



RESEARCH / ARAŞTIRMA

Investigation of the depressive effect of the pandemic on medical students using the Beck Depression Scale

Pandeminin tıp öğrencileri üzerindeki depresif etkisinin Beck Depresyon Ölçeği ile incelenmesi

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Abstract

Purpose: The pandemic has posed significant challenges globally, affecting healthcare systems, economies, and mental health, particularly among healthcare workers. This research focuses on understanding the impact of the COVID-19 pandemic on medical students in the last three years of their training.

Materials and Methods: The study involved 226 medical students. To measure depression, the Beck Depression Scale was utilized. Additional data was collected on demographics, sleep patterns, and educational aspects.

Results: The study group was evenly split by gender, with 113 males and 113 females. Students were distributed across 4th, 5th, and 6th grades almost equally. A notable portion (31.9%) had been infected with COVID-19. Living situations varied, with many living with family, in dormitories, or in student housing. A significant majority (81.8%) felt practical training should continue during the pandemic. Changes in sleep patterns were reported by over half of the participants, and the average Beck Depression Scale score was 14.96. Fourth-grade students exhibited higher levels of depression compared to those in the 5th and 6th grades. Interestingly, contracting COVID-19 did not significantly alter depression levels.

Conclusion: The demands of medical education have been intensified by the pandemic, leading to increased depressive symptoms and altered sleep patterns among medical students. The findings underscore the need for supportive measures to mitigate these challenges during such critical times.

Keywords: Covid-19, Beck depression scale, medical education

Öz

Amaç: Pandemi, küresel olarak önemli zorluklar yaratmış, sağlık sistemlerini, ekonomileri ve özellikle sağlık çalışanları arasında ruhsal sağlığı etkilemiştir. Bu araştırma, COVID-19 pandemisinin tıp öğrencileri üzerindeki etkisini, özellikle eğitimlerinin son üç yılındaki etkisini anlamaya odaklanmaktadır.

Gereç ve Yöntem: Çalışmada 226 tıp öğrencisi yer almıştır. Depresyon ölçmek için Beck Depresyon Ölçeği kullanılmıştır. Demografik bilgiler, uyku düzenleri ve eğitimle ilgili ek veriler toplanmıştır.

Bulgular: Çalışma grubu cinsiyet açısından eşit olarak bölünmüştür; 113 erkek ve 113 kadın. Öğrenciler 4., 5. ve 6. sınıflarda neredeyse eşit olarak dağılmıştır. Önemli bir kısım (%31,9) COVID-19 ile enfekte olmuştur. Yaşam durumları değişkenlik göstermiş, birçok öğrenci aileleriyle, yurtlarda veya öğrenci evlerinde kalmıştır. Önemli bir çoğunluk (%81,8) pandemi sırasında pratik eğitimin devam etmesi gerektiğini düşünmüştür. Katılımcıların yarısından fazlası uyku düzenlerinde değişiklik bildirmiştir ve ortalama Beck Depresyon Ölçeği puanı 14,96'dır. Dördüncü sınıf öğrencileri, 5. ve 6. sınıf öğrencilerine göre daha yüksek depresyon seviyeleri sergilemiştir. İlginç bir şekilde, COVID-19'a yakalanmak depresyon seviyelerini önemli ölçüde değiştirmemiştir.

Sonuç: Pandemi, tıp eğitiminin taleplerini artırmış, tıp öğrencileri arasında depresif belirtilerin artmasına ve uyku düzenlerinin değişmesine yol açmıştır. Bulgular, bu tür kritik dönemlerde bu zorlukları hafifletmek için destekleyici önlemlerin gerekliliğini vurgulamaktadır.

Anahtar kelimeler: Covid-19, Beck Depresyon Ölçeği, tıp eğitimi

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INTRODUCTION

COVID-19, which emerged in 2020 and continued until 2022, has become a significant public health problem worldwide, resulting in the avoidance of crowded environments, disrupted face-to-face communication, increased stress levels, and anxiety¹. The uncertainty surrounding the pandemic has led to difficulties in making future plans, increased anxiety and stress levels due to the unknown, and an overall struggle with various emotions, such as trust, fear, happiness, and unhappiness².

Medical students, particularly those in the 4th, 5th, and 6th grades, are closely connected to society, especially patients, due to their internships and clinical rotations. They work in clinics and come into contact with patients with unknown diseases, increasing the risk of exposure to the virus and causing depression and anxiety³. Previous studies conducted before the pandemic have consistently reported a higher prevalence of depression among medical students compared to the general population⁴.

In this study, we aimed to examine the psychological states of 4th, 5th, and 6th-grade medical students from Gaziantep University Faculty of Medicine during the peak period of the pandemic from 2021 to 2022.

MATERIALS AND METHODS

Ethical approval for this study was obtained from the Gaziantep University Local Ethics Committee on July 14, 2021, with the reference number 2021/181.

Participants

This study included 4th, 5th, and 6th-grade medical students from Gaziantep University Faculty of Medicine between 2021 and 2022.

Data collection

After obtaining informed consent, a questionnaire was administered by face-to-face interview. The Beck Depression Scale was used to assess the level of depression, along with questions about age, gender, COVID-19 disease history, place of residence, the effectiveness of practical education during the pandemic, sleep duration, and changes in sleep duration compared to before the pandemic. Personal information of the students was also collected.

The Beck Depression Scale is a clinical and research tool used to evaluate the severity of depressive symptoms in both patients and healthy individuals. Developed by Dr. Aaron T. Beck, it consists of 21 multiple-choice questions to measure the level of depression. Scores ranging from 0 to 9 are considered minimal depression, 10 to 16 as mild depression, 17 to 29 as moderate depression, and 30 to 63 as severe depression. According to the Beck Depression Scale, minimal and mild depression are considered within the normal range.

Statistical analysis

The data were analyzed using statistical methods with the SPSS 22.0 software package. Descriptive statistics were presented as percentages. The chi-square test was used for categorical variables. A p -value of ≤ 0.05 was considered statistically significant. (8)

RESULTS

A total of 816 students (244 in the 4th grade, 273 in the 5th grade, and 299 in the 6th grade) were enrolled in the Faculty of Medicine. The study included 226 medical students, with 75 (33.2%) from the 4th grade, 75 (33.2%) from the 5th grade, and 76 (33.6%) from the 6th grade. Out of the 226 participants, 113 (50%) were female and 113 (50%) were male. During the pandemic, 94 (41.6%) participants lived with their families, 25 (11.1%) in dormitories, and 107 (47.3%) in student houses.

Among the participants, 72 (31.9%) had a history of COVID-19 disease, with 34 (47.2%) being female and 38 (52.8%) being male. There was no significant relationship between gender and COVID-19 disease ($p=0.568$) (Table 1). Among the patients, 45 (62.5%) had cough, 37 (51.4%) had fever, 50 (69.4%) had muscle pain, and 16 (22.2%) had diarrhea.

Regarding the distribution of COVID-19 cases by grade level, 15 (20.8%) were in the 4th grade, 20 (27.8%) were in the 5th grade, and 37 (57.4%) were in the 6th grade. A significant increase in the rate of COVID-19 cases was observed as the grade level increased ($p=0.001^*$).

Approximately 81.8% of the participants stated that continuing practical training during the pandemic was the right decision. Regarding sleep patterns during the pandemic, 54.4% ($n=123$) reported changes in their sleep duration compared to the pre-pandemic

period, with 81 participants reporting an increase and 42 reporting a decrease. The mean sleep duration of the participants was 7.59 (± 1.62) hours (Table 2). The mean score obtained from the Beck Depression Scale was calculated as 14.96 (± 9.91) points. According to the analysis, 74 (32.7%) participants had minimal depression, 70 (31%) had mild depression, 65 (28.8%) had moderate depression, and 17 (7.5%) had

severe depression. There was no significant relationship between gender and depression ($p=0.347$). When comparing the Beck Depression Scale scores among grade levels, it was found that 4th-grade students had significantly higher levels of depression compared to 5th and 6th-grade students ($p=0.035^*$).

Table 1. Demographic properties

Variables		n	%
Gender	Female	113	50.0
	Male	113	50.0
Class	4 th grade	75	33.2
	5 th grade	75	33.2
	6 th grade	76	33.6
Covid-19 disease status	Yes	72	31.9
	No	154	68.1
Place of residence during the pandemic	Homestay	94	41.6
	Student dormitory	25	11.1
	Student house	107	47.3

Table 2. Responses to practical training and sleep time during the pandemic process

Responses		n	%
How would you evaluate the continuation of practical education during the pandemic process?	Right decision	185	81.8
	Wrong decision	41	18.2
Change of sleep time during the pandemic process	Changed	123	54.4
	Hasn't changed	103	45.6

Table 3. Distribution of depression severity by demographic characteristics

Variable		Depression Levels				P
		Minimal Depression	Mild Depression	Moderate Depression	Severe Depression	
		n(%)	n(%)	n(%)	n(%)	
Gender	Female	31 (41.9)	39 (55.7)	35 (53.8)	8 (47.1)	0.347
	Male	43 (58.1)	31 (44.3)	30 (46.2)	9 (52.9)	
Class	4 th grade	26 (35.1)	18 (25.7)	19 (29.2)	12 (70.6)	0.035*
	5 th grade	22 (29.7)	26 (37.1)	24 (36.9)	3 (17.6)	
	6 th grade	26 (35.1)	26 (37.1)	22 (33.8)	2 (11.8)	
Covid-19 disease status	Yes	23 (31.1)	26 (37.1)	21 (32.3)	2 (11.8)	0.252
	No	51 (68.9)	44 (62.9)	44 (67.7)	15 (88.2)	
Place of residence during the pandemic	Homestay	33 (44.6)	29 (41.4)	22 (33.8)	10 (58.8)	0.147
	Student dormitory	9 (12.2)	3 (4.3)	11 (16.9)	2 (11.8)	
	Student house	32 (43.2)	38 (54.3)	32 (49.2)	5 (29.4)	
How would you evaluate the continuation of practical education during the pandemic process?	Right Decision	65 (87.8)	58 (82.9)	54 (83.1)	8 (47.1)	0.001*
	Wrong Decision	9 (12.2)	12 (17.1)	11 (16.9)	9 (52.9)	
Change of sleep time during the pandemic process	Changed	22 (29.7)	39 (55.7)	48 (73.8)	14 (82.4)	0.001*
	Hasn't Changed	52 (70.3)	31 (44.3)	17 (26.2)	3 (17.6)	

*Significant at $p < 0.05$, Chi-square test (Percentages are column percentages)

According to the Beck Depression Scale, no significant difference in depression was observed among those who had COVID-19 disease ($p=0.252$). No significant relationship was found between place of residence and Beck Depression Scale results ($p=0.147$). Severe depression was associated with those who believed that continuing practical education during the pandemic was the wrong decision, as indicated by the Beck Depression Scale scores ($p=0.001$).

In the analysis of the data obtained from the study, a significant increase in the rate of reported changes in sleep duration was found to be associated with higher levels of depression ($p=0.001$). However, no significant correlation was found between mean sleep duration and the Beck Depression Scale scores ($p=0.580$) (Table 3).

DISCUSSION

In this study, we investigated depressive symptoms among 4th, 5th, and 6th-grade medical students during the pandemic period. Our findings revealed that students in the 4th grade exhibited higher levels of depressive symptoms. Additionally, the number of participants who expressed disagreement with continuing practical training increased as depressive symptoms worsened. Furthermore, there was a significant correlation between the level of depression and changes in sleep duration. A study conducted on Medical Faculty students in Greece reported a 74.3% increase in depression during the pandemic process⁵. Similarly, our study focused on final-year students engaged in clinical practice and attending hospitals during the pandemic, and we found significantly higher levels of depression among 4th-year students.

Numerous studies conducted prior to the pandemic have consistently reported a higher prevalence of depression in women compared to men^{6,7}. Among studies conducted with medical school students, some found a higher prevalence of depression among female students⁸, while others found no significant difference between genders⁹. In our study, we did not observe a significant difference between genders during the pandemic process ($p=0.347$).

Our study revealed a significantly higher prevalence of severe depression among 4th-grade students compared to 5th and 6th-grade students. This may be attributed to the stress of starting clinical education and the heavier course load in the 4th grade

compared to other years. However, some studies conducted outside the pandemic context have found no significant difference in depression levels between different grades¹⁰, while others have reported an increase in depression as the education year progresses¹¹.

When comparing the incidence of Covid-19 among students, we found that 6th-grade students were more likely to contract the disease compared to 5th-grade students, and 5th-grade students were more likely to contract the disease compared to 4th graders. This can be explained by the fact that students in advanced classes have more exposure to patients.

There was no significant difference between having Covid-19 disease and the scores obtained from the Beck Depression Scale. This could be attributed to the fact that the participants in our study were in a younger age group and experienced milder illness, resulting in lower levels of stress.

Based on the assumption that individuals with weaker social ties during the pandemic are more susceptible to depression, it was hypothesized that those who remained with their families would be more resilient to depression. A study by Jadoon et al.¹² obtained similar results. However, in a study by Nadia Azad et al.¹³, no significant relationship was found between place of residence and depression, which is consistent with our findings.

In our study, it was observed that the number of participants who disagreed with continuing practical training during the pandemic period significantly increased as the level of depression increased. In other words, individuals with depressive symptoms expressed dissatisfaction with face-to-face education. This finding suggests that face-to-face education during the pandemic period contributes to feelings of depression. Some studies have reported that theory of mind skills are negatively affected during depression¹⁴, indicating that the current situation may be perceived more negatively than an objective evaluation.

Furthermore, as the level of depressive symptoms increased, the number of participants experiencing changes in sleep duration also significantly increased. Several studies have shown that medical students experience sleep problems at a high rate¹⁵. The difference in sleep durations before and during the pandemic highlights the impact of depression on sleep duration.

A study conducted with medical school students in Bahrain prior to the pandemic reported a Beck Depression Scale score of 13.4 (\pm 9.6)¹⁶, while another study in Brazil found a score of 7.0 (\pm 6.9)¹⁷. In our study during the pandemic period, the Beck Depression Scale score was higher than these studies (14.96 \pm 9.91). We believe that this may be due to the mandatory restrictions imposed during the pandemic. The World Health Organization also emphasizes that the epidemic causes significant losses in terms of life and the economy, while significantly impacting people's psychosocial well-being¹⁸.

Medical education heavily relies on the master-apprentice relationship, especially in the last three years. Our study results indicated that the disruptions caused by the negative conditions brought about by the pandemic interrupted the traditional understanding of face-to-face education, leading to increased pressure on individuals. While some medical students evaluated online education negatively, others evaluated it positively due to its ability to minimize risk factors. Our study demonstrates that education was negatively affected during this period, reflected in the high Beck Depression Scale scores.

In conclusion, this study represents one of the few studies conducted on medical faculty students during the pandemic period. Therefore, it is crucial to increase the number of studies on this subject to obtain more comprehensive and detailed information.

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