and death increases anxiety about health (Okuyan et al. 2020).

Individuals' knowledge levels and their belief in the adequacy of measures taken regarding Covid-19 also affect their anxiety level. It has been stated that the students' level of anxiety increases as their knowledge about Covid-19 increases, and the level of trait anxiety decreases as they find the level of hand washing sufficient (Akman et al. 2020).

According to a research, not every individual evaluates the impacts of Covid-19 on their life in the same way. Different perception of the pandemic by the students causes variation in their anxiety levels and moods. It has been observed that the anxiety levels of the students who think Covid-19 affected their lives positively is lower than those who think it affected their lives negatively (Safa et al. 2021). In another research, while some students have perceived Covid-19 period as a destruction; some students perceived it as an effective way to be alone with oneself, to review one's life, make important decisions, gain different experiences, and it has been observed that those students look to the future with hope (Dogan 2020).

During the course of the pandemic, some individuals have relocated; some individuals continued to reside in the same place. It has been observed that the individuals who have not relocated experience higher levels of stress than those who have relocated (Husky et al. 2020).

Alcohol consumption, over eating, living with parents, social support level, and pessimism are also related to individuals' anxiety, fear, stress, and depression levels. It has been observed in the research conducted that alcohol and drug consumption, and over eating increase the level of anxiety (Savitsky et al. 2020). It has been established that the anxiety level of students who do not live with their parents are higher, and in individuals who have poor social support, the risk for developing stress and depression increases (Aylie et al. 2020).

In this process, it is important to protect the mental health of the individuals against negative situations alongside with their physical health, and to increase their well-being towards events and life. Using the coping strategies for pessimism during Covid-19 regarding mental health affects individuals' assessment of their own level of well-being (Eryılmaz and Siraz 2020).

This systematic review, in line with the literature, was conducted with two electronic databases, "Pubmed" and "Google Scholar". Most of the research data was gathered via online connections and phone calls due to the pandemic. The fact that researches are carried out online has caused the researches to be limited to the students who can only use social networks. It has been observed that in some of the researches conducted, male participants are scarce.

Conclusion

This review analyzed the students' levels of stress, anxiety, depression, fear and related factors during the Covid-19 pandemic. The results generally show that students experience moderate levels of anxiety. Fear, depression and stress levels differ from study to study. It is seen when the notable points

are considered that; anxiety and depression levels in females are higher than males, quarantine practices, spending a long time at home or indoors increase individuals' level of pessimism, hopelessness and stress, the level of anxiety increases as a result of the constant monitoring of the news about Covid-19 and the delays in the academic calendar. It is also seen that believing in the efficiency and sufficiency of the measures taken against Covid-19 and the fear of being infected with the virus affect the level of anxiety.

Results showed that there is a need for research studies on students' not only mood but also on social behavior. In order for students to have a positive impact on their mental and physical health and to be hopeful for the future, it is recommended that individuals engage in behaviors that will positively affect their subjective evaluations of their own lives.

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References

Akman Ö, Yıldırım D, Sarıkaya A (2020) The effect of covid-19 pandemic on nursing students'anxiety levels. *İstanbul Gelişim Üniversitesi Sağlık Bilimleri Dergisi*, 12:379-397.

Altun Ekiz M (2020) Koronavirüs karantinasında günlük tutan beden eğitimi ve spor yüksekokulu öğrencileri üzerine nitel bir araştırma. *Gazi Beden Eğitimi ve Spor Bilimleri Dergisi*, 25:387-401.

Aslan I, Ochnik D, Çınar O (2020) Exploring perceived stress among students in Turkey during the covid-19 pandemic. *Int J Environ Res Public Health*, 17:8961.

Aşkın R, Bozkurt Y, Zeybek Z (2020) Covid-19 pandemisi: psikolojik etkileri ve terapötik müdahaleler. *İstanbul Ticaret Üniversitesi Sosyal Bilimler Dergisi*, 19:304-318.

Aylie NS, Mekonen MA, Mekuria RM, (2020) The psychological impacts of covid-19 pandemic among university students in Bench-Sheko Zone, South-west Ethiopia: a community-based cross-sectional study. *Psychol Res Behav Manag*, 13:813-821.

Bashir TF, Hassan S, Maqsood A, Khan ZA, Issrani R, Ahmed N et al. (2020) The psychological impact analysis of novel covid-19 pandemic in health sciences students: A global survey. *Eur J Dent*, 14:91-96.

Çubuk B (2020) Covid 19 ile gelen kayıp nesne, yas ve depresyon. *Yalova Üniversitesi Sosyal Bilimler Dergisi*, 10:90-99.

Doğan S (2020) Üniversite öğrencilerinin covid-19'a yazdıkları 100 mektubun incelenmesi. *Türk Dünyası Araştırmaları*, 126:25-40.

Duman N (2020) Öğrencilerinde covid-19 korkusu ve belirsizliğe tahammülsüzlük. *The Journal of Social Science*, 4:426-437.

Eryılmaz A, Şiraz M (2020) Covid-19 bağlamında kötümserliği ortaya çıkaran olaylarla-durumlarla başa çıkma ve ergen öznel iyi oluşu ile ilişkisinin incelenmesi. *İstanbul Ticaret Üniversitesi Sosyal Bilimler Dergisi*, 19:292-303.

Husky MM, Kovess-Masfety V, Swendsen JD (2020) Stress and anxiety among university students in France during Covid-19 mandatory confinement. *Compr Psychiatry*, 102:152191.

Ji G, Wei W, Yue K, Li H, Shi L, Ma J et al. (2020) Effects of the covid-19 pandemic on obsessive-compulsive symptoms among university students: prospective cohort survey study. *J Med Internet Res*, 22:e21915.

Karataş Z (2020) Covid-19 pandemisi sürecinin LGS ve YKS hazırlık sürecinde olan çocuk ve ergenlerin psikolojilerine yansımalarının incelenmesi. *İn Pandemi Döneminde Çocuk ve Ergen Psikolojisi (Ed B Gençdoğan): 54-74. Ankara, Türkiye Klinikleri.*

Kecojevic A, Basch C, Sullivan M, Davi N (2020) The impact of the covid-19 epidemic on mental health of undergraduate students in New Jersey, cross-sectional study. *Plos One*, 15:e0239696.

Kleiman EM, Yeager AL, Grove JL, Kellerman JK, Kim JS (2020) Real-time mental health impact of the Covid-19 pandemic on college students: ecological momentary assessment study. *JMIR Ment Health*, 7:e24815.

Li HY, Cao H, Leung DYP, Mak YW (2020) The psychological impacts of a covid-19 outbreak on college students in China: a longitudinal study. *Int J Environ Res Public Health*, 17:3933.

Okuyan CB, Karasu F, Polat F (2020) Covid 19'un hemşirelik öğrencilerinin sağlık kaygısı düzeyleri üzerine etkisi. *Van Sağlık Bilimleri Dergisi*, 13:45-52.

Örgev C, Biçer İ, Demir H, Aydın O, Şen E, Özyaral O (2020) The psychological impact of the covid-19 pandemic on university students in Turkey: a foundation university case. *Journal of International Health Sciences and Management*, 6:25-33.

Safa F, Anjum A, Hossain S, Trisa TI, Alam SF, Rafi MA et al. (2021) Immediate psychological responses during the initial period of covid-19 pandemic among Bangladeshi medical students. *Child Youth Serv Rev*, 122:105912.

Savitsky B, Findling Y, Erel A, Hendel T (2020) Anxiety and coping strategies among nursing students during the covid-19 pandemic. *Nurse Educ Pract*, 46:102809.

Sever M, Özdemir S (2020) Koronavirüs (Covid-19) sürecinde öğrenci olma deneyimi: bir fotoses (photovoice) çalışması. *Toplum ve Sosyal Hizmet*, 31:1653-1679.

Wang X, Hegde S, Son C, Keller B, Smith A, Sasangohar F (2020) Investigating mental health of us college students during the covid-19 pandemic: cross-sectional survey study. *J Med Internet Res*, 22:e22817.

Xiao H, Shu W, Li M, Li Z, Tao F, Wu X et al. (2020) Social distancing among medical students during the 2019 coronavirus disease pandemic in China: disease awareness, anxiety disorder, depression, and behavioral activities. *Int J Environ Res Public Health*, 17:5047.

Yayan G (2020) Bir salgın hastalık olarak covid-19'un Gazi Üniversitesi Gazi Eğitim Fakültesi Güzel Sanatlar Bölümü resim ana sanat dalındaki öğrencilerin resimlerine yansımaları. *Electronic Turkish Studies*, 15:1297-1313.

Zhang Y, Zhang H, Ma X, Di Q (2020) Mental health problems during the covid-19 pandemics and the mitigation effects of exercise: a longitudinal study of college students in China. *Int J Environ Res Public Health*, 17:3722.