

Future Anxiety among Medical Doctor Candidates: A Cross-Sectional Study from Türkiye

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Abstract

Objective: This study aimed to determine the level of future anxiety in senior medical faculty students and the factors affecting this situation.

Methods: In this cross-sectional study, which are carried out between 1-31 March 2024 with undetermined sample size. The reach rate was 94.3% and included 300 senior medical school students. Written and verbal consent were obtained from the participants. The data was obtained by face-to-face interview method using a survey form consisting of socio-demographic characteristics and educational process questions and the "Future Anxiety Scale in University Students". Evaluation of data was done on a statistical package for social science SPSS version 15.

Results: Of the participants 51.0% were male and 65.3% were 24 years old or younger. Of the participants 95.3% were single and 43.3% stayed with family. The average future anxiety score is 54.9 ± 12.9 . While 52.0% of the participants were exposed to occupational violence at least once during the education process, 86.3% of those who were exposed to occupational violence stated that psychological/verbal violence was the most common type of violence. Among the participants' post-graduation plans, 90.3% wanted to become a specialist physician, while 35.0% stated that they were considering going abroad after graduation. Occupational violence is the most common reason for going abroad with 74.4%. The average future anxiety is higher in women, those with a poor economic situation, those who have experienced occupational violence, and those who are considering going abroad ($p < 0.05$). The three most common reasons of future anxiety were occupational violence (75.6%), malpractice (72.5%), and mobbing (65.3%), respectively.

Conclusion: The level of future anxiety among medical doctor candidates is high. A high level of anxiety future may pose a risk to the doctor candidates' own health, family, and public health, as well as cause various problems in their professional lives.

Keywords: Anxiety, Doctor Candidates, Medical School, Türkiye

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Introduction

Individuals who complete a 6-year-medical training having a globally-set curriculum and lifelong learning approach; who deal with protecting and developing public health as well as diagnosing and treating health problems are awarded the title of "Medical Doctor"^{1,2}. Medical education began with

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the establishment of Istanbul University Faculty of Medicine in 1827. Today, according to the 2023 data of the Council of Higher Education, medical education is provided in a total of 121 universities, 86 of which are state and 35 foundation universities. In the last 6 years, approximately 100 thousand students have been receiving education in medical faculties³.

Anxiety, the feeling of worry in the presence of a non-objective danger is seen as one of the important mental health problems due to its predisposition to some mental diseases and prevalence. Although a certain amount of anxiety enables the person to take precautions against risky situations,

foresee the problems that will arise, and motivate the person by finding solutions, it has been observed that excessive anxiety negatively affects performance³.

One of the periods when anxiety is experienced the most is the university period. During this period, students' anxiety levels increase due to uncertainty about how their future will shape⁴. One of the schools where the most common future anxiety occurs among university students is medical schools. Studies have reported that medical school students have higher anxiety levels and psychiatric morbidity rates than other university students⁵. Additionally, it has been determined that the level of anxiety among medical school students is even more intense in senior students⁶.

In addition to the anxieties brought about by the transition period from high school education to medical education, from preclinical to clinical education, and from clinical education to professional life, a student in the final year of medical school also experiences the anxiety brought about by the uncertainty about their professional career⁷. While these concerns are academic reasons and emotional factors at the beginning, patient care and physical factors become more prominent towards the end of the training process. To give concrete examples of the concerns experienced; high level of expectations (especially from the family), the difficulty of medical education and exam stress, increasing intense workload, especially in the clinical period, encountering patients and death, ending student life and uncertainties about the future are the primary causes of anxiety^{4,7}.

Additionally, reasons such as increased incidents of violence against physicians and other healthcare professionals, career pressure to become an expert, and malpractices increase the anxiety level of senior medical students⁶. These situations may negatively affect the students' own health and patient care. This study was conducted to determine future anxiety and affecting factors in senior medical school students.

Methodology

This descriptive and cross-sectional study was conducted on senior students at the University Faculty of Medicine in Türkiye. The study was carried out between 1-31 March 2024. Firstly, the suitable times of the students were determined between the specified dates. Students were informed about the study. Written consent was obtained from participants who verbally agreed to participate in the study. The sample size was not determined, 318 students were included in the study. 14 students refused to participate in the study, and 4 students were not included in the study due to lack of data even though they filled in the survey data. The survey data of 300 students were evaluated. The reach rate is 94.3%. Study data was obtained by face-to-face interview method using a survey form. The "Future Anxiety Scale in University Students", which was developed to evaluate future anxiety was used⁸. The scale consists of a total of 19 Likert-type questions with the options "Never" (1), "Rarely" (2), "Sometimes" (3), "Often" (4) and "Always" (5). Future Anxiety score and the minimum score is 19 and the maximum score is 95. As the score obtained from the scale increases, the level of future anxiety increases. The data were evaluated with the SPSS 15.0 program. Number, percentage, mean, and standard deviation was used in continuous data, and t-tests and one-way analysis of variance (ANOVA) were used in independent groups to compare groups in categorical data. The value of $p < 0.05$ was accepted as statistically significant. Participants in this study first gave verbal and written consent that they participated in volunteering. Ethical approval was obtained from the University Social and Human Sciences Ethics Committee (Decision No: 2024/106) to conduct the research.

Results

Of the research group, 52.0% (156) experienced occupational violence at least once during their medical school education, and these types of occupational violence were psychological/verbal violence at 86.3% (135), physical violence at 7.1% (11) and sexual violence at 1.3% (2) sexual violence, respectively. They stated that 74.4% (116) of

the occupational violence was caused by patient relatives, 41.7% (65) by research assistants, and 39.1% (61) by lecturers. The distribution of participants' educational status characteristics is shown in Table 1.

Of those in the research group 90.3% stated that they wanted to continue as a specialist physician after graduation. Among those who plan to become a specialist physician, the criterion of liking the relevant specialty was the highest in determining the field of specialization, with 77.5%. While 37.3% of the research group stated that they wanted to go abroad after graduation, the rate of those who were undecided on this issue was 27.7%. The distribution of participants' postgraduate plan characteristics is shown in Table 2.

The average score of future anxiety of the research group is 54.9 ± 12.9 . While the average future anxiety score of female was 56.8 ± 13.1 , this score of men was 53.0 ± 12.6 and the difference is statistically significant ($p < 0.05$). The average future anxiety is higher in those who express anxiety about the future, who have a poor economic situation, who have experienced occupational violence, and who want to go abroad and change their profession after graduation, and the differences between them are statistically significant ($p < 0.05$). Evaluation of the average future anxiety scores of the research group according to various characteristics is shown in Table 3.

Table 1. Distribution of participants' educational status characteristics

Characteristics Of Educational Status	n (%)
Education Grade Value	
2.50 and below	14 (4.7)
2.51 between 2.99	77 (25.7)
3.00 and above	209 (69.6)
Education Period Extension Status	
Yes	76 (25.3)
No	224 (74.7)
Willingness To Attend Medical School	
Yes	242 (80.7)
No	58 (19.3)
Reasons For Choosing Medical School (1)	
Own wish	206 (68.7)
Having a job guarantee	141 (47.0)
Family desire	109 (36.3)
Having enough points	89 (29.7)

Would You Choose Medical School Again?

Yes	122 (40.7)
No	84 (28.0)
Undecided	94 (31.3)

Exposure To Occupational Violence

Yes	156 (52.0)
No	144 (48.0)

Type Of Occupational Violence Experienced (N=156) (1)

Psychological/Verbal violence	135 (86.3)
Physical violence	11 (7.1)
Sexual violence	2 (1.3)

People Who Use Violence (N=156) (1)

The relatives of the patient	116 (74.4)
Patients	88 (56.4)
Health Professionals	71 (45.5)
Research Assistants	65 (41.7)
Lecturers (Professor/Assoc Prof/Assistant Prof)	61 (39.1)

(1) More than one option is marked.

Table 2. Distribution of participants' postgraduate plan characteristics

Postgraduate Plan Characteristics	n (%)
Postgraduate Plans	
Becoming a specialist physician	271 (90.3)
Continuing as a general practitioner	16 (5.3)
Not practicing medicine	6 (2.0)
Practicing medicine abroad	5 (1.7)
Becoming an occupational physician	2 (0.7)
Required Areas Of Specialization For Those Who Plan To Become A Specialist Physician (n=271) (2)	
Eye Diseases	39 (14.4)
Skin and Venereal Diseases	23 (8.5)
Ear Nose Throat Diseases	22 (8.1)
Emergency medicine	19 (7.0)
Anesthesiology and Reanimation	16 (5.8)
Orthopedics and Traumatology	15 (5.5)
Plastic, Reconstructive and Aesthetic Surgery	15 (5.5)
Family Medicine	12 (4.4)
Child Health and Diseases	11 (4.1)
Psychiatry	10 (3.7)
Criteria For Determining The Areas Of Specialization (N=271) (1)	
Loves his/her field of expertise	210 (77.5)
According to specialist physician exam score	113 (41.7)
The selected areas have a high wage return	100 (36.9)
Fewer seizures in the selected area	61 (22.5)
Job Change Desire	
Yes	78 (26.0)
No	124 (41.3)
Undecided	98 (32.7)
Dream Professions Of Job-Change Requestors (N=78)	
Engineer	28 (35.9)
Teacher	11 (14.1)
Law (Lawyer, Judge, Prosecutor)	8 (10.3)
Pilot	5 (6.4)

Dentist	5 (6.4)	Wanting To Go Abroad After Graduation	
Pharmacist	4 (5.1)	Yes	112 (37.3)
Architect	3 (3.8)	No	105 (35.0)
Others	14 (18.0)	Undecided	83 (27.7)
The Belief That The Medical Field Is Respected Enough		Reasons For Wanting To Go Abroad (N=195) (1)/ (3)	
Yes	11 (3.7)	Occupational violence	145 (74.4)
No	264 (88.0)	Financial reasons	138 (70.8)
Undecided	25 (8.3)	Mobbing Social causes	120 (61.5)
The Belief That Physicians Get The Salary They Deserve		Difficulty of the medical specialty exam	43 (22.1)
Yes	8 (2.7)	Family reasons	13 (6.7)
No	271 (90.3)		
Undecided	21 (7.0)		

(1) More than one option is marked. (2) The top 10 most requested specialties are given. (3) Answers of those who are undecided are also included.

Table 3. Evaluation of the average future anxiety scores of the research group according to various characteristics

Various Characteristics	n (%)	Mean \pm SD	t	F	p
Gender					
Female	148 (49.0)	56.8 \pm 13.1			
Male	152 (51.0)	53.0 \pm 12.6	2.571		0.011
Average score of future anxiety	318 (100.0)	54.9 \pm 12.9			
Age Group					
24 and under	196 (65.3)	55.2 \pm 12.9	0.685		0.494
25 and over	104 (34.7)	54.2 \pm 13.2			
Material Status					
Single	286 (95.3)	55.0 \pm 13.1	0.790		0.430
Married	14 (4.7)	52.2 \pm 10.8			
Place Of Stay					
With family	130 (43.3)	54.7 \pm 12.2	0.254		0.800
Other (Dormitory/Alone/With Friends/in Relatives)	170 (56.7)	55.1 \pm 13.6			
Family Structure					
Nuclear family	252 (84.0)	54.8 \pm 12.6			
Extended family	26 (8.7)	52.8 \pm 18.8	0.693		0.557
Parents are separated	13 (4.3)	57.2 \pm 15.7			
One or both parents have died	9 (3.0)	59.2 \pm 15.8			
Economic Situation					
Good	89 (29.7)	50.8 \pm 12.4			
Middle	197 (65.6)	55.8 \pm 12.4	11.747		0.000
Bad	14 (4.7)	66.9 \pm 15.0			
Exposure To Occupational Violence					
Yes	156 (52.0)	56.9 \pm 12.2			
No	144 (48.0)	52.6 \pm 13.3	2.923		0.004
Exposure To Occupational Psychological/Verbal Violence					
Yes	135 (45.0)	56.8 \pm 12.5			
No	165 (55.0)	53.3 \pm 13.1	2.321		0.021
Wanting To Go Abroad After Graduation					
Yes	112 (37.3)	57.2 \pm 13.1			
No	105 (35.0)	51.6 \pm 12.4	5.438		0.005
Undecided	83 (27.7)	55.8 \pm 12.7			
Wanting To Change Profession					
Yes	78 (26.0)	59.6 \pm 13.3			
No	124 (41.3)	50.8 \pm 13.1	12.585		0.000
Undecided	98 (32.7)	56.2 \pm 10.8			

Would You choose Medical School Again?

Yes	122 (40.7)	51.6 ± 13.3		
No	84 (28.0)	59.0 ± 13.2	8.739	0.000
Undecided	94 (31.3)	55.5 ± 11.1		

The Belief That The Medical Field Is Respected Enough

Yes	11 (3.7)	47.4 ± 10.6		
No	264 (88.0)	55.8 ± 13.0	7.927	0.000
Undecided	25 (8.3)	48.0 ± 10.8		

The Belief That Physicians Get The Salary They Deserve

Yes	8 (2.7)	40.9 ± 10.6		
No	271 (90.3)	55.8 ± 12.8	7.927	0.000
Undecided	21 (7.0)	48.8 ± 11.9		

A State Of Anxiety About The Future

Yes	262 (87.3)	56.9 ± 11.8		
No	38 (12.7)	40.6 ± 11.2	8.000	0.000

Reasons For Future Anxiety (n=262)

*Occupational violence	198 (75.6)	58.7 ± 11.5	7.856	
Malpractice Concern for live	190 (72.5)	58.3 ± 11.3	6.338	
Mobbing	171 (65.3)	58.7 ± 11.9	5.178	
Concern for live lihood	133 (50.8)	60.2 ± 11.1	6.850	0.000
Professional dissatisfaction	131 (50.0)	58.1 ± 11.3	4.553	
Professional incompetence	125 (47.7)	58.1 ± 11.9	3.654	
Not being a specialist physician	74 (28.2)	59.9 ± 12.3	3.964	

* More than one option is marked.

Discussion

Depression, anxiety, and stress are among the common psychological disorders among university students. Many studies; reported that the prevalence of anxiety symptoms was higher in medical students compared to non-medical students^{9,10} and the general population of the same age^{11,12}. It has also been found that medical students have a higher prevalence of depressive disorder compared to the general population¹³. Among medical students, it has been reported that depression, anxiety, and stress conditions are more common in senior-year students than in other-year students¹⁴. For senior students who are doctoral candidates; reasons such as intense course load and exam anxiety before and during medical education, and frequent witnessing of illnesses, disabilities, and deaths during clinical training have negatively affected psychosocial health.

In a study where the future concerns of social studies teacher candidates were determined, the average future anxiety score of females was found to be 62.3 ± 1.5, while this average was found to be 59.7 ± 14.3 for males¹⁵. In a study on future anxiety among health management students, it was found that the future anxiety level of female studen-

ts was higher than that of male students¹⁶. Studies show that female’s anxiety levels are higher than male’s in medical school students, as well as in non-medical schools. In studies conducted on medical students in Saudi Arabia and America, it was found that the anxiety scores of female students were higher than those of males^{17,18}. Similar to these results, our study revealed that the anxiety level of female students is higher. Whereas the mean future anxiety score of women is 56.8 ± 13.1, it is 53.0 ± 12.6 for men and the difference is statistically significant (Table 3). It can be said that the reasons why women have higher future anxiety are the effects of women’s reproductive hormones, their need for security, and their financial income and expenses. In addition, the recent increase in violence against women and the psychological impact of this situation may have increased anxiety about the future.

According to the “Health Violence Research” report conducted by a union in Türkiye in 2022, the rate of concern experienced by healthcare workers about encountering violence in the workplace was found to be 82.3%. In the same report, the rate of those who experienced violence at least once during their career was found to be 67.3%. According

to the report, 66.7% of healthcare workers have been exposed to psychological/verbal violence, 25.9% to physical violence, and 5.3% to sexual violence throughout their careers. In the case of experiencing violence according to professional groups, it was found that 89.4% of physicians/dentists, 74.1% of nurses, and 73.1% of midwives were exposed to violence at least once during their professional life ¹⁹. In a study examining the extent of violence among healthcare workers in Malatya province in Türkiye, among those who were exposed to violence during the study period, physicians were found to be the group of healthcare workers who were most exposed to violence, with 70.7% ²⁰. In a study conducted on 5th and 6th-year medical school students, 50.7% of the students were exposed to violence, while this rate increased to 69.3% in senior students ²¹. In this study, 52.0% of the students were exposed to violence at least once during their medical training, while the most common type of violence was psychological/verbal violence with 86.3% (Table 1). Future anxiety is higher in both those who have experienced violence and those who have experienced psychological/verbal violence, and the difference is statistically significant (Table 3). Healthcare workers are both concerned about violence and have a high rate of exposure to violence. It can be said that physicians are more exposed to violence among healthcare professionals and that incidents of violence date back to their medical school studentship years. Violent incidents experienced by students may also increase their anxiety about the future and affect their decisions regarding their professional lives. Regarding this situation, 37.3% of the students in our study stated that they wanted to go abroad after graduation. Among the reasons for going abroad, the first place is due to occupational violence with 74.4% (Table 2). It can be said that the occupational violence experience increases the anxiety level of the students and causes them to consider going abroad as a solution to this situation.

The beginning of migration in Türkiye, which is both a receiving and sending country in the international community, dates back to the 1960s, when labor migration to Europe took place, in general,

these migrations are not considered qualified human migration. With the COVID-19 pandemic, which emerged in China in 2019 and spread around the world, migration abroad began among healthcare professionals, especially physicians. In this process, physicians were not able to exercise some basic rights such as not being able to use annual leaves retire, or quit. In addition to these, increasing violence in health care and failure to prevent this situation, long duty hours and malpractice cases, physicians' lack of respect, and low wages have negatively affected the working conditions of physicians. These factors also paved the way for qualified brain drain ²². The best indicator of this situation is the increase in "good conduct certificate" applications received from the Turkish Medical Association (TMA). While only 59 physicians applied for a good conduct certificate in 2012, the number of applications increased rapidly over the years, reaching 1405 in 2021 and 2417 in 2022 ²³. This process, which has been experienced by working physicians in recent years, has also affected the thoughts of medical students studying abroad. In a study conducted among senior students of Ankara Yıldırım Beyazıt University faculty of medicine, 65.6% stated that they were thinking of working abroad and that financial and social reasons, violence, and mobbing were among the reasons for thinking of going abroad ²⁴. In a study conducted among senior students of Kocaeli University Faculty of Medicine, 66.4% stated that they were thinking of going abroad and that financial and social reasons, mobbing, and violence were among the reasons for thinking of going abroad ⁴. In this study, 65.0% of the students (including those who were undecided) stated that they were considering going abroad. Additionally, occupational violence, financial reasons, and mobbing were expressed as the most common reasons for going abroad (Table 2). The results of the study show similarities between the idea of going abroad and its reasons. In addition, future anxiety was found to be higher in those who were considering going abroad, and the difference was statistically significant (Table 3). Doctor candidate senior students are planning to go abroad as a solution to the negativities that they

have experienced or think they will experience, such as occupational violence.

Limitations of this study include its relatively small and non-random sample and its reliance on self-reported information.

Urgent deterrent measures can be taken to prevent occupational violence cases, which is one of the most important causes of anxiety. Improving the future anxiety levels of these students who are medical doctor candidates may be beneficial for their own health, their families' health, and the health of society. Psychological support should be provided to physician candidates with high anxiety levels to reduce their anxiety levels.

Conclusion

The high of future anxiety among medical doctor candidates, in the current study is worrying. Future anxiety is higher among women, single people, those who experience occupational violence, and those who are considering going abroad.

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