

# Examination of Medical Faculty Students' Concerns about Their Profession During the Pandemic

## Tıp Fakültesi Öğrencilerinin Pandemi Döneminde Meslekleri ile İlgili Kaygılarının İncelenmesi

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### Abstract

**Aim:** The Covid-19 pandemic has affected healthcare system deeply. The healthcare workers served at high risk. In this period, medical students continued their education remotely. This study was aimed to evaluate the concerns of the medical students about their own health as well as their profession and thoughts about their decision to start medical school.

**Methods:** This study was conducted in Ankara Yıldırım Beyazıt University, Faculty of Medicine between 10-17 May 2020. The online questionnaire including demographic information, occupational anxiety, health anxiety, health cognition level were sent to 2281 students. The data were obtained using a convenience sampling. The distribution of the data is presented using median (minimum-maximum).

Double-series correlation coefficient, chi-square test and polychoric correlation coefficient were used to evaluate the relationship between responses to the questionnaire.

**Results:** A total of 885 students completed the questionnaire. The mean age was 21.47 ( $\pm 2.62$ ); 545 (61.9%) of them were female. A number of 809 (91.8%) students stated that they chose medical school willingly while 72 (8.2%) students unwillingly. Those who unwillingly chose medicine had a high desire to change their profession. The distance education was sufficient for 168 (19.2%) students; partially sufficient for 435 students. As the semester increased, their professional anxiety, awareness of the advantages and disadvantages of their professions, trust to the health system, ability of reviewing different professional resources increased. Female students were more concerned about their professional and general health than male students.

**Conclusions:** Although the pandemic had effects on medical students' profession choice and anxiety levels, in general, these effects was not higher. The professional anxiety, awareness of the profession, trust to the health system, ability of reviewing different professional resources were related to semester year.

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Distance education systems should be improved. Psychological support can be provided for the students. Moreover the results should be evaluated regarding the time of study and expectations the end of pandemic in a short time that may be the reason more optimistic answers.

## **Özet**

**Giriş:** Sağlık sistemi Covid-19 pandemisi sürecinde derinden etkilenmiştir. Sağlık çalışanları yüksek risk altında hizmet vermektedir. Bu dönemde tıp öğrencileri uzaktan eğitimlerine devam etmektedirler. Bu çalışmada, tıp fakültesi öğrencilerinin kendi sağlıklarının yanı sıra meslekleri hakkındaki kaygıları ve tıp fakültesine başlama kararları ile ilgili düşüncelerinin incelenmesi amaçlanmıştır.

**Yöntem:** Bu çalışma 10-17 Mayıs 2020 tarihleri arasında Ankara Yıldırım Beyazıt Üniversitesi Tıp Fakültesi'nde yapılmıştır. Demografik bilgiler, mesleki kaygı, sağlık kaygısı ve sağlık biliş düzeyi hakkında soruları içeren çevrimiçi anket 2281 öğrenciye gönderilmiştir. Veriler elverişli örneklem yöntemi ile elde edilmiştir. Verilerin dağılımı medyan (minimum-maksimum) kullanılarak sunulmuştur. Ankete verilen yanıtlar arasındaki ilişkiyi değerlendirmek için çift serili korelasyon katsayısı, ki-kare testi ve polikorik korelasyon katsayısı kullanıldı.

**Bulgular:** Anketi toplam 885 öğrenci tamamlamıştır. Ortalama yaş 21.47 ( $\pm$  2.62) olarak bulunmuştur. Çalışmaya katılanların 545'i (%61,9) kadındı. 809 öğrenci (%91,8) tıp fakültesini kendi isteğiyle, 72'si (%8,2) ise istemeyerek seçtiğini belirtmiştir. Tıp fakültesini istemeyerek seçenlerin meslek değişikliği yapma isteği yüksek bulunmuştur. Uzaktan eğitim 168 (%19,2) öğrenciye göre yeterli bulunurken 435 öğrenci için kısmen yeterli olarak değerlendirilmiştir. Öğrencilerin okumakta olduğu yarıyıl artıktıkça mesleki kaygıları, mesleklerinin avantaj ve dezavantajlarına ilişkin farkındalıkları, sağlık sistemine güvenleri, farklı mesleki kaynakları gözden geçirme yetenekleri artmıştır. Kız öğrencilerin, erkek öğrencilere göre mesleki ve genel sağlıkları ile daha fazla endişe duyduğu bulunmuştur.

**Sonuç:** Pandeminin tıp öğrencilerinin meslek seçimi ve kaygı düzeyleri üzerinde etkisi olmasına rağmen, genel olarak bu etkiler çok yüksek bulunmamıştır. Mesleki kaygı, mesleğe ilişkin farkındalık, sağlık sistemine güven, farklı mesleki kaynakları gözden geçirme becerisi okumakta oldukları yarıyıl ile ilişkiliydi. Uzaktan eğitim ile ilgili iyileştirilmeler yapılmamıştır. Pandemi sürecinde öğrencilere psikolojik destek sağlanması faydalı olabilir. Ayrıca sonuçlar, araştırmanın yapıldığı zaman ve pandeminin kısa sürede sona ereceği beklentisi nedeniyle iyimser olarak cevaplandırılmış olabileceği göz önüne alınarak değerlendirilmelidir.

## **INTRODUCTION**

Pandemic is an outbreak that spread over a very wide area such as a continent or even the entire world (1). The major transmission route of COVID-19 is person-to-person contact through respiratory droplets generated by breathing, sneezing, coughing. This disease can spread between the people by direct, indirect (through contaminated surfaces and objects), or close contact with infected subjects via saliva, respiratory secretions, or droplets (1). Currently, in the face of this unusual threat, countries took a number of measures to protect their citizens. In particular, doctors, nurses, caregivers and laboratory technicians in the healthcare system served at high risk and with a

very intense working tempo, away from their families and loved ones. Despite all the precautions, there were many healthcare workers who have been infected or died due to the virus (2). While all this was happening, medical faculty students continued their education remotely and follow the health system, physicians and events from their homes. Anxiety is a response towards the future, to a stimulus that is threatening the individual, that emerges with the thought that something bad is going to happen. Thus, not knowing what will happen in the future is one of the main causes of anxiety for people (3–5). Although anxiety motivates the individual to make efforts and

cope to a certain level, it negatively affects the quality of life after a certain stage (3). Therefore, it is aimed to determine and minimize the factors that cause anxiety. Although the choice of profession, which is one of the life tasks that an individual should do, is partially completed with university education, the career journey continues throughout life due to its dynamic nature (6). The medical profession, which starts in the Faculty of Medicine, includes quite different professional processes and stages. It is known that students, who have gone through and will go through many difficult stages in the medical education process, are concerned about issues such as transitioning from high school to medical school, transitioning from pre-clinical to clinical education, transitioning from clinical education to professional life, uncertainty about their professional careers, intense workload, and relations with patients and hospital staff (7,8). It is clear that the pandemic process, which increases uncertainty about the future, adds new concerns to existing occupational concerns.

The pandemic may worry students not only about their profession but also about their own health. Health anxiety is defined as a condition involving anxiety about health, which occurs when somatic sensation or changes are interpreted as a symptom of a disease (9). Health anxiety that can be experienced at different levels can be permanent and severe, but it is usually temporary. When the stimuli that cause anxiety disappear, anxiety decreases spontaneously or can be overcome with support. Intellectual concepts related to health are shaped by information obtained from various beliefs and assumptions about health and illnesses from past experiences and are among the mechanisms that create health anxiety. The representation of the individual's experiences about health, emotions, and dysfunctional beliefs is defined by the concept of health cognition (10,11). The cognition of medical faculty students about their own health can be

considered as an important variable that predicts their health concerns and can shape their perceptions of both their profession and their own health during the pandemic. Individuals make decisions about many things throughout their life and these decisions may be related to organizing daily activities or may be decisions that affect the whole life of the individual. While one may be pleased when making a decision, the sadness and disappointment that feels like "I wish I had not made this choice" after the decision may cause regret with the thought that it could have been different (12). Choosing a profession is one of the important decisions that affect life (6). After the professional decision is made, if the demands and expectations of the profession are not met for certain reasons will bring professional regret. The decision of the students who choose to attend medical school and to become a doctor may be affected by the changing individual, family, and social conditions. It is obvious that the change of thoughts, regrets or satisfaction of the medical school students who choose the profession of medicine, which is one of the important witnesses of and actors to prevent the pandemic, and who have a high risk of getting the virus, can affect their career journeys. Understanding the changing perceptions, concerns, and thoughts of medical students regarding their profession during the pandemic period will shed light on educational policies that will support their professional development. Additionally, no study was found investigating how future physicians who receive medical training during the COVID-19 process are affected by it. In this context, the purpose of this study is to examine the anxiety of medical students about their profession and own health, their health cognition shaping this anxiety, and their thoughts on the satisfaction and regret they feel about the decision they made about being a doctor.

## METHODS

This study was conducted in Ankara Yildirim Beyazit University, Faculty of Medicine. The prepared questionnaire was sent to 2281 Medical Faculty students as an online questionnaire link, and the students were informed about the questionnaire via e-mail and social networks. The study was conducted between 10-17 May 2020 and 885 students completed the questionnaire with a 38.7% response rate.

The first 10 questions of the survey are related to general information. The first 17 of 37 questions in the questionnaire are designed to measure occupational anxiety (11-27), 4 to measure health anxiety (28-31), 11 to measure health cognition level (32-42), and 5 to measure regret (43-47). An ethics committee approval for the study was obtained from Ankara Yildirim Beyazit University Ethics Committee (Number: 84892257-604.01.02 [604.01.02]-E.14807). The data were obtained using a convenience sampling which is an improbable sampling method. Therefore, in this descriptive study, the distribution of the data is presented as numbers and percentages and using the median (minimum-maximum). In evaluating the relationship between the responses from the questionnaire, the relationship between a dichotomous and an ordered categorical variable was examined with a double-series correlation coefficient, the relationship between two dichotomous categorical variables with chi-square test statistics, and the relationship between two-order categorical variables with the polychoric correlation coefficient. Type-I error rate was taken as 0.05 to evaluate the statistical hypotheses established to test the analyses. Correlation coefficients were calculated using the "CorrToolBox" library in the R software (13).

## RESULTS

The mean age of the 885 students participating in the study is 21.47 ( $\pm 2.62$ ). 545 (61.9%) of them are female students; 336 (38.1%) of them

are male students. Demographics of the students are shown in Table 1.

The answers provided by the students to the questionnaire, which includes their opinions about their occupational anxieties, concerns about their health, health cognition and professional regrets, are shown in *Table 2*.

The answer provided by the students to the items 'If I were a physician working during the pandemic, I think I would not be able to spare time for my loved ones and meet my social needs due to my heavy workload' was 'I agree' (median 4). Likewise, the answer of the students to the item 'If I were a physician working during the pandemic, it would have worried me if my risk of transmission was high' was 'I agree' (median 4). Students reported that they agreed with the statement of 'when I imagine working in a hospital during the pandemic, I see myself as a physician doing my best' (median 4). Supporting this statement, the students reported that they disagreed with the statement 'If I were a physician working during the pandemic, I would not prefer to work in a pandemic clinic even though I knew that I would receive more than my salary (median 2 (1-5)). They stated that they did not agree with statements such as that they would be unwilling to care for the patient who was infected with the virus, that they would be insufficient, or that they would be afraid to intervene alone (median 2 (1-5)). Students were asked about the decisions they could make about their professions during the pandemic reported that they 'strongly disagree with the statements' of 'I thought of leaving medical school after the pandemic', 'After the pandemic, I started doing research to quit medical school and switch to another profession.' (1 (1-5)). Similarly, they reported that they disagreed with the statement of 'I started to think of a branch where I would be in less contact with patients after the pandemic' (median 2 (1-5)).

While students agreed with the statements of 'I was worried about my health during the

pandemic', 'I thought frequently about what I would do if I got the virus during the pandemic' that addressed the anxiety related to their own health, they reported that they were very concerned about the health of their loved ones (1 (1-5)). Students stated that they 'agree' with statements related to health cognition that they are ready to cope with the disease if they are infected with the virus during the pandemic, that they are ready to support them if their relatives are infected, and that they trust the health

services in the country (median 4 (1-5)). When asked if they regretted the choice of professions, they strongly disagreed with the statement 'I regretted that I chose medicine after the pandemic' (median 1 (1-5)). They reported to agree with the opposite statement of 'even after the epidemic, I say that I am glad that I chose medicine', 'If I had the chance to choose a profession again, I would choose it again.' (median 4 (1-5)).

**Table 1.** Demographics of The Students Participating in The Study

	<b>n</b>	<b>%</b>
<b>Faculty</b>		
School of Medicine in English	326	36.8
Faculty of Medicine in Turkish	559	63.2
<b>Gender</b>		
Female	545	61.9
Male	336	38.1
<b>Semester</b>		
1	207	23.5
2	207	23.5
3	164	18.6
4	130	14.7
5	138	15.6
6	36	4.1
<b>Are you an international student?</b>		
Yes	126	14.3
No	757	85.7
<b>Do you have any chronic diseases?</b>		
Yes	59	6.7
No	822	93.3
<b>Do you have any psychiatric illnesses?</b>		
Yes	50	5.7
No	833	94.3
<b>Do your immediate relatives have any chronic illnesses?</b>		
Yes	433	49.0
No	450	51.0
<b>Did you voluntarily choose the medical school?</b>		
Yes	809	91.8
No	72	8.2

	n	%
<b>In the process of combating the COVID-19 pandemic, do you find the distance education carried out in the medical school efficient?</b>		
Yes	168	19.2
Partially	435	49.8
No	271	31.0

**Table 2.** Descriptive Statistics of Responses to Survey Questions

	Median (min-max)
<b>Occupational Anxiety</b>	
Q11.If I were a physician working during the pandemic, I would think that I could not spare time for my loved ones due to my intense workload.	4 (1-5)
Q12.If I were a physician working during the pandemic, I would think that I would not be able to meet my social needs due to my heavy workload.	4 (1-5)
Q13.I think the interruption of my education due to the pandemic will be reflected in my professional life.	3 (1-5)
Q14.If I were a physician working during the pandemic, I could not cope with the infected patient alone.	2 (1-5)
Q15.If I were a physician working during the pandemic, I would not want to work alone with the infected patient due to the risk of transmission.	2 (1-5)
Q16.If I were a physician working during the pandemic, I would be afraid to misdiagnose the patient who is at risk of virus transmission.	4 (1-5)
Q17.If I were a physician working during the pandemic, I would think that I would be incompetent in terms of clinical skills in the intervention to the infected patient.	2 (1-5)
Q18.I wouldn't want to be a physician working in primary care during the pandemic.	2 (1-5)
Q19.If I were a physician working during the pandemic, it would worry me that my risk of transmission was high.	4 (1-5)
Q20.If I were a physician working during the pandemic, I would not prefer to work in the pandemic clinic, even though I knew that I would receive more than my normal salary.	2 (1-5)
Q21.If I am invited to work in the hospital as a medical student during the pandemic, I will gladly work.	4 (1-5)
Q22.If I was invited to work in the hospital as a medical student during the pandemic, I would hesitate to go to the hospital due to the risk of contamination.	3 (1-5)
Q23.I thought of dropping out of medical school after the pandemic.	1 (1-5)
Q24.After the pandemic, I started doing research to quit the medical school and switch to another profession.	1 (1-5)
Q25.After the pandemic, my opinion about my preference of specialty in medicine has changed.	2 (1-5)
Q26.After the pandemic, I started to consider a branch where I would be in less contact with patients.	2 (1-5)
Q27.When I imagine working at the hospital during the pandemic, I see myself as a physician doing my best.	5 (1 - 5)
<b>Anxiety about own health</b>	
Q28. During the pandemic, I was concerned about my health.	4 (1-5)
Q29.During the pandemic, I was concerned about my loved ones.	5 (1 - 5)
Q30.I often thought about what I would experience if I was infected with the virus during the pandemic.	4 (1-5)
Q31.During the pandemic, I was concerned about choosing medicine.	2 (1-5)
<b>Health Cognition</b>	
Q32.I think I am ready to deal with the disease if I get the virus during the pandemic.	4 (1-5)
Q33.If a relative is infected with the virus during the pandemic, I think I am ready to support them.	4 (1-5)
Q34.I trust the healthcare system in our country in combating epidemics.	4 (1-5)
Q35.As a doctor candidate, I believe I am more likely to get the disease during the pandemic than most people.	4 (1-5)
Q36.As a physician, I will do my best for my patients during the pandemic.	5 (1- 5)
Q37. I think working as a physician during the pandemic will be an opportunity for my professional development.	4 (1-5)
Q38.If I knew that the workload of physicians increased this much in the event of a pandemic, I would not have chosen medical school.	1 (1-5)
Q39. If I were a physician working during the pandemic, I would both work as a doctor and plan and conduct research to prevent the pandemic.	4 (1-5)
Q40.Although I am a medical school student, I do not follow research on the pandemic.	2 (1-5)
Q41.I enjoy following current studies in my spare time.	4 (1-5)

	<b>Median (min-max)</b>
Q42.I examine different resources to develop professionally during the pandemic.	3 (1-5)
Professional Regret	
Q43.Even after the pandemic, I can say I'm glad I chose medicine.	4 (1-5)
Q44.I regretted choosing medicine after the pandemic.	1 (1-5)
Q45.If I had the chance to choose a profession again, I would choose medicine again.	4 (1-5)
Q46.Before the pandemic, I regretted that I chose medicine.	2 (1-5)
Q47. I still think that choosing medicine is the best decision for me.	4 (1-5)

1: Strongly disagree; 2: Disagree; 3: Undecided; 4: Agree; 5: Strongly agree

The relationship between the responses of the students who chose medical school willingly and those who did not, are given in Table 3.

**Table 3.** The Double-Serial Correlation Coefficients And Significance Levels Between The Question of "Did You Voluntarily Choose The Medical School?" And The Questions That Show A Statistically Significant Relationship

<b>The items that students who chose <u>medical school willingly</u> tend to "agree"</b>	<b>Double-series correlation coefficient (p)</b>
Q27- When I imagine working at a hospital during the pandemic, I see myself as a physician doing my best.	-0.119 (<0.001)
Q30- I frequently thought about what I would experience if I were infected with the virus during the pandemic.	-0.090 (0.008)
Q33- If a relative is infected with the virus during the pandemic, I think I am ready to support them.	-0.073 (0.034)
Q34- I trust the healthcare system in our country in combating epidemics.	-0.117 (0.001)
Q36- As a physician, I will do my best for my patients during the pandemic.	-0.138 (<0.001)
Q37- I think working as a physician during the pandemic will be an opportunity for my professional development.	-0.085 (0.013)
Q39- If I were a physician working during the pandemic, I would both work as a doctor and plan and conduct research to prevent the pandemic.	-0.107 (0.002)
Q41- I enjoy following current studies in my spare time.	-0.095 (0.006)
Q42- I review different resources to develop professionally during the pandemic.	-0.088 (0.011)
Q43- Even after the pandemic, I can say I'm glad I chose medicine.	-0.260 (<0.001)
Q47- I still think that choosing medicine is the best decision for me.	-0.269 (<0.001)
<b>The items that students who chose <u>medical school unwillingly</u> tend to "agree"</b>	
Q23- I thought of dropping out of medical school after the pandemic.	0.124 (<0.001)
Q24- I started doing research to quit the medical school after the pandemic and switch to another profession.	0.139 (<0.001)
Q26- After the pandemic, I started to consider a branch where I would be in less contact with patients.	0.079 (0.021)
Q31- During the pandemic, I was concerned about choosing medicine.	0.069 (0.041)
Q38- If I knew that the workload of physicians increased this much in the event of a pandemic, I would not have preferred medical school.	0.134 (<0.001)
Q44- I regretted choosing medicine after the pandemic.	0.217 (<0.001)
Q46- Before the pandemic, I regretted that I chose medicine.	0.314 (<0.001)

\*(Likert items are associated with the coding I chose the faculty willingly = 1, I did not choose it willingly = 2))

Students who willingly chose medical school had a higher tendency to agree with the statements of Q27, Q36, Q37, Q39, Q41, Q42, Q43, Q47. It was seen that the students who willingly chose medical school had high tendencies to agree with the statements Q30, Q33 and Q34. Students who did not choose medical school willingly tended to agree with items suggesting

that their occupational anxiety increased during this period that are Q23, Q24, Q26, Q31, Q38. Additionally, they stated their professional regrets by showing tendency to agree with the statements Q44, Q46.

The relationship between the responses of students in different semesters to the questionnaire items is given in Table 4.

**Table 4.** Polychoric Correlation Coefficients And Significance Levels Between Questions That Show A Statistically Significant Relationship With The Semester

	<b>Polychoric correlation coefficient (p)</b>
Q12.If I were a physician working during the pandemic, I would think that I would not be able to meet my social needs due to my heavy workload.	0.095 (0.005)
Q13.I think the interruption of my education due to the pandemic will be reflected in my professional life.	0.307 (<0.001)
Q14.If I were a physician working during the pandemic, I could not cope with the infected patient alone.	0.144 (<0.001)
Q16.If I were a physician working during the pandemic, I would be afraid to misdiagnose the patient who is at risk of virus transmission.	-0.078 (0.022)
Q17.If I were a physician working during the pandemic, I would think that I would be incompetent in terms of clinical skills in the intervention to the infected patient.	0.187 (<0.001)
Q18.I wouldn't want to be a physician working in primary care during the pandemic.	0.141 (<0.001)
Q22.If I were invited to work in the hospital as a medical student during the pandemic, I would hesitate to go to the hospital because of the risk of infection.	0.078 (0.020)
Q30.I thought frequently about what I would experience if I caught the virus during the pandemic.	-0.118 (<0.001)
Q34.I trust the healthcare system in our country in the fight against epidemics	0.111 (0.001)
Q35.As a doctor candidate, I believe that the likelihood of getting the disease during a pandemic is far more than most people.	0.185 (<0.001)
Q39. If I were a physician working during the pandemic, I would both practice and plan and conduct research to prevent the pandemic.	-0.082 (0.020)
Q42.I review different sources during the pandemic for professional development.	0.096 (0.005)



As the students' time in medical school increased, it is seen that their tendency to agree with the statements Q12, Q14, Q.17, Q18, Q22, Q35 also increased. As the number of semesters increased, the students agreed more with the idea that they had more confidence in the health system and reviewed different resources in order to develop professionally. As the semester number increased, students reported that they were more concerned about the disruption of their education due to the pandemic.

The relationship between the gender of the students and their answers to the questionnaire

items is given in Table 5.

Female students had higher tendency to agree with the statements related to occupational and health anxiety, especially Q14, Q16, Q17, Q19, S20, Q22, Q28, Q29, Q30. At the same time, it is observed that female students expressed more regret about choosing the profession compared to male students as they agreed more with the statements Q23, Q25, Q26, Q31, Q38.

It was seen that male students agreed more with the items that do not express anxiety about profession, health anxiety and health cognition (Q21, Q32, Q41, Q42).

**Table 5.** Polychoric Correlation Coefficients And Significance Levels Between Questions That Show A Statistically Significant Relationship With Gender

<b>Items that female students tend to "agree"</b>	<b>Double-series correlation coefficient (p)</b>
Q14- If I were a physician working during the pandemic, I could not cope with the infected patient alone.	0.126 (<0.001)
If I were a physician working during the pandemic, I would be afraid to misdiagnose the patient who is at risk of carrying the virus.	0.160 (<0.001)
Q17- If I were a physician working during the pandemic, I would think that I would be incompetent in terms of clinical skills in the intervention to the infected patient.	0.103 (0.003)
Q19- If I were a physician working during the pandemic, it would worry me that my risk of transmission was high.	0.209 (<0.001)
Q20- If I were a physician working during the pandemic, I would not prefer to work in the pandemic clinic, even though I knew that I would receive more than my salary.	0.081 (0.018)
Q22- If I was invited to work in the hospital as a medical student during the pandemic, I would hesitate to go to the hospital due to the risk of transmission.	0.108 (0.001)
Q23- I thought of dropping out of medical school after the pandemic.	0.092 (0.006)
Q25- After the pandemic, my opinion about my preference of specialty in medicine has changed.	0.096 (0.006)
Q26- After the pandemic, I started to consider a branch where I would be in less contact with patients.	0.070 (0.042)
Q28- During the pandemic, I was concerned about my health.	0.238 (<0.001)
Q29- During the pandemic, I was concerned about my loved ones.	0.198 (<0.001)
Q30- I frequently thought about what I would experience if I were infected with the virus during the pandemic.	0.201 (<0.001)
Q31- During the pandemic, I was concerned about choosing medicine.	0.137 (<0.001)
Q38- If I knew that the workload of physicians increased this much in the event of a pandemic, I would not have chosen medical school.	0.088 (0.009)
<b>Items that male students tend to "agree"</b>	
Q21- If I am invited to work in the hospital as a medical student during the pandemic, I will gladly work.	-0.094 (0.006)
Q32- I think I am ready to deal with the disease if I get the virus during the pandemic.	-0.186 (<0.001)
Q41- I enjoy following current studies in my spare time.	-0.104 (0.002)
Q42- I review different resources to develop professionally during the pandemic.	-0.090 (0.009)

## DISCUSSION

University life is a very stressful time for many young adults. Separation from the family, academic difficulties, exam stress, anxiety related to the future, and economic problems can be sources of stress for students (14). Medical school, on the other hand, makes university life more difficult for medical students due to the long and difficult education period. Studies on this topic show that the factors that cause stress for medical students stem from difficulties in medical education together with personal problems (15). In addition to individual difficulties and difficulties due to the education, the pandemic experienced in the world and Turkey which affects individuals and societies' life styles significantly is considered to be a new and powerful stress source for medical students that increase their anxiety for both their education and their profession.

In this study designed to understand the thoughts of medical students during the pandemic, occupational anxiety of medical students during the pandemic were also examined. When medical students imagine themselves as physicians in the hospital during the pandemic, they stated their worries as not being able to spare time for loved ones due to their intense workload, not being able to meet their social needs, being anxious due to the high risk of transmission, and misdiagnosing a patient with a risk of virus transmission. In fact, studies conducted with medical students prior to the pandemic indicate that students are concerned about their lack of social activity, the lack of time they spend with their loved ones, and their approach to emergency and terminal patients (16,17), and misdiagnosis (7). Many negativities such as the COVID-19 epidemic which affects health systems all over the world, the occupational and vital struggle of healthcare professionals, especially physicians, staying in the hospital for days, quarantine processes and high transmission risk, may have increased the

occupational anxiety of medical students. It seems that more research is needed on this subject, especially on the effects of the pandemic process.

Students responded to the items related to health cognition including their experiences, feelings, and the dysfunctional beliefs about their health by stating that that they are ready to cope with the disease if they get infected during the pandemic, that they are ready to support them if their relatives are infected during the pandemic, that they trust the healthcare system in our country in the fight against epidemic diseases, that they consider working as a physician as an opportunity for professional development, and that they want to do research to prevent the pandemic. This suggests that they have the potential to solve the problems, that they may encounter during the pandemic, with positive coping methods. However, health policies pursued in Turkey during the pandemic could have increased their confidence in health services.

In general, it is observed that students show commitment to their profession and that they choose medical school willingly. In the study, there was an attempt to obtain more detailed findings by associating the questionnaire items and some variables. When the answers given to the questionnaire items are correlated by those who made their career choices willingly, who chose to be a doctor willingly and those who did not, it is seen that medical students choose their departments willingly, similar to the literature (16,18,19). Students who willingly chose medical school stated that when they imagine working at a hospital during the pandemic, they saw themselves as a physician who did their best, that the pandemic was an opportunity for their professional development, that they could conduct research on this, follow up-to-date publications, and that they did not regret that they chose medicine, and they trusted the healthcare system in our country in the fight

against pandemics. These answers can be interpreted as that students who willingly choose medical school have a high motivation towards their profession and make an effort to improve their careers. The fact that students who did not choose medical school willingly agreed with statements that suggest their occupational anxieties increased in this period such as 'I thought of leaving medical school after the pandemic, I started to do research to quit medical school and switch to another profession after the pandemic, I started to think of a branch where I would be in less contact with patients after the pandemic, I was worried that I chose medicine during the pandemic, If I knew about the fact that in the event of a pandemic the workload of physicians increased this much, I would not have chosen medical school, can be considered as the effect of the indecision they initially experienced in their career choices. This indecisive attitude might have negatively affected both the students' Professional commitment and their tendency to value the difficulties they encountered by turning them into opportunities. Studies in the literature show that students who do not voluntarily choose medical school are also quite hesitant in choosing their specialty (16).

Research findings show that as the number of semesters in the medical school increases, their professional anxiety also increases. As the semester numbers increase, they can better understand the advantages and disadvantages of their professions, and their perceptions about their profession may differ due to the intensive training period they spend at the hospital in the last year. As their semesters increase, the students state that they are concerned about their clinical skills, which is in line with the literature. Studies show that students are worried about both clinical and theoretical skills, especially about being a general practitioner (16, 20). As the semester number increases, students' reluctance to work in primary care during the pandemic supports the findings in the literature that students are

concerned about the broad theoretical and practical knowledge needed in primary care (18, 21). As the number of semesters increased, the students agreed more with the idea that they had more confidence in the health system and reviewed different resources in order to develop professionally. This situation can be explained by the desire to contribute more to the profession and the increase in professional commitment over the years. As the number of semester increases, students may have expressed their concerns that their theoretical and applied knowledge needs may not be met during the pandemic process by stating their concern about the disruption of their education due to the pandemic.

Another striking result of the study is that female students are more concerned about their professional and general health than male students. These findings are consistent with the literature. In the study, female students agreed with statements such as 'I could not cope with the infected patient alone, the high risk of transmission would have worried me, I would not prefer to work in the epidemic clinic even though I knew that I would receive more than my salary, I would hesitate to go to the hospital because of the risk of contamination, I was concerned about my health and the health of my loved ones', more than male students. This situation is similar to the studies conducted before the pandemic. It is known that anxiety is generally more common in women than in men among medical students and physicians (7,16–19). This may be due to the fact that women react to stress in the form of anxiety.

## CONCLUSIONS

It is becoming increasingly important to examine the thoughts related to the digital transformation in medical education during and after the pandemic, the necessity of shaping the program in accordance with distance education, the problems experienced and to be experienced during the education process, the occupational anxieties of the students during the pandemic,

concerns about their own health, and their career choices in the direction of medicine, which is one of the most risky groups in the pandemic. As like the study of medical students have determined high levels of anxiety during pandemic in Turkey (22). The revival of the health system, the complexity and determination of protective and therapeutic factors intermittently during the medical education process suggest that improvements must be made in terms of professional satisfaction and trust environment and conducting larger and inclusive studies will contribute to medical education and the health system.

### ***Limitations***

As in other quantitative studies, there are some limitations in this research. One of the limitations of quantitative studies is controlling the environment where the respondents provide answers to the questions in the survey. Responses often depend on particular time which again is dependent on the conditions occurring during that particular time frame. In the light of this knowledge, at the time of this research, it was May 2020 when was a period pandemic limitations were just beginning and most probably the students didn't expect this period would be very long and difficult both health system and education system. Therefore, the possibility that they may have given more optimistic answers to the questions should be evaluated. Another important point to evaluation is the population of the research. Most of the students respond the questionnaire were early years of their medicine education and they had limited experiences about medicine and hospital conditions, therefore their responds would be optimistic. For all these reasons, it is highly recommended further research, this study should be repeated one years later with students who are in the last years of medical education.

### **REFERENCES**

1. World Health Organization. Summary World Report On Disability. World Health. 2011. p. 1–24. Available from: [https://www.who.int/disabilities/world\\_report/2011/report.pdf](https://www.who.int/disabilities/world_report/2011/report.pdf)
2. Republic of Turkey, Ministry of Health. Available from: <https://www.saglik.gov.tr/>
3. Aaron T. Beck. Bilişsel Terapi ve Duygusal Bozukluklar. Litera Yayınevi; 2005.
4. Uzbay İT. Neurobiology of Anxiety. Turkish Journal of Clinical Psychiatry 2002;5(1):13.
5. Doğan Cüceloğlu. İnsan ve Davranışı. 6th ed. İstanbul: Remzi Kitabevi; 1996.
6. Yeşilyaprak B. Mesleki Rehberlik ve Kariyer Danışmanlığı: Kuramdan Uygulamaya. Ankara: Pegem Akademi; 2011.
7. Yeniçeri N, Mevsim V, Özçakar N, Özcan S, Güldal D, Başak O, et al. Comparing trait anxiety and future occupational anxiety of final year medical students. DEU Journal of Medical Faculty. 2007;21:19–24.
8. Ergin A, Utku Uzun S, Topaloğlu S. Future Occupational Anxiety and Trait Anxiety Levels of 5 th And 6 th Year Medical Students at Pamukkale University and Their Contributing Factors. Medical Journal of Mugla Sitki Kocman University. 2016;3(3): 16-21.
9. Williams PG. The psychopathology of self-assessed health: A cognitive approach to health anxiety and hypochondriasis. Cognitive Therapy and Research. 2002;28(1):629–44.
10. Yılmaz Ö, Dirik G. Sağlık Bilişleri Anketi (SBA)'nin Türkçe Versiyonunun Psikometrik Özelliklerinin İncelenmesi.

11. Deale A. Psychopathology and treatment of severe health anxiety. *Psychiatry*.2007;6(6):240–6.
12. Maingay S, editor. *Active study dictionary of English*. Glasgow: Longman Group UK Limited; 1991.
13. R Core Team. *R: A language and environment for statistical computing*. Vienna, Austria: R Foundation for Statistical Computing; 2013.
14. Kilic S, Var EC, Kumandas H. Effect of Parental Attitudes on Skills of Emotional Management in Young Adults. *Procedia - Soc Behav Sci*. 2015; 2(191):930–4.
15. Morrison J, Moffat K. More on medical student stress. *Med Educ*. 2001;35(7):617-8.
16. Mayda A, Yilmaz M, Bolu F, Deler M, Demir H, Doğru M, et al. A Research on the Anxiety About Future in Medical Classes 4, 5, 6 of A University. *Journal of Duzce University Health Sciences Institute*. 2014;4(3):7-14.
17. Kaygusuz TÖ, Erensoy A, Üniversitesi F, Fakültesi T, Eğitimi T, Dalı A. The Opinions about Medical Education and Vocational Expectations of Last Class Medical Students According to Gender. *Fırat University Medical Journal of Health Sciences*. 2019; 33 (3): 127 - 135
18. Canbaz S, Sünter AT, Aker S, Pekşen Y. The anxiety level of the interns in a medical faculty and affecting factor. *General Medical Journal*. 2007;17(1):15–9.
19. Köksal S, Vehid S, Tunçkale A, Çerçel A, Erginöz E, Kaypmaz A, Sipahioğlu F, Özbal AN. Cerrahpaşa Tıp Fakültesi Öğrencilerinin Tıp Eğitimi ve Mezuniyet Sonrasıyla İlgili Tutumları. *Cerrahpaşa Medical Journal*. 1999;30(4):251–8.
20. Kılıç B, Sayek İ. Türk Tabipleri Birliği Mezuniyet Öncesi Tıp Eğitimi Raporu-2000 (TTB-MÖTER). *Toplum ve Hekim*. 2001;16(3):230–40.
21. Yalçınoğlu N, Kayı İ, Işık Ş, Aydın T, Zengin Ş, Karabey S. The views of intern doctors on medical education in istanbul faculty of medicine, İstanbul university. *J Ist Faculty Med*. 2012;75(3):41-45.