ATATURK UNIVERSITY PUBLICATIONS

Journal of Medical Education and Family Medicine

Official Journal of Atatürk University Faculty of Medicine

Volume 01 • Issue 02 • August 2024

EISSN 3023-7793

https://dergipark.org.tr/tr/pub/jmefm

Journal of Medical Education and Family Medicine

Journal of Medical Education and Family Medicine

Tarık TİHAN
UCSF Department of Neurological SurgeryUniversity of California, San Francisco
e-mail: tarik.tihan@ucsf.edu

Turan SET
Karadeniz Technical University, Department of Family Medicine, Trabzon, Turkey
e-mail: turanset@gmail.com

Yeşim ŞENOL
Department of Medical Education, Akdeniz University, Faculty of Medicine, Antalya, Türkiye
e-mail: yysenol@gmail.com

Zeynep BAYKAN
Department of Medical Education, Erciyes University, Faculty of Medicine, Kayseri, Türkiye
e-mail: zbaykan@erciyes.edu.tr

Journal of Medical Education and Family Medicine

ABOUT

Journal of Medical Education and Family Medicine is a peer reviewed, open access, online-only journal published by the published by Atatürk University.

Journal of Medical Education and Family Medicine is published triannual in English in April, August, and December.

Journal of Medical Education and Family Medicine aims to publish studies of the highest scientific and clinical value in medical education and family medicine.

Journal of Medical Education and Family Medicine publishes research article, review article, rare case reports, and letter to the editor articles that will contribute to the medical education and family medicine. The main purpose of the journal is to disseminate the scientific knowledge produced in the field of medical education and family medicine to a wide platform.

Medical Education: The journal covers a broad spectrum of topics related to medical education, the developments in teaching approach, including innovative teaching methodologies, curriculum development, assessment strategies, and educational technology in medical training. Articles may explore the challenges and advancements in undergraduate and postgraduate medical education, as well as continuing professional development for healthcare practitioners.

Family Medicine: The scope extends to various aspects of family medicine, encompassing primary care, preventive medicine, and the management of common health conditions within the context of family and community settings. Research on patient-centered care, chronic disease management, and interdisciplinary collaboration in family medicine is encouraged.

The target audience of the journal includes academicians, clinical researchers, medical/health professionals, students, and related professional and academic bodies and institutions.

All expenses of the journal are covered by the Atatürk University. Processing and publication are free of charge with the journal. No fees are requested from the authors at any point throughout the evaluation and publication process. All manuscripts must be submitted via the online submission system, which is available at https://dergipark.org.tr/en/pub/jmefm. The journal guidelines, technical information, and the required forms are available on the journal's web page.

Disclaimer

Statements or opinions expressed in the manuscripts published in the journal reflect the views of the author(s) and not the opinions of the editors, editorial board, and/or publisher; the editors, editorial board, and publisher disclaim any responsibility or liability for such materials.

Open Access Statement

Contact (Editor in Chief)

Esra Çınar TANRIVERDI (Medical Education)
Department of Medical Education, Atatürk University, Faculty of Medicine, Erzurum, Türkiye
✉ email: jmefm@atauni.edu.tr

Yasemin ÇAYIR (Family Medicine)
Department of Family Medicine, Atatürk University, Faculty of Medicine, Erzurum, Türkiye
✉ e-mail: jmefm@atauni.edu.tr
https://dergipark.org.tr/tr/pub/jmefm
☎ +90 442 344 86 76 / +90 442 344 87 50

Contact (Publisher)

Atatürk University
Atatürk University, Erzurum, Turkey
Atatürk Üniversitesi Rektörlüğü 25240 Erzurum, Türkiye
✉ ataunijournals@atauni.edu.tr
https://bilimseldergiler.atauni.edu.tr
☎ +90 442 231 15 16

Journal of Medical Education and Family Medicine

Editors's Note

Dear Readers,

It is with great pleasure that we present the second issue of the Journal of Medical Education and Family Medicine (JMEFM). In this edition, we continue our commitment to advancing knowledge in medical education and family medicine through a diverse selection of articles. This issue features five insightful contributions, including four research articles and one comprehensive review.

We extend our sincere gratitude to all the authors who have contributed their expertise and dedication to this issue. Their rigorous work and scholarly contributions are pivotal in advancing our understanding and practice in medical education and family medicine.

We hope that this issue will serve as a valuable resource for researchers, educators, and practitioners alike, fostering dialogue and innovation in our field. We invite you to explore the diverse perspectives presented in this issue and look forward to your feedback.

Warm regards,

Prof. Dr. Yasemin ÇAYIR *Assoc Prof. Esra ÇINAR TANRIVERDİ*

Editor-in-Chief
Journal of Medical Education and Family Medicine

Journal of Medical Education and Family Medicine

CONTENTS

ATATÜRK ÜNİVERSİTESİ YAYINLARI
ATATURK UNIVERSITY PUBLICATIONS

Research Article **DOI:** 10.5281/zenodo.13310135

Gender Roles in Medical Education from the Perspective of Medical Faculty Students and Their Effects on Specialty

Ezgi AĞADAYI[1]
Department of Medical Education, Sivas Cumhuriyet University, Faculty of Medicine, Sivas, Türkiye

Ayşe Göksü BOZDOĞAN[2]
Department of General Surgery, Sivas Cumhuriyet University, Faculty of Medicine, Sivas, Türkiye

Recep Türker BULUT[3]
Anaesthesiology and Reanimation, Ministry of Health Etlik City Hospital, Ankara, Türkiye

Seher KARAHAN[4]
Department of Medical Education, Sivas Cumhuriyet University, Faculty of Medicine, Sivas, Türkiye

ABSTRACT

Objective: The purpose of this study is to ascertain the attitudes of students at a medical faculty regarding gender roles and how these attitudes affect the branch they wish to choose.

Methods: This is a descriptive study. A survey form consisting of 37 questions, including the Gender Role Attitudes Scale, was delivered to students online. In statistical analyses, normality analysis was performed with the Shapiro-Wilk test. Chi-square, Student-T and ANOVA tests were applied.

Results: Four Hundred Fifteen students participated in the research. A significant difference was detected between gender and the branch in which they planned to specialize (P<.001). Comfortable working conditions were more common among female students' reasons for choosing their planned specialization than male students (P=.022). Gender roles scale score of female students (60.8±9.1) was found to be higher than male students (51.3±10.2) (P<.001). The gender roles scale score did not change depending on the grades the students attended (P=.771).

Conclusion: It is noteworthy that medical education has no effect on students' attitudes towards gender. Their views on the subject are shaped by the demographic characteristics of the family. It is recommended that the hidden curriculum for medical education be evaluated and developed in future studies.

Keywords: Medical students, Gender equity, Gender

This study was presented as a poster presentation at the 10th National Medical Education Congress (October 2020-Online).

Received 15.03.2024
Accepted 19.07.2024
Publication Date 14.08.2024

Corresponding author:
Ezgi AĞADAYI
E-mail: drezgiagadayi@hotmail.com

Cite this article: Ağadayı E, Bozdoğan AG, Bulut RT, Karahan S. Gender Roles in Medical Education from the Perspective of Medical Faculty Students and Their Effects on Specialty Selection. *J Med Educ Family Med*. 2024;1(2):39-45

INTRODUCTION

Gender is a phrase with psychological and cultural connotations that emerges depending on particular social situations, whereas sex is a term used for biological differences. It is very difficult to combat the unconscious distinctions and inequities that exist between men and women as a result of traditional views about society, traditions, and cultural influences.[1,2]

According to the data obtained from YÖK statistics, while the male/female ratio among newly enrolled students in universities was 1.1 in 2013, the number of female students increased over the years, and this ratio decreased to 0.8 in 2022. The distribution of students across departments is particularly influenced by societal conventions, although the number of female students is increasing. The proportion of male students in engineering faculties is more than double that of female students, even though female enrollment is high in medical faculties.[3] Although there are more female doctors and medical students than ever before, their access to all areas of medicine is restricted by gender-related sociocultural variables.[4] The selection of a medical school specialty by students is also influenced by gender norms. Doctors' career decisions are influenced by sociocultural variables as well as training experience, which diminishes gender diversity in specialization. For example, in most countries, surgery remains a field of strong male dominance. The reasons for this are the difficult lifestyle conditions of the surgical career and the low number of female surgeons who can be taken as role models.[5] In Turkish society, women are traditionally expected to prioritize taking care of their homes and children over their careers and businesses. It is widely held in our nation that men belong to the surgical field of medicine, whereas women belong to fields such as pediatrics. Healthcare professionals should be advocates to raise the awareness of the people around them and should learn and teach innovations while following gender-sensitive policies and developments. Most importantly, as the service providers themselves, doctors should provide services with an egalitarian approach without discrimination.[6,7] The purpose of this study is to ascertain the attitudes of students at medical faculties regarding gender roles and how these attitudes affect the branch they wish to choose.

METHODS

This is a descriptive study. Our research population included students (n=1371) studying at the Sivas Cumhuriyet University Faculty of Medicine. According to the sample calculation with a known universe and unknown prevalence, at least 301 students should be reached with a 95% confidence level and a 5% acceptable margin of error. In this research, information was given to the entire sample, and the study was conducted with 415 students who volunteered to participate.

The data collection form we used in the research included the Gender Role Attitudes Scale, which consists of 15 questions, demographic data consisting of 22 questions, and questions about the relationship between gender and medical education and the branch that wanted to be chosen. The Gender Role Attitudes Scale, a data collection tool, was developed by García-Cueto et al. in 2015.[8] The original scale has a single dimension in which 20 items are asked to determine individuals' egalitarian attitudes toward gender roles. As a result of the validity and reliability study conducted by Bakioğlu et al., the scale was adapted to Turkish as a one-dimensional 15-item questionnaire.[9] The scale has a one-dimensional 5-point Likert-type rating (1 = I completely disagree - 5 = I completely agree). The Cronbach's alpha internal consistency coefficient of the original scale was calculated as 0.99. The internal consistency coefficient of the scale for the Turkish version of the scale is 0.88. Scores from the scale vary between 15 and 75. An increase in the score obtained from the scale indicates an increase in egalitarian attitudes toward gender roles.

Ethics committee approval for the study was obtained from Ethics Committee for non-interventional clinical research from Sivas Cumhuriyet University. (Date: 15.01.2020, Number: 2020-01/39) Furthermore, permission to use the scale in our survey was obtained from Bakioğlu via email.

Traditionally, medical school courses are divided into “preclinical” and “clinical” courses. The preclinical years mostly include a didactic method of teaching-learning in which students are taught basic science topics. In the clinical years, medical students become student doctors in the hospital setting.[10] Therefore, while performing some analyses, we classified the students as preclinical or clinical.

The surveys to be used in the study were delivered to the students online by the researchers. This method was chosen because it was assumed that students would feel more comfortable answering questions in the online environment and would be able to answer the questions more accurately. The survey's first page contained an informed consent form. The study did not ask for any personal information from the students.

The statistical package for social sciences, SPSS version 23.0 (IBM SPSS Corp., Armonk, NY, USA), was used to examine the data. The Shapiro–Wilk test was used to examine the normality of the numerical data. First, the data were subjected to descriptive statistical analyses. Calculations were made to determine the central distribution measures (mean ± standard deviation) for numerical data and frequencies for categorical data. To compare categorical data, the chi-square test was employed. Numerical data were compared between two categorical variables via

Student's t test. When comparing numerical data with more than two categorical variables, ANOVA was used. The Bonferroni correction was used for post hoc analysis. A significance level of *P*<.05 and a 95% confidence range were used to analyze the results.

Approval for the study was obtained from the Ethics Committee for noninterventional clinical research of Sivas Cumhuriyet University (approval date/number: 15/01/2020-01/39). Furthermore, permission to use the scale in our survey was obtained from Bakioğlu via email.

RESULTS

415 students volunteered to participate in the research. A total of 65.9% (n=280) of the students were female. A total of 60.0% (n=255) of the students were studying in basic sciences. The mean age was 21.7±1.8 years (min: 18-max: 27). The city where most of the students (52.2%, n=222) resided was in the Central Anatolia Region. A total of 76.2% (n=324) of them grew up in the city center. The demographic characteristics of the students are shown in Table 1.

Table 1. Demographic characteristics of students

N=415	n	%
Sex		
Female	280	65.9
Male	145	34.1
Grade of Students		
Basic science (Class 1,2,3)	255	60.0
Clinical science (Class 4,5,6)	170	40.0
Geographical Region		
Marmara	36	8.5
Aegean	22	5.2
Mediterranean	42	9.9
Central Anatolia	222	52.2
Black Sea	59	13.9
Eastern Anatolia	26	6.1
Southeastern Anatolia	18	4.2
The Place Where They Live		
City center	324	76.2
Town/village	101	23.8
Father's Education Level		
Primary school	59	13.9
High school	128	30.1
University and above	138	56
Mother's Education Level		
Primary school and below	125	29.4
High school	143	33.6
University and above	157	36.9
The working status of mother		
Working	155	36.5
Not working	270	63.5

A total of 94.6% (n=402) of the students were planning specialization training after graduation. The following are the branches in which students wish to specialize: 1.8% (n=6) are basic sciences, 52.3% (n=174) are surgical sciences, and 45.9% (n=153) are internal sciences. There was a significant difference in the branch in which they intended to specialize and gender (*P*<.001), but there was no significant difference in the desire to receive specialization training or gender (*P*=.501). For female students, the desire to major in surgery was 40.1% (n=103), whereas for male students, the percentage was 61.8% (n=84). With respect to their choices for specialty education, female students were more likely than male students were to consider the comfort of their working environment (*P*=.022). Table 2 displays the branches that students wish to select on the basis of their sex as well as the reasoning behind their selections.

Table 2. Specializations that students want to choose and their reasons for choosing

	Students' sex		*P*
	Female % (n)	Male % (n)	
A desire for specialization			
Yes	93.9 (263)	95.9 (139)	.501
Undecided	6.1 (17)	4.1 (6)	
No	-	-	
Desired area of specialization			
Basic sciences	4.7 (12)	-	
Surgical sciences	40.1 (103)	61.8 (84)	**< .001**
Internal sciences	55.3 (142)	38.2 (52)	
Reasons for choosing			
High financial returns	16.1 (45)	18.6 (27)	.499
Comfortable working conditions	34.3 (96)	23.4 (34)	**.022**
Compatible with the values and judgments I believe in	47.9 (134)	53.8 (78)	.261
The gender of the patient population	1.1 (3)	0 (0)	.554
The ages of the patient population	8.2 (23)	6.9 (10)	.705
Job satisfaction	15.0 (42)	12.4 (18)	.557

Students' gender attitudes about their fields of expertise were questioned. In the answers given to these questions, the gender egalitarian attitudes of female students attract attention. The female students reported that there was no gender difference in the capacity to handle the requirements of the profession, which included coolness; skill, strength and endurance; patience; and effective communication skills (all *P*<.001). Table 3 provides an analysis of the results by gender.

Table 3. Students' gender attitudes about their fields of expertise

	Could be more successful, % (n)			*P*
	Woman	Men	Gender does not matter	
If the job requires coolness				
Female students' answers	1.4 (4)	15 (42)	83.6 (234)	< .001
Male students' answers	0 (0)	45.4 (66)	54.5 (79)	
If the job requires skill				
Female students' answers	19.6 (55)	3.6 (10)	76.8 (215)	< .001
Male students' answers	15.9 (23)	22.8 (33)	61.4 (89)	
If the job requires strength and endurance				
Female students' answers	0.4 (1)	55.4 (155)	44.2 (124)	< .001
Male students' answers	1.4 (2)	80.7 (117)	17.9 (26)	
If the job requires patience				
Female students' answers	37.5 (105)	1.4 (4)	61.1 (171)	< .001
Male students' answers	36.6 (53)	9.7 (14)	53.8 (78)	
If the job requires good communication skills				
Female students' answers	11.1 (31)	14.6 (41)	74.3 (208)	< .001
Male students' answers	26.9 (39)	20 (29)	53.1 (77)	
Could be more exposed to mobbing				
Female students' answers	63.2 (177)	5 (14)	31.8 (89)	.004
Male students' answers	42.8 (62)	18.6 (27)	38.6 (56)	
Could be more exposed to abuse				
Female students' answers	86.8 (243)	.7 (2)	12.5 (35)	.412
Male students' answers	82.1 (119)	.7 (1)	17.2 (25)	
Could be more exposed to violence				
Female students' answers	48.6 (136)	5 (14)	46.4 (130)	< .001
Male students' answers	26.9 (39)	31 (45)	42.1 (61)	

The majority of female students (62.9%; n=176) believed that academics did not discriminate, in contrast to the majority of male students (47.6%; n=69), who said that academics in branches of internal science were more tolerant and privileged toward students of the opposite sex (*P*=.001). Most male students (44.1%; n=64) said that the other sex was treated more tolerantly than the majority of female students (55%; n=154), who believed that academics in the field of surgery did not discriminate (*P*=.003). Students of both sexes (F: 77.9%; M: 71%) said they did not discriminate on the basis of gender when asked about their preferences for the gender of the patients when doing private area examinations (*P*=.384). Concerns about starting a family restricted 44.6% (n=125) of female students from selecting a specialization; among male students, this rate was 30.3 (n=44, *P*<.001).

The mean score of the students on the gender role attitudes scale was 57.6 ± 10.5. A comparison of various factors with students' gender role attitudes is shown in Table 4.

Table 4. A comparison of various factors with students' gender roles attitudes

	The Gender Role Attitudes Scale Score (M±SD)	***P***
Sex		
Female	60.8 ± 9.1	< .001
Male	51.3 ± 10.2	
Grade of Students		
Basic science (Class 1,2,3)	57.7 ± 10.8	.771
Clinical science (Class 4,5,6)	57.4 ± 10	
Geographical Region		
Marmara	57.2 ± 9.3	.748
Aegean	60 ± 9.5	
Mediterranean	57.1 ±12.7	
Central Anatolia	57.3 ± 10.4	
Black Sea	58.7 ± 10.7	
Eastern Anatolia	55.4 ± 10.3	
Southeastern Anatolia	58.9 ± 10	
The Place Where They Live		
City center	57.7 ± 10.4	.693
Town/village	57.2 ± 10.8	
Father's Education Level		
Primary school	49.7 ± 10.2	< .001[a]
High school	61.3 ± 9.1	
University and above	57.5 ± 10.3	
Mother's Education Level		
Primary school and below	54.9 ± 10.1	.004[a,b]
High school	58.8 ± 10.6	
University and above	58.5 ± 10.4	
The working status of mother		
Working	57.0 ± 11	.149
Not working	58.5 ± 9.6	
Feeling constrained in selecting a specialization because of concerns about beginning a family		
Yes	55.6 ± 10.4	.008[c,d]
No	58.4 ± 11.5	
Undecided	59.3 ± 8.8	
Desired area of specialization		
Basic sciences	61.3 ± 6.8	.017[e]
Surgical sciences	56 ± 11.5	
Internal sciences	58.9 ± 9.7	

Bonferroni Post hoc correction a: primary-high school, b: primary school-university, c: yes-no, d: yes-undecided, e: internal-surgical sciences

DISCUSSION

Physicians who provide healthcare are supposed to act with equality and without prejudice, and they should also contribute to the improvement of sexist attitudes in society. The findings of this study showed that the sex of students and the educational attainment of mothers and fathers had substantial impacts on the gender role attitudes of medical students. Students who expressed fear about starting a family during their career planning had significantly lower gender role scores. It was discovered that students' opinions toward gender roles were independent of their years of education. Studies carried out at several Turkish medical universities revealed no discernible variation in medical students' grade levels or gender attitudes.[11–13] The gender roles and gender perceptions measured before and after the midwifery students' semester-long "Gender and Violence" course did not significantly change, according to a study performed in Konya by Karakoç et al.[14] These findings suggest that students' egalitarian gender norms are unaffected by medical education. The transfer of institutional-organizational, interpersonal-social, contextual-cultural, and motivational-psychological issues between faculty and students through an unwritten, largely ad hoc, and highly interpersonal form of teaching and learning is known as the "hidden curriculum" in medical education. One of the subjects included in medical education's concealed curriculum is egalitarian views on gender roles.[15] In this study, students' gender beliefs and roles were found to be unaffected by their education in medical school, which is consistent with other studies in the literature. It is advised that medical schools look into their hidden curriculum and address this problem.

A study carried out in Taiwan examined the ten-year history of messages exchanged among medical students on a popular sharing platform. The study revealed that the discriminatory treatment of female students, a hostile work environment, stereotypical gender-based labor division, and sexual harassment all harmed the students' self-confidence and learning opportunities.[16] Male students felt that academics in the internal and surgery departments were more accepting of students of other genders, although most female students in our study said that academics did not discriminate between students on the basis of gender. The gender role attitudes scale scores of the male students were considerably lower than those of the female pupils. According to this finding, male students do not possess a perceptually egalitarian mindset. Even if academics act equally, they may have interpreted female students as being treated tolerantly. Similar to the findings of this study, female medical students in China had more egalitarian views on gender than did their male counterparts.[11–13,17] Gender role attitudes between male and female students also reveal themselves in the question of which gender can improve their field of expertise. When asked which gender does better if a job requires endurance and strength, 81% of the male students said men, whereas this percentage was approximately 55% for the female students. For example, regarding which gender would be more successful in jobs that require patience, both male and female students answered "women" at a rate of 37%. Compared with men, students of both genders stated that women may have a greater possibility of being exposed to mobbing, harassment, and violence in the workplace. According to the findings of a study conducted in England, students' perceptions of the gender-based culture in clinical practice had an impact on their learning.[4] According to a study performed in Ireland by Cronin et al., female students were affected by positive role models and considered factors such as parental leave, working hours, and the option to work part-time while deciding on a surgical profession. Similarly, female students were more inclined than male students in our study to consider working conditions when deciding on a specialization. According to reports, there are more women than men working as surgeons in Malaysia, and this trend is attributed to the influence of female role models.[5] In the United States, women make up 62% of pediatricians, and the proportion of female pediatricians in academia is quite low in comparison to that of men.[18] There is still a global glass ceiling on women's professional aspirations and advancements, even in the medical field, where practitioners are expected to serve as role models for society and treat patients fairly.

Demographic factors such as the students' own gender and the educational attainment of their parents were found to have a significant effect on their gender roles. Similar findings were reported by Zeybek et al., who reported that people who were born and reared in urban areas and whose parents had greater levels of education had more egalitarian views.[17] The gender role scores of those with working mothers, mothers with higher levels of education, and those without siblings were shown to be more egalitarian than others in Ergin et al.'s study.[12]

The most significant finding of our research is that medical education has no effect on students' attitudes toward gender; instead, the family's demographics shape their opinions on the subject. The hidden curriculum for medical education should be assessed and improved in further research.

Notably, medical education has no effect on students' attitudes toward gender. Their views on the subject are shaped by the demographic characteristics of the family. It is recommended that the hidden curriculum for medical education be evaluated and developed in future studies.

Limitations of the study

Since our study was conducted in a single center, generalizations cannot be made to large populations. In our study, we used a scale with Turkish psychometric measurements. This is a strength of the study, but the use of a mixed method, including a qualitative method, could have enabled more detailed data to be obtained. It is presented as a recommendation for future studies.

Ethics Committee Approval: Ethics committee approval for the study was obtained from Ethics Committee for non-interventional clinical research from Sivas Cumhuriyet University. (Date: 15.01.2020, Number: 2020-01/39)
Informed Consent: Informed consent was obtained from the participants.
Peer-review: Externally peer-reviewed.
Author Contributions: Concept - EA, AGB, RTB, SK; Design - EA, AGB, RTB, SK; Supervision - EA, SK; Resources - EA, AGB, RTB; Materials - EA, AGB, RTB; Data Collection and/or Processing - EA, AGB, RTB; Analysis and/or Interpretation - EA; Literature Review - EA; Writing - EA, SK; Critical Review - EA
Conflict of Interest: The authors have no conflicts of interest to declare.
Financial Disclosure: The authors declared that this study has received no financial support.

REFERENCES

1. Aydemir S, Öz E, Erdamar G. Gender in Education: A Systematic Review of the Literature in Turkey. *Int Cont Educ Research.* 2022;9(2):232-247. doi:10.33200/ijcer.923247
2. Lindsey LL. Gender Roles: A Sociological Perspective. 6th ed. Routledge; 2015. doi:10.4324/9781315664095
3. Yükseköğretim Kurulu. Öğrenci Sayıları. Yükseköğretim Bilgi Yönetim Sistemi. Published 2024. Accessed February 22, 2024. https://istatistik.yok.gov.tr/
4. Samuriwo R, Patel Y, Webb K, Bullock A. 'Man up': Medical students' perceptions of gender and learning in clinical practice: A qualitative study. *Med Edu.* 2020;54(2):150-161. doi:10.1111/medu.13959
5. Cronin C, Lucas M, McCarthy A, et al. Are we reaping what we sow? Gender diversity in surgery: a survey of medical students. *Postgrad Med J.* 2019;95(1121):119-124. doi:10.1136/postgradmedj-2018-136136
6. Özden S, Gölbaşı Z. Determination of health workers attitudes towards gender roles. *KOU Sag Bil Derg.* 2018;4(3):95-100. (in Turkish)
7. Çelik Bekleviç A, Kıran S. Bir Üniversite Hastanesi Araştırma Görevlilerinin Toplumsal Cinsiyet Rolleri Tutum Ölçeği ve Çalışma Yaşamında Toplumsal Cinsiyet Rolleri Algısının Değerlendirilmesi. *BEÜ Sağlık Uygulama ve Araştırma Merkezi Hemşirelik Hizmetleri Müdürlüğü Bilimsel Çalışmalar Dergisi.* Published online 2017:29-37. (in Turkish)
8. García-Cueto E, Rodríguez-Díaz FJ, Bringas-Molleda C, López-Cepero J, Paíno-Quesada S, Rodríguez-Franco L. Development of the Gender Role Attitudes Scale (GRAS) amongst young Spanish people. *Int J Clin Health Psychol.* 2015;15(1):61-68. doi:10.1016/j.ijchp.2014.10.004
9. Bakioğlu F, Türküm AS. Adaptation of Gender Role Attitudes Scale to Turkish: A Study of Validity and Realibility. *KEF Dergi.* 2019;27(2):717-725. doi:10.24106/kefdergi.2697. (in Turkish)
10. Kogan JR, Shea JA. Course evaluation in medical education. *Teach Educ.* 2007;23(3):251-264. doi:10.1016/j.tate.2006.12.020
11. Aydın S, Ergönül E. Medical Studens' Perception of Gender: A Comparison Between the preclinical and Clinical Phases. *Dokuz Eylül Üniversitesi Sosyal Bilimler Enstitüsü Dergisi.* 2022;24(4):1708-1732. doi:10.16953/deusosbil.1198887 (in Turkish).
12. Sönmez Y, Bulut Kısaoğlu N, Okan Dönmez K. Attitudes Towards Gender Roles of First and Sixth Graders of a Medical Faculty and Related Factors. *Smyrna Tıp Dergisi*. 2018;3:14-21.(in Turkish)
13. Ergin A, Bekar T, Aydemir Acar G. Tıp Fakültesi Öğrencilerinin Toplumsal Cinsiyet Rollerine Yönelik Tutumları ve Etkileyen Faktörler. *Fırat Tıp Dergisi.* 2019;24(3):122-128. (in Turkish).
14. Karakoç H, Duran B, Döner Şİ. The Effect of Gender and Violence Awareness Training Given to University Students on Gender Perception and Attitude. *Güncel Hemşirelik Araştırmaları Dergisi.* 2022;3(2):114-121.
15. Lawrence C, Mhlaba T, Stewart KA, Moletsane R, Gaede B, Moshabela M. The Hidden Curricula of Medical Education: A Scoping Review. *Acad Med.* 2018;93(4):648-656. doi:10.1097/ACM.0000000000002004
16. Cheng LF, Yang HC. Learning about gender on campus: an analysis of the hidden curriculum for medical students. *Med Educ.* 2015;49(3):321-331. doi:10.1111/medu.12628
17. Zeybek V, Kurşun M. Attitudes of medical students towards gender roles. *Pamukkale Med J. Published* online 2019. doi:10.31362/patd.468353
18. Silver JK, Poorman JA, Reilly JM, Spector ND, Goldstein R, Zafonte RD. Assessment of Women Physicians Among Authors of Perspective-Type Articles Published in High-Impact Pediatric Journals. *JAMA Netw Open.* 2018;1(3):e180802. doi:10.1001/jamanetworkopen.2018.0802

ATATÜRK ÜNİVERSİTESİ YAYINLARI
ATATURK UNIVERSITY PUBLICATIONS

Research Article **DOI:** 10.5281/zenodo.13309868

The Psychological Impact of COVID-19 on Medical Students: A Cross-Sectional Study

Pınar DAYLAN KOÇKAYA[1]
Department of Medical Education, Faculty of Medicine, Kocaeli University, Kocaeli, Türkiye

ABSTRACT

Objective: The coronavirus disease 2019 (COVID-19) pandemic has intensified anxiety levels among medical students, who are predisposed to anxiety. Understanding the impact of the pandemic on future physicians is crucial for preparing medical education processes for potential future pandemics. This study aimed to assess pandemic-induced anxiety levels among medical students and their influence on their professional attitudes and to establish a theoretical framework for psychological interventions.

Methods: This descriptive study surveyed 1,273 medical students from Terms 1 to 5 during the second semester of the 2020 academic year. Using an online platform via a distance education center, participants completed the Coronavirus Anxiety Scale (CAS) along with researcher-designed questions.

Results: Among the participants, 51% were female and 49% male. Of these, 21.7% attained a score of ≥9 on the CAS, with 60.4% of those being female, representing a statistically significant disparity. Notably, 86.1% of the Term-1 students who lacked prior medical coursework had registered scores ≤8. Within Period 4, 29.1% surpassed the CAS threshold, indicating heightened anxiety compared with other periods. Families of students with CASs ≥9 presented a notably higher COVID-19 incidence rate, at 37.3%. During the pandemic, 31% of the students expressed apprehension regarding their chosen profession, with 46% surpassing the CAS threshold and 27% scoring ≤8.

Conclusion: During the pandemic, 21.7% of the students experienced heightened anxiety, which was influenced by remote learning and family COVID-19 cases. The students who experienced anxiety questioned their professional path and considered changing their specialty. This highlights the need to prioritize protective measures and educational support for medical students during future crises.

Keywords: Anxiety, COVID-19, Medical students

Received 20.06.2024
Accepted 05.08.2024
Publication Date 14.08.2024

Corresponding author:
Pınar DAYLAN KOÇKAYA
E-mail: pinarkockaya@gmail.com
Cite this article: Daylan Koçkaya, P. The Psychological Impact of COVID-19 on Medical Students: A Cross-Sectional Study. *J Med Educ Family Med*. 2024;1(2):46-52

INTRODUCTION

The COVID-19 pandemic has profoundly impacted global health and society, affecting both physical and mental well-being. The rapid spread of the virus, a serious public health emergency, necessitated widespread quarantine measures to control its transmission. These measures have significantly impacted public health systems, economies, and societal mental health. Consequently, the pandemic has strained medical infrastructures and underscored the critical need for robust public health strategies to manage global health crises effectively.

The COVID-19 pandemic has increased not only the risk of death from infection but also the degree of psychological pressure. The increase in disease spread, especially after the emergence of virus mutations, indicates that the psychological and behavioral effects may persist longer than initially anticipated.[1] Various stressors are associated with pandemics and public health management, including disease unpredictability, loss of freedom, delayed information, the availability of personal protective equipment, abrupt changes, social distancing, and anticipated financial losses.[2]

The pandemic has had severe psychological impacts, exacerbating mental health issues such as anxiety, depression, and stress due to quarantine, isolation, and economic uncertainties.[3] Quarantine and lockdown measures, while effective in reducing viral transmission, have worsened mental health outcomes and increased disparities in health determinants.[4] Socioeconomic impacts, including economic downturns and increased poverty rates, have increased the risk of mental health issues and suicidal behavior.[5] Vulnerable populations, such as children and those with preexisting mental health conditions, have experienced heightened mental health challenges.[6] The pandemic has highlighted the urgent need for comprehensive public health strategies that address not only immediate medical needs but also long-term mental health impacts on society.

Pandemic-related stressors significantly impact mental health, with an amplified effect on healthcare providers. Exposure to COVID-19 has been linked to increased depression and anxiety among healthcare workers, who experience psychological pressure, anxiety, and stigmatization regarding their health, the health of their relatives, and the risk of being a transmission source. Similar effects were observed during previous outbreaks, such as SARS in 2003.[1,7] Compared with the general population, medical students face higher rates of burnout, depression and anxiety, and one in three students experience generalized anxiety.[8] Stress factors include academic pressure, peer competition, work–life balance, and economic difficulties.[9]

During the COVID-19 pandemic, medical students faced unique challenges, such as interrupted education, social disruptions, and high-risk exposures. In Turkey, the rapid transition from traditional to full-time distance medical education has led to increased anxiety among students, emphasizing the profound effects of these sudden educational and social changes.[10,11]

The COVID-19 pandemic has intensified the challenges faced by medical students, negatively affecting their academic performance, professional attitudes and mental health. This increased stress may lead to decreased quality of patient care, depersonalization, a lack of empathy and increased substance abuse. Understanding these effects is crucial to developing effective preventive measures against future public health crises.[12,13,14] This study aims to assess the prevalence and severity of anxiety, depression, and other mental health problems among medical students; identify contributing stressors; and propose evidence-based strategies to increase resilience and promote overall well-being during and after such crises.

METHODS

This study was designed as a descriptive cross-sectional study aimed at understanding the psychological well-being of medical students during the COVID-19 pandemic.

The study was approved by the Kocaeli University Non-Interventional Clinical Research Ethics Committee with decision number 2020-19, Approval:80418770-730.99/40456 Date: 19/06/2020)

Study Setting and Duration

The study was conducted at Kocaeli University Faculty of Medicine. Data were collected online through the distance education center in May and June 2020.

Study Population and Sample

The population consisted of 1411 undergraduate students enrolled at Kocaeli University Faculty of Medicine. The sample included 1273 students who volunteered to participate in the study, selected through cluster sampling among students from Years 1--5. The plan was to include students in classes that participated in online medical education during the COVID-19 period in the study. Sixth grade students are not involved because they do not have online learning. Data belonging to students who registered without completing all the questionnaires were excluded from the study.

Data collection instruments

Information Form

The questionnaire, prepared by researchers on the basis of the literature, expert opinions, and the undergraduate medical

education committee, included demographic data, the Coronavirus Anxiety Scale (CAS), and seven descriptive questions. These questions aimed to capture the unique challenges faced by medical students during the pandemic. The questions included whether being away from school negatively affected their education process, concerns about family health, worries about their chosen profession, family diagnoses of COVID-19, living arrangements during the pandemic, considerations about changing their intended specialty, and their perceived level of information about the pandemic. The CAS was applied separately to assess anxiety levels.

Coronavirus Anxiety Scale

Originally developed by Lee,[15] the CAS identifies cases of dysfunctional anxiety associated with the coronavirus crisis. It is a brief self-reported mental health screening tool developed to help clinicians and researchers recognize individuals with impaired functioning due to coronavirus-related anxiety. The scale consists of five items, each rated on a 5-point Likert scale reflecting symptom frequency over the past two weeks, ranging from 0 (not at all) to 4 (almost every day).

The validity and reliability of the scale were confirmed by Biçer et al..[16] The factor structure is similar to the original structure, consisting of a single dimension with factor loadings between .625 and 0.784 and a Cronbach's alpha of .832. A cutoff score of ≥9 was used to screen at-risk or anxious groups, which is particularly relevant in hospital environments during the pandemic.

Statistical Analyses

Statistical analysis was performed via SPSS Statistics 21 (IBM SPSS Corp., Armonk, NY, USA). Descriptive statistics and the nonparametric chi-square test were used to examine the distribution of CAS scores by gender, academic year, and response to the descriptive questions. A p value less than .05 was considered statistically significant.

RESULTS

Among the students who participated in the study, 51% were female, and 49% were male. In our study, 21.7% of the students had a total CAS score of ≥9, indicating significant anxiety levels. Table 1 shows the gender distribution of the students and the distribution of the students according to their CAS scores. Among those who scored above the cutoff score (≥9), 60.4% were female, a statistically significant difference, highlighting a gender disparity in anxiety levels.

Table 1. Students' Gender Distribution and Distribution on the basis of Their CAS Scores

CAS score	Gender	Number of people n (%)	Total n (%)	Year 1 %	Year 2 %	Year 3 %	Year 4 %	Year 5 %
Score 0-8	Male	515 (82.53)	997 (78.3)	86.11	71.48	81.86	70.91	81.58
	Female	482 (73.23)						
Score 9 – 20	Male	109 (17.47)	276 (21.7)	13.89	28.52	18.14	29.09	18.42
	Female	167 (25.77)						

CAS Coronavirus Anxiety Scale

As shown in Table 1, first-year students who had not yet undergone clinical rotation presented lower anxiety levels, with 86.1% scoring ≤8. The percentage of students scoring above the CAS cutoff score was as follows: 13.9% in first-year students, 28.5% in Year 2 students, 18.14% in Year 3 students, 29.1% in Year 4 students, and 18.4% in Year 5 students. These results suggest that anxiety levels increase with academic progress, peaking in Year 4, when students are more likely to be exposed to clinical environments and high-risk situations.

Table 2. CAS Analysis

		CAS ≤8 (n)	CAS ≥9 (n)	χ^2	*P*
Gender	Male	515	109	13.185	.00
	Female	482	167		
Year	1	248	40	29.327	.00
	2	183	73		
	3	185	41		
	4	195	80		
	5	186	42		
1. Being away from school during the pandemic negatively affected my education process	Strongly Disagree	42	7	36.676	.00
	Disagree	81	6		
	Undecided	88	12		
	I agree	356	79		
	Strongly Agree	430	171		
2. I was concerned about my family's health due to the pandemic	Strongly Disagree	7	5	54.867	.00
	Disagree	30	2		
	Undecided	28	1		
	I agree	349	43		
	Strongly Agree	583	224		
3. The pandemic process made me worried about my chosen profession of medicine.	Strongly Disagree	245	34	70.204	.00
	Disagree	356	73		
	Undecided	119	40		
	I agree	197	61		
	Strongly Agree	80	68		
4. Has anyone in your family been diagnosed with Covid-19 during the pandemic?	No one in my family has been diagnosed	849	173	69.731	.00
	Some of my close family members have been diagnosed	104	72		
	1 of my first-degree relatives was diagnosed	24	19		
	More than one person in my immediate family has been diagnosed	18	9		
	I have been diagnosed	2	3		
5. Where did you stay during the pandemic?	Alone in a student house	44	16	7.873	.096
	With my family in Kocaeli	163	43		
	Back home with my family	759	210		
	With my friends in the student house	25	2		
	At a relative's house in Kocaeli	6	5		
6. After the pandemic process, I thought about changing my intended specialty.	Strongly Disagree	219	49	37.760	.00
	Disagree	498	99		
	Undecided	194	78		
	I agree	60	34		
	Strongly Agree	26	16		
7. As a physician candidate, I think I have enough information about the pandemic.	Strongly Disagree	30	24	26.207	.00
	Disagree	182	57		
	Undecided	328	69		
	I agree	406	100		
	Strongly Agree	51	26		

CAS Coronavirus Anxiety Scale

According to Table 2, the percentage of COVID-19 cases in the families of students with a CAS score ≥9 was 37.3%, which was significantly higher than that of students with lower anxiety levels. This finding indicates a strong correlation between personal experience with COVID-19 within the family and increased anxiety among students. During the pandemic, 31% of the students were concerned about their chosen profession. Among students with a CAS score ≥9, 46% were worried about their profession, compared with 27% among those with a CAS score ≤8, suggesting that higher anxiety levels were associated with greater uncertainty about their future careers.

Furthermore, the study revealed that the percentage of students who did not want to change their targeted specialty after the pandemic was 67.6%. Among those who wanted to change their intended specialty, 17.65% had a CAS score of ≥9, indicating that significant anxiety influenced career considerations. Table 2 also shows a correlation between the students' semester, gender, and CAS score, underscoring the multifaceted impact of the pandemic on medical students' mental health and professional outlook. These findings highlight the urgent need for tailored mental health support and career counseling for medical students during such crises.

DISCUSSION

The COVID-19 pandemic has undeniably affected various aspects of life globally, with significant psychological impacts observed across different populations. During the pandemic, medical students, like the general population, have experienced a significant increase in reports of stress, anxiety, depression, and sleep disturbances.[12,17] This study provides critical insights into how the pandemic has exacerbated mental health issues such as anxiety, depression, and stress. These findings align with the literature and underscore the need for support and interventions tailored specifically for medical students.[10]

Our study underscores the profound psychological impact of the COVID-19 pandemic on medical students, highlighting elevated anxiety levels, significant educational disruptions, and professional concerns. These findings are consistent with the literature, emphasizing the need for targeted mental health support and interventions for medical students during and beyond the pandemic. The implementation of comprehensive mental health strategies and the provision of adequate resources can help mitigate these adverse effects and support the well-being of future healthcare professionals.

According to the findings of the present study, medical students experienced dysfunctional anxiety related to the COVID-19 crisis. The CAS suggests that approximately one out of four students has impaired functionality due to coronavirus anxiety, and these students require further evaluation and treatment. This finding aligns with a study conducted by Cao et al. with 7,143 medical school students, which reported that approximately 24.9% of the students experienced anxiety disorders due to the COVID-19 outbreak.[18]

In a meta-analysis of 89 observational studies involving 1,441,828 students during the COVID-19 pandemic, the prevalence rates of depressive symptoms, anxiety symptoms, and sleep disorders among higher education students were 34%, 32%, and 33%, respectively.[19] Our study revealed similar anxiety prevalence rates among medical students, highlighting the severe impact of the pandemic on this group. Anxiety in medical students negatively affects their quality of life, relationships, academic performance, and professionalism, leading to burnout.[20] Consistent with these findings, our research revealed elevated levels of anxiety and depression among medical students during the pandemic, which contributed to academic and personal disruptions.

Our study revealed that more than half of the students with dysfunctional anxiety (total score ≥9 on the CAS) were female. Like in the literature, female sex appears to be a risk factor for experiencing anxiety.[17]

The study also revealed that the rate of dysfunctional anxiety was higher in fourth-year students who were newly introduced to the clinic than in those in other periods. The prevalence of dysfunctional anxiety was lowest in first-year students, with more than three-quarters of these students being in the risk-free group with respect to anxiety disorders. This can be attributed to fourth-year students' contact with high-risk patients during clinical rotations and their increased knowledge about the prognosis and transmission of COVID-19.[21]

A meta-analysis revealed that the transition from traditional face-to-face education to virtual learning during the COVID-19 pandemic caused significant psychological stress, worsening mental health issues.[22] Another study showed that delays in academic activities were linked to increased anxiety symptoms.[18] Despite evidence that online learning can be effective, students need time to adapt to such drastic changes. The quality of prerecorded videos, clarity in exam information, and regular updates from the university were crucial for student satisfaction during the pandemic.[23] Our findings are in line with these observations, as we also found that among medical students, a small number of our students had increased levels of anxiety due to the sudden transition to online education and the uncertainties it brought. Notably, they expressed concern about their chosen profession, especially during the pandemic, and this concern was even more pronounced among those with high anxiety levels (CAS score ≥9).

Our study revealed that the percentage of COVID-19 cases in families of students with dysfunctional anxiety was significantly greater than that in families of students with low anxiety levels. Students with COVID-19 cases in their families experienced much more intense anxiety. This aligns with the literature, which identifies having a family member, relative, or friend infected with COVID-19 as a significant risk factor for anxiety disorders.[12] These findings underscore the heightened vulnerability of students with affected family members and highlight the need for targeted mental health support for this group. In the literature, factors such as living in urban areas, residing with parents or friends, having a regular income, and receiving social support are noted to protect university students against anxiety during the COVID-19 pandemic.[14,18] However, our research also revealed that even students with these protective factors experienced significant anxiety if they had family members infected with COVID-19.

One out of every four students among all the students and one out of every two students with high anxiety levels reported that they were concerned about their chosen profession. As the anxiety level increases, the perspective on the profession is negatively affected. The intense anxiety experienced by medical

students may increase their vulnerability to the effects of COVID-19. Therefore, it is important to recognize and support students at risk and encourage help-seeking behavior in situations of increased mental distress.

Limitations

This study has several limitations. It is cross-sectional, capturing data at one point in time, which limits causal inferences. The study is based on self-report questionnaires, which can introduce bias due to subjective perceptions and potential inaccuracies. Future research should use longitudinal designs to track changes over time.

CONCLUSION

Our results emphasize the need for comprehensive, tailored interventions to support the mental well-being of medical students, both during the pandemic and in the years to come. The development of personalized psychological support programs that address the unique challenges faced by this population, from remote learning to the personal impact of COVID-19, is crucial for fostering resilience and ensuring long-term success.

Ethics Committee Approval: The study was approved by the Kocaeli University Non-Interventional Clinical Research Ethics Committee with decision number 2020-19, Approval:80418770-730.99/40456 Date: 19/06/2020)
Informed Consent: Consent was obtained through an online consent form, which participants agreed to before completing the survey.
Peer-review: Externally peer-reviewed.
Conflict of Interest: The author have no conflicts of interest to declare.
Financial Disclosure: The author declared that this study has received no financial support.

REFERENCES

1. Luo M, Guo L, Yu M, Jiang W, Wang H. The psychological and mental impact of coronavirus disease 2019 (COVID-19) on medical staff and general public: a systematic review and meta-analysis. Psychiatry Res. 2020;291:113190. doi:10.1016/j.psychres.2020.113190
2. Giorgi G, Lecca LI, Alessio F, et al. COVID-19-related mental health effects in the workplace: a narrative review. *Int. J. Environ. Res. Public Health*. 2020;17(21):7857. doi:10.3390/ijerph17217857
3. Puangsri P, Jinanarong V, Wattanapisit A. Impacts on and care of psychiatric patients during the outbreak of COVID-19. *Clin Pract Epidemiol Ment Health.* 2021;17:52-60. doi:10.2174/1745017902117010052
4. Lui L, Lee Y, McIntyre R. Economic, physical and social determinants of health during the COVID-19 lockdown: a call for renewed societal responses. *COVID-19.* 2021. doi:10.1183/2312508x.10024720
5. Soriano JB, Infante A. Epidemiology: global spread, risk factors for disease incidence, severity and mortality. In: Fabre A, Hurst JR, Ramjug S, eds. COVID-19, ERS Monograph. Sheffield, *European Respiratory Society*; 2021:14-27. doi:10.1183/2312508X.10025420.
6. Ye J. Pediatric mental and behavioral health in the period of quarantine and social distancing with COVID-19. *JMIR Pediatr Parent.* 2020;3:e19867. doi:10.2196/19867
7. Temsah MH, Al-Sohime F, Alamro N, et al. The psychological impact of COVID-19 pandemic on health care workers in a MERS-CoV endemic country. *J Infect Public Health.* 2020;13(6):877-882. doi:10.1016/j.jiph.2020.05.021
8. Tian-Ci Quek T, Wai-San Tam W, X. Tran B, et al. The Global Prevalence of Anxiety Among Medical Students: A Meta-Analysis. *Int. J. Environ. Res. Public Health*. 2019; 16(15):2735. https://doi.org/10.3390/ijerph16152735
9. Hill MR, Goicochea S, Merlo LJ. In their own words: stressors facing medical students in the millennial generation. *Med Educ Online.* 2018;23(1):1530558. doi:10.1080/10872981.2018.1530558.
10. Kuman Tunçel Ö, Taşbakan SE, Gökengin D, et al. The deep impact of the COVID-19 pandemic on medical students: An online cross-sectional study evaluating Turkish students' anxiety. *Int J Clin Pract.* 2021;75(6):e14139. doi:10.1111/ijcp.14139
11. Çalışkan F, Mıdık Ö, Baykan Z, et al. The knowledge level and perceptions toward COVID-19 among Turkish final year medical students. *Postgrad Med.* 2020;132(8):764-772. doi:10.1080/00325481.2020.1795486
12. Saraswathi I, Saikarthik J, Senthil Kumar K, et al. Impact of COVID-19 outbreak on the mental health status of undergraduate medical students in a COVID-19 treating medical college: a prospective longitudinal study. PeerJ. 2020;8:e10164. doi:10.7717/peerj.10164
13. Bose M, Misra D, Das S, et al. Impact of the COVID-19 pandemic on the mental health of medical undergraduates of a tertiary care teaching hospital in Eastern Odisha: A cross-sectional study. Al-Rafidain *J Med Sci.* 2023;5(1S) doi:10.54133/ajms.v5i1S.278
14. Guo AA, Crum MA, Fowler LA. Assessing the Psychological Impacts of COVID-19 in Undergraduate Medical Students. *Int. J. Environ. Res. Public Health*. 2021; 18(6):2952. doi:10.3390/ijerph18062952
15. Lee SA. Coronavirus Anxiety Scale: A brief mental health screener for COVID-19 related anxiety. *Death Stud.* 2020;44(7):393-401. doi:10.1080/07481187.2020.1748481
16. Biçer İ, Çakmak C, Demir H, Kurt ME. Koronavirüs Anksiyete Ölçeği Kısa Formu: Türkçe Geçerlik ve Güvenirlik Çalışması.

Anadolu Klin Tıp Bilimleri Dergisi. 2020;25(Özel sayı 1):216-225. doi:10.21673/anadoluklin.731092

17. Essangri H, Sabir M, Benkabbou A, et al. Predictive Factors for Impaired Mental Health among Medical Students during the Early Stage of the COVID-19 Pandemic in Morocco. *Am J Trop Med Hyg.* 2021;104(1):95-102. doi:10.4269/ajtmh.20-1302
18. Cao W, Fang Z, Hou G, et al. The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Res.* 2020;287:112934. doi:10.1016/j.psychres.2020.112934
19. Deng J, Zhou F, Hou W, et al. The prevalence of depressive symptoms, anxiety symptoms and sleep disturbance in higher education students during the COVID-19 pandemic: A systematic review and meta-analysis. *Psychiatry Res.* 2021;301:113863. doi:10.1016/j.psychres.2021.113863
20. Dyrbye LN, Massie FS, Eacker A, et al. Relationship Between Burnout and Professional Conduct and Attitudes Among US Medical Students. *JAMA.* 2010;304(11):1173–1180. doi:10.1001/jama.2010.1318
21. Nabila AA, Mahmuda INN, Sulistyani, Herdaetha A. Anxiety Levels of Undergraduate and Clerkship Medical Students during the COVID-19 Pandemic. *Ulum Islamiyyah.* 2021;33(3):91-102. doi:10.33102/uij.vol33no3.364.
22. Xu T, Wang H. High prevalence of anxiety, depression, and stress among remote learning students during the COVID-19 pandemic: Evidence from a meta-analysis. *Front Psychol.* 2023;13:1103925. doi:10.3389/fpsyg.2022.1103925.
23. Tsang JTY, So MKP, Chong ACY, Lam BSY, Chu AMY. Higher Education during the Pandemic: The Predictive Factors of Learning Effectiveness in COVID-19 Online Learning. *Education Sciences.* 2021;11(8):446. https://doi.org/10.3390/educsci11080446

ATATÜRK ÜNİVERSİTESİ YAYINLARI
ATATURK UNIVERSITY PUBLICATIONS

Research Article **DOI:** 10.5281/zenodo.13310084

Comparison of Vitamin and Mineral Usage Status of Patients Applying to Family Health Centers Before and After Covid-19

Mercan YAĞIZ KARATAŞ[1]
Family Medicine, Provincial Health Directorate, Elazığ, Türkiye

Hatice ÇAKIR[2]
Department of Anatomy, Faculty of Medicine, Erzincan Binali Yıldırım University, Erzincan, Türkiye

ABSTRACT

Objective: Our aim in this study was to determine how the coronavirus disease 2019 (COVID-19) pandemic affects the use of vitamins and minerals and to determine the level of vitamin and mineral use compared with that in the pre-COVID-19 period.

Methods: Our study is a cross-sectional descriptive study and was conducted with 306 volunteer participants over the age of 18 who applied to three different family health centers (FHCs) in Erzincan city center between February and April 2023. A survey of 25 questions was prepared and administered to the participants.

Results: In our study, regular vitamin and mineral use (20.6%) was found to be low, but the use approximately doubled in cases of illness (39.9%). Additionally, vitamin and mineral use during the COVID-19 pandemic (56.7%) was higher than the rate used while currently ill. The percentage of participants who said that they did not use vitamins or minerals without consulting their doctor was 75.2%. These participants again stated that it is necessary to check the blood levels of vitamins and minerals (77.4%) and that too much is harmful (81%). A total of 84.3% of the participants said that they expected vitamins and minerals to be prescribed by the doctor when they were sick. Those who used vitamins and minerals before and during the COVID-19 pandemic claimed that their use of vitamins and minerals increased in the post-COVID-19 period as well. In addition, the percentage of women who reported that the COVID-19 pandemic increased their use of vitamins and minerals was greater than that of men.

Conclusions: In our study, the use rates of vitamins and minerals, which are known to have effects on many systems, especially the immune system, were low before the COVID-19 pandemic but increased during the post-pandemic period. To improve health and maintain well-being, deficiencies in vitamins and minerals should be replaced, and patients should be more informed of these issues.

Keywords: COVID-19, Use of vitamins, Supplementary minerals, Immunity supplements, Health behaviors

Received 11.07.2024
Accepted 08.08.2024
Publication Date 14.08.2024

Corresponding author:
Hatice ÇAKIR
E-mail: dr.haticecakir24@gmail.com

Cite this article: Yağız Karataş M, Çakır H. Comparison of Vitamin and Mineral Usage Status of Patients Applying to Family Health Centres Before and After Covid-19. *J Med Educ Family Med*. 2024;1(2):53-58

INTRODUCTION

The COVID-19 pandemic has spread rapidly around the world since late 2019, becoming a global health crisis. This unique situation has affected individuals' health-related behaviors and habits, leading to changes in topics such as nutrition and supplement intake.[1,2] In particular, the use of vitamin and mineral supplements to strengthen the immune system has become a popular topic during the pandemic.[3]

Many individuals have explored the potential benefits of vitamins and minerals in the search for prevention and treatment strategies against COVID-19.[4,5] In particular, substances known for their immune-supporting properties, such as vitamin D, vitamin C, zinc, and selenium, have attracted widespread interest.[6,7]

Studies worldwide have shown that COVID-19 patients are malnourished and have deficiencies in some nutrients, such as vitamins C, D, and B12, selenium, iron, omega-3, and medium- and long-chain fatty acids.[8,9] These findings emphasize the potential health effects of vitamins and minerals in preventing infection-related mortality and morbidity.

As a result of this interest, many individuals have begun consuming supplements containing these substances or have increased their current consumption.[4,10] However, issues such as whether these supplements truly have a protective or therapeutic effect against the disease, at what dose and for how long they should be used, possible side effects and interactions, and possible misuse after the pandemic have not yet been sufficiently investigated.

Therefore, this study aimed to determine the current vitamin and mineral utilization levels of patients after the COVID-19 pandemic and to examine whether the pandemic affected vitamin and mineral utilization.

METHODS

The study was cross-sectional and descriptive and was conducted with volunteers aged 18 years and over who applied to three different family health centers in Erzincan Province between February and April 2023. Informed consent was obtained from the participants.

In this study, individuals who applied to three different family health centers in the Erzincan city center between February and April 2023, who were 18 years of age or older, and who voluntarily agreed to participate in the study were included. Those who were not included in the study were those under the age of 18, those who refused to participate in the study, those who could not complete the questionnaire, and individuals who may have affected the immune system due to chronic disease or continuous treatment.

This study was approved by the Erzincan Binali Yıldırım University Clinical Research Ethics Committee on January 19, 2023, with approval number 2023-02/2. All procedures performed in the study were in accordance with the ethical standards of the institutional and national research committees and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

In this study, a questionnaire consisting of 25 questions prepared by the researchers by reviewing the literature and questioning the demographic data and vitamin and mineral usage status of the participants was applied face-to-face.

There are sources in the literature that recommend reaching 10 times as many people as the number of items in the questionnaire when determining the sample volume in cross-sectional studies.[11] In this context, considering the 10% data loss, a minimum of 275 people were planned to be interviewed, and a total of 306 people were included in the study.

Statistical analyses were performed by the researchers, and SPSS Statistics 23 (IBM SPSS Corp., Armonk, NY, USA) software was used. Descriptive analyses were performed, and nominal variables are presented as the number of cases (n) and percentage (%). The chi-square test was used to compare two categorical datasets.

The statistical significance level was set at $P<.05$.

RESULTS

A total of 306 participants, 44.1% male (n=135) and 55.9% female (n=171), with a mean age of 37.58 years (min=18, max=86), were included in the study. Among the participants, 40% (n=95) were primary-secondary school graduates, 27.5% (n=84) were high school graduates, 37.9% (n=116) were university graduates, and 3.6% (n=11) were illiterate.

While the percentage of those who did not receive vitamin-mineral support before the COVID-19 pandemic was 60.8% (n=186 people), this percentage decreased to 28.4% (n=87) after the pandemic, but the difference was not statistically significant ($P=.606$). We questioned whether the participants were currently actively using vitamins and minerals and whether they used vitamins and minerals when they were ill, during pregnancy, and during the pandemic. When the answers were evaluated, 79.4% of the respondents did not use vitamins regularly, 60.1% of the respondents did not use vitamins and minerals when questioned about vitamin mineral use when ill, and 73% of the respondents used vitamins and minerals when questioned about use during pregnancy. It was observed that 60.8% of those who did not use vitamins and minerals before the COVID-19 pandemic; 56.7% of those who used vitamins and minerals while having COVID-19 infection. The answers of the participants to the questions about their vitamin and mineral utilization status are given in Table 1.

Table 1: Vitamin and mineral utilization status of the participants

		n	%
Are you currently using vitamins and minerals regularly?	Yes	63	20.6
	No	243	79.4
Do you use vitamins and minerals when you are sick?	Yes	122	39.9
	No	184	60.1
Did you use vitamins and minerals during your pregnancy?	Yes	73	73
	No	27	27
Have you had a COVID-19 infection before?	Yes	134	43.8
	No	172	56.2
Were you taking vitamin-mineral supplements before the COVID-19 pandemic?	Yes	120	39.2
	No	186	60.8
Did you use vitamins and minerals while having a COVID-19 infection?	Yes	76	56.7
	No	58	43.3
What are the vitamin-mineral supplements that you use regularly or irregularly?	Vitamin C only	40	13.1
	Iron Only	29	9.4
	Vitamin B12 only	23	7.5
	Vitamin D only	18	5.8
	Only Other	5	1.6
	I use two or more of these	104	33.9
	I do not use it	87	28.4
Do you use vitamins-minerals without consulting your doctor?	Yes	76	24.8
	No	230	75.2

While 76.5% (n=234) of the participants agreed/completely agreed that vitamins were useful in the treatment of diseases, the percentage of those who expected to be prescribed vitamins and minerals by the doctor when they were sick was 84.3% (n=258). Participants' knowledge and attitudes about vitamins and minerals were questioned. The answers of the participants to the attitude questions about vitamin and mineral use are given in Table 2.

Table 2: Respondents' answers to attitude questions about vitamin-mineral use

		n	%
Vitamins are useful in the treatment of diseases	Totally agree	82	26.8
	Agree	152	49.7
	I'm undecided	48	15.7
	I disagree	11	3.6
	Completely disagree	13	4.2
Vitamins are useful in preventing diseases	Totally agree	77	25.1
	Agree	166	54.2
	I'm undecided	40	13.1
	I disagree	13	4.2
	Completely disagree	10	3.3
It is necessary to look at the blood level of vitamins and minerals	Totally agree	102	33.3
	Agree	135	44.1
	I'm undecided	39	12.7
	I disagree	19	6.2
	Completely disagree	11	3.6
An excess of vitamins and minerals is harmful	Totally agree	94	30.7
	Agree	154	50.3
	I'm undecided	32	10.5
	I disagree	16	5.2
	Completely disagree	10	3.3
My family doctor tells me about vitamins and minerals.	Totally agree	97	31.7
	Agree	131	42.8
	I'm undecided	44	14.4
	I disagree	24	7.8
	Completely disagree	10	3.3
When I am sick, I wait for the doctor to prescribe vitamins and minerals	Totally agree	106	34.6
	Agree	152	49.7
	I'm undecided	27	8.8
	I disagree	13	4.2
	Completely disagree	8	2.6

Among the 86 women (n=48) and 48 men (n=28) who had COVID-19, 55.8% (n=48) and 58.3% (n=28) used vitamin-mineral supplements during infection, and there was no statistically significant difference between them (*P*=.778). It was questioned whether there was a change in the rate of vitamin and mineral use during the COVID-19 pandemic and what they thought about the disease when it was used during this period. The relationships between the increase in vitamin and mineral use and various parameters during the COVID-19 pandemic are presented in Table 3.

Table 3. Effects of the COVID-19 pandemic on various parameters related to vitamin and mineral use

		Has the COVID-19 pandemic increased the use of vitamins and minerals?			*P*
		Increased	**Reduced**	**Did not impress**	
Gender	Woman	111 (64.9%)	11 (6.4%)	49 (28.7%)	<.001
	Male	58 (43%)	21 (15.6%)	56 (41.5%)	
Education	Illiterate, primary-secondary school	52 (49.1%)	9 (8.5%)	45 (42.5%)	<.001
	High School	37 (44%)	15 (17.9%)	32 (38.1%)	
	University	80 (69%)	8 (6.9%)	28 (24.1%)	
Were you taking vitamin mineral supplements before the COVID-19 pandemic?	Yes	82 (68.3%)	10 (8.3%)	28 (23.3%)	.001
	No	87 (46.8%)	22 (11.8%)	77 (41.4%)	
Have you had COVID-19?	Yes	81 (60.4%)	11 (8.2%)	42 (31.3%)	0.230
	No	88 (51.2%)	21 (12.2%)	63 (36.6%)	
Did you use vitamins and minerals while having COVID-19?	Yes	61 (80.3%)	4 (5.3%)	11 (14.5%)	<.001
	No	20 (34.5%)	7 (12.1%)	31 (53.4%)	
Are you currently using regular vitamins and minerals?	Yes	45 (71.4%)	1 (1.6%)	17 (27%)	.004
	No	124 (51%)	31 (12.8%)	88 (36.2%)	
Do you use vitamins and minerals when you are sick right now?	Yes	88 (72.1%)	5 (4.1%)	29 (23.8%)	<.001
	No	81 (44%)	27 (14,7%)	76 (41.3%)	

DISCUSSION

This study revealed a significant increase in vitamin and mineral supplement use during the COVID-19 pandemic, reflecting increased awareness of their potential benefits. Despite this, the statistical analysis revealed no significant difference in usage compared with pre-pandemic levels. Many participants believed in the efficacy of these supplements for disease prevention and treatment. Demographic differences were noted, with women and higher-educated individuals being more likely to increase their usage. These findings highlight the need for clear public health guidelines on the effective and safe use of vitamin and mineral supplements.

In our study, the prevalence of the regular use of vitamins and minerals (20.6%) was low, but the prevalence of their use (39.9%) approximately doubled in cases of illness. In a study conducted by Coskun et al. in Istanbul, 34.6% of the study group used vitamins regularly, 40.8% used vitamins occasionally, 35.2% of the people stated that they used vitamins because they felt tired, 31% because they did not have a balanced diet, and 22% because their doctor recommended it.[12] In addition, in our study, the use of vitamins and minerals while having COVID-19 (56.7%) was found to be higher than the rate used while currently ill. This may be attributed to the fact that vitamin and mineral supplementation (vitamin D and vitamin C) is important in the treatment of COVID-19.

When the most frequently used vitamins and minerals were analyzed, vitamin C (13.1%) was the most frequently used vitamin and mineral. However, vitamin D levels are very low in our country, and the utilization rate is expected to be relatively high. Despite this, the low rate of vitamin D utilization (5.8%) was surprising. However, the use of more than one vitamin or mineral (33.9%) was more common than single use. Therefore, since vitamins and minerals other than vitamin D are used, the rate of vitamin D utilization may be higher overall. In addition, the number of participants who did not use any vitamins or minerals was undeniably high (28.4%).

In our study, 75.2% of the participants stated that they did not use vitamins or minerals without consulting their doctor. The majority of the participants thought that vitamins and minerals are useful in the prevention and treatment of diseases. These participants also stated that it is necessary to check the blood levels of vitamins and minerals (77.4%) and that too much is harmful (81%). A total of 84.3% of the participants said that they expected vitamins and minerals to be prescribed by a doctor when they were ill. As such, doctors should inform their patients about vitamin and mineral support during periods of illness and disease prevention. In addition, another reason why the rate of vitamin and mineral use during the COVID-19 period was higher than the rates of vitamin and mineral use while currently ill may be that these supplements are recommended to every patient by doctors and healthcare professionals in COVID-19 treatment. Therefore, vitamins and minerals are also evaluated as medicines by patients, and physician support should be given in terms of

correct use. The majority of the participants (74.5%) stated that their family physician informed them about vitamins and minerals, but a contradiction was found between this answer and the other answers when the situations listed above and their usage status were considered.

In our study, a statistically significant difference was found between the answers of women and men to the question about the effect of the COVID-19 pandemic on vitamin and mineral use (*P*<.001). The majority of women (64.9%) stated that the COVID-19 pandemic increased the use of vitamins and minerals. However, a study by Bulbul et al. revealed that vitamin use did not differ according to the presence of a health problem or sex.[13]

This study revealed that pre-pandemic vitamin and mineral users were more likely to report increased use during the COVID-19 pandemic, reflecting greater receptiveness among those familiar with supplementation. A significant difference was observed between supplement use during COVID-19 infection and the pandemic's impact (*P*<.001), with 80.3% of those using supplements during infection reporting increased use. Additionally, both current regular supplement users and those using supplements when ill reported significant increases due to the pandemic (*P*=.004 and *P*<.001, respectively). These findings align with previous research and highlight the pandemic's role in promoting supplement use as a perceived protective measure, underscoring the need for clear public health guidelines.[14]

When the female participants in our study who had a history of pregnancy were asked about their vitamin and mineral use, 73% of them took vitamin and mineral supplements during pregnancy. This may be associated with the regular follow-up of pregnant women by family physicians and the provision of vitamin and mineral supplements free of charge. Similarly, it has also been reported in the literature that vitamin and mineral use during pregnancy is high and is supported by health services.[15] This finding emphasizes the effectiveness of prenatal care services and the access of pregnant women to nutritional supplements.

Limitations

This study has several limitations. The cross-sectional design limits causality assessment between the pandemic and supplement use changes. Self-reported data may introduce recall and social desirability biases. The use of samples from three health centers in Erzincan limits generalizability. Other influencing factors, such as socioeconomic status and healthcare access, were not considered. Additionally, the survey did not specify supplement types or brands, which could provide more detailed insights. Future research should use longitudinal designs, larger and more diverse samples, and detailed data collection methods.

CONCLUSION

In conclusion, in our study, while the rate of use of vitamins and minerals, which are known and proven to affect many systems, especially the immune system, was low before the COVID-19 pandemic, it increased in the post-pandemic period. Doctors, especially family physicians, have a great job for proper and correct use. To improve health and maintain well-being, deficiencies in vitamins and minerals should be replaced, and patients should be informed more about these issues.

Ethics Committee Approval: Erzincan Binali Yıldırım University, Clinical Research Ethics Committee, date: 19.01.2023, number no: 2023-02/2.
Informed Consent: Informed consent was obtained from the participants.
Peer-review: Externally peer-reviewed.
Author Contributions: Concept – MYK, HC; Design - MYK, HC; Supervision – MYK, HC; Resources - MYK, HC; Materials – MYK, HC; Data Collection and/or Processing – MYK, HC; Analysis and/or Interpretation MYK; Literature Search – MYK, HC; Writing Manuscript - MYK, HC; Critical Review - MYK, HC.
Conflict of Interest: The authors have no conflicts of interest to declare.
Financial Disclosure: During this study, no financial or spiritual support was received neither from any pharmaceutical company directly connected with their search subject nor from a company that provides or produces medical instruments and materials that may negatively affect its evaluation process.

REFERENCES

1. Weir EK, Thenappan T, Bhargava M, Chen YJCM. Does vitamin D deficiency increase the severity of COVID-19 *Clin Med* 2020;20(4):e107.
2. Gürsoy E, Eren S. The Burden of Post-COVID-19 Syndrome: A Cross-Sectional Study of Symptoms and Quality of Life in a Turkish Sample. *Euras J Fam Med.* 2023;12(3):159-166. doi:10.33880/ejfm.2023120307
3. Clemente-Suárez VJ, Ramos-Campo DJ, Mielgo-Ayuso J, et al. Nutrition in the actual COVID-19 pandemic. A narrative review. *Nutrients.* 2021;13(6):1924.
4. Wegbom AI, Edet CK, Raimi O, Fagbamigbe AF, Kiri VAJFiph. Self-medication practices and associated factors in the prevention and/or treatment of COVID-19 virus: a population-based survey in Nigeria. *Front Public Health.* 2021;9:606801.
5. Karabas B, Gursoy E. The Impact of COVID-19 Pandemic on Patients' Attitudes Towards Traditional and Complementary Medicine: A Cross-Sectional Study. *J Tradit Complem Med.* 2024;7(1)
6. Sobczyk MK, Gaunt TRJN. The effect of circulating zinc, selenium, copper and vitamin K1 on COVID-19 outcomes: a Mendelian randomization study. *Nutrients.* 2022;14(2):233.
7. Puścion-Jakubik A, Bielecka J, Grabia M, et al. Consumption of food supplements during the three COVID-19 waves in Poland—focus on zinc and vitamin D. *Nutrients.* 2021;13(10):3361.
8. Voelkle M, Gregoriano C, Neyer P, et al. Prevalence of micronutrient deficiencies in patients hospitalized with COVID-19: An observational cohort study. *Nutrients.* 2022;14(9):1862.
9. Larrazabal Jr RB, Perez BMB, Masamayor EMI, Chiu HHC, Palileo-Villanueva LAMJCnE. The prevalence of malnutrition

and analysis of related factors among adult patients with the Coronavirus Disease 2019 (COVID 19) in a tertiary government hospital: the MalnutriCoV study. *Clin Nutr ESPEN*. 2021;42:98-104.

10. Ayosanmi OS, Alli BY, Akingbule OA, et al. Prevalence and correlates of self-medication practices for prevention and treatment of COVID-19: a systematic review. *Antibiotics*. 2022;11(6):808.
11. Akgül A. Tıbbi araştırmalarda istatistiksel analiz teknikleri: SPSS uygulamaları. Yükseköğretim kurulu matbaası; 2005.
12. Çoşkun F, Turhan H. İstanbul'da vitamin kullanım alışkanlıkları ve bu alışkanlıkları etkileyen faktörler üzerine bir araştırma. *Marmara Pharm J.* 2010;14(1):21-28.
13. Bülbül S, Sürücü M, Aşık G. Vitamin kullanım alışkanlıkları ve etkileyen faktörler. *Çocuk Sağlığı ve Hastalıkları Dergisi.* 2014;57(4):241-245.
14. Mohsen H, Yazbeck N, Al-Jawaldeh A, et al. Knowledge, attitudes, and practices related to dietary supplementation, before and during the COVID-19 pandemic: Findings from a cross-sectional survey in the Lebanese population. *Int. J. Environ. Res. Public Health.* 2021;18(16):8856.
15. Oh C, Keats EC, Bhutta ZA. Vitamin and mineral supplementation during pregnancy on maternal, birth, child health and development outcomes in low-and middle-income countries: a systematic review and meta-analysis. *Nutrients.* 2020;12(2):491.

ATATÜRK ÜNİVERSİTESİ YAYINLARI
ATATURK UNIVERSITY PUBLICATIONS

Research Article **DOI:** 10.5281/zenodo.13310409

Resident Doctors' Experiences in Breaking Bad News: The Level of Using Spikes Protocol and Related Factors

Banu Çiçek DİLFİRUZ[1]
Sarayköy Family Health Center, Denizli, Türkiye

Yasemin CAYIR[2]
Department of Family Medicine, Faculty of Medicine, Atatürk University, Erzurum, Türkiye

Esra CINAR TANRIVERDI[3]
Department of Medical Education, Faculty of Medicine, Atatürk University, Erzurum, Türkiye

ABSTRACT

Objective: This study aimed to determine assistant doctors' experiences of giving bad news, their use of the SPIKES protocol, and effective factors.

Methods: The study was conducted at Atatürk University Faculty of Medicine between September-December 2017 with 232 assistant doctors. The participants' experiences of delivering bad news were assessed using a questionnaire based on the SPIKES protocol. The questionnaire, consisting of 20 questions on a five-point Likert scale, covered six key areas: environment, perception, invitation, information, affect, and plan-summary. Factors that could affect participants' methods of breaking bad news were questioned. Significance level was accepted as $P<.05$.

Results: Of the participants, 57.3% (n=133 were male, 57.3% (n=133) were married, and 70.3% (n=163) were working in internal sciences. Mean age was 29±3.5 years, and mean total working time was 4.5±3.3 years. 64.7% (n=150) had no pre-graduation training in giving bad news, and 90.9% (n=211) had no post-graduation training. 38% felt competent, 35.8% found difficulty in giving bad news. 60.8% devoted enough time to interviews, 24.1% arranged quiet rooms, and 43.1% used warning sentences, and 75.9% empathized, 69% had quiet rooms during interviews. All participants allowed their emotions, and 84.9% made eye contact. Male participants introduced themselves more frequently than females before interviews ($P<.05$).

Conclusion: To gain the skill of giving bad news of assistant doctors the training needs should be met and they should be supported. More training and experience in areas such as setting the environment, invitation and information are important, especially for the full implementation of the SPIKES protocol.

Keywords: Patient-physician communication, Breaking bad news, SPIKES protocol

This study was created from Banu Cicek Dilfiruz's Family Medicine specialization thesis.

Received 09.07.2024
Accepted 12.08.2024
Publication Date 14.08.2024

Corresponding author:
Banu Çiçek DİLFİRUZ
E-mail: denizli_78@hotmail.com

Cite this article: Dilfiruz ÇB, Cayir Y, Cinar Tanriverdi E. Resident Doctors' Experiences in Breaking Bad News: The Level of Using Spikes Protocol and Related Factors. *J Med Educ Family Med*. 2024;1(2):59-65

INTRODUCTION

Breaking bad news is defined as "a message that destroys hope, poses a threat to both the physical and mental well-being of the individual, risks disrupting their lifestyle, and implies a reduction in life choices".[1] In medicine, breaking bad news is one of the most special situations in patient–physician communication. Breaking bad news is difficult, and effective communication techniques should be used.[2,3] Therefore, breaking bad news requires complex communication skills. Failure to break bad news appropriately increases the destructive effect of bad news and negatively affects patient compliance with treatment.[4]

Some techniques for delivering bad news have been developed to facilitate clinicians' work. These techniques are not protocols that physicians must follow but can be adapted and followed in every culture, guiding the physician and making this difficult task easier and more professional. One of the most well-known and accepted models is the SPIKES protocol. SPIKES is a protocol named after the initials of the structured steps to be taken when delivering bad news. This approach consists of six steps: "S-Setting Up the Interview, P-Assessing the Patient's Perception, I-Obtaining the Patient's Invitation, K-Breaking Knowledge And Information to the Patient, E-Addressing the Patient's Emotions With Empathic Responses, S-Strategy And Summary".[5]

Breaking bad news skills is an area that is often underemphasized in medical education, but it has critical importance in clinical practice. It is vital for physicians to communicate empathically and effectively with their patients both to ensure patient trust and to minimize negative emotional reactions.[3,4] However, the limited number of studies on the knowledge and skills of resident physicians, who play important roles in breaking bad news, and the fact that it has only recently started to be included in pregraduation and postgraduate training have resulted in a lack of knowledge and experience among all other healthcare professionals, especially resident physicians. Further research in this field may contribute to the development of bad news skills in medical education and the adoption of more effective communication strategies in clinical practice.

This study aimed to determine the experiences of resident doctors working at Atatürk University Faculty of Medicine Hospital in breaking bad news, the level of use of the SPIKES protocol while breaking bad news and the effective factors.

METHODS

Study Design

This cross-sectional study was conducted at Atatürk University Faculty of Medicine (AUFM) Hospital between September and December 2017.

Setting and Sample

The population of the study consisted of 318 resident doctors working at AUFM Hospital on the dates of the study. Since all residents were planned to be included in the study, no sample calculations were performed. The study was conducted with volunteers. Volunteer consent forms were obtained from all participants.

Measurements and Data Collection

Data were collected through a questionnaire consisting of two parts. In the first part of the questionnaire, age, gender, marital status, having children, year and branch of residency, years in the profession, number of years given bad news, training on breaking bad news before and after graduation, difficulty in breaking bad news, and experience breaking bad news were recorded. The second part of the questionnaire consisted of 20 questions prepared according to the SPIKES protocol, which is accepted as a breaking bad news model. The five-point Likert scale (never, rarely, sometimes, most of the time, always) covered six main areas: Setting up, Perception, Invitation, Information, Emotoion and Strataegy-Summary. The aim of this section was to assess the ways in which resident doctors deliver bad news.

Data were collected via the face–to–face survey method. The questionnaire forms were distributed to the resident physicians who agreed to participate and were collected one week later. The participants who stated that they had never given bad news before could not answer the second part of the questionnaire.

The inclusion criteria were as follows: being a resident physician at Ataturk University Faculty of Medicine Hospital, volunteering to participate and having given bad news before. Non-volunteers, those with no previous bad news experience and residents in basic sciences were excluded.

Statistical analysis

Statistical analysis was performed via SPSS Statistics 20 (IBM SPSS Corp., Armonk, NY, USA). For descriptive statistics, the number (n) and percentage (%) were used for categorical data, and the mean and standard deviation (SD) were used for numerical data. The conformity of the numerical variables to a normal distribution was evaluated via a skewness test. Chi-square tests and Student’s t tests were used in the analyses. A statistical significance level of $P<.05$ was accepted.

Ethical approval for the study was obtained from the Ataturk University Faculty of Medicine Clinical Research Ethics Committee (number: B.30.2.ATA.0.01.00/102-Date 28.09.2017). Informed consent was obtained from the participants.

RESULTS

A total of 232 resident doctors participated in the study. A total of 72.9% of the population was reached. The mean age of the participants was 29±3.5 years, 42.7% (n=99) were female, and 57.3% (n=133) were married. A total of 70.7% (n=164) of them were from internal medical science. The rate of receiving training on breaking bad news before graduation was 35.3% (n=82), whereas it was 9.1% (n=21) after graduation.

When asked how competent they considered themselves in breaking bad news, 13.4% (n=31) answered very good, 24.6% (n=57) answered good, 53% (n=123) answered fair, 8.2% (n=19) answered bad, and .9% (n=2) answered very bad. When asked how difficult it was for the residents to give bad news, 9.5% (n=22) answered definitely not difficult, 30.6% (n=71) answered definitely not difficult, 24.1% (n=56) answered undecided, 31.9% (n=74) answered difficult, and 3.9% (n=9) answered definitely difficult. The analysis of the participants' answers to the survey questions prepared according to the SPIKES protocol is presented in Table 1. The answers of the participants to each question were categorized by accepting 'never' and 'seldom' answers, as the item was not applied, 'sometimes' as sometimes applied, and 'always' and 'most of the time' as applied.

Table 1. Distribution of participants' answers according to the SPIKES protocol

Questions	Yes n (%)	Sometimes n (%)	No n (%)
1. Do you prepare a quiet and comfortable room?	56 (24.1)	63 (27.2)	113(48.7)
2. Do you allocate enough time for the meeting?	141 (60.8)	65 (28)	26 (11.2)
3. Do you make eye contact with the patient/relatives?	198 (85.3)	27 (11.6)	7 (3)
4. Do you sit opposite the patient/relatives?	112 (48.3)	73 31.5)	47 20.3)
5. Do you review the information one last time?	162 (69.8)	55 (23.7)	15 (6.5)
6. Do you introduce yourself during the interview?	199 (85.8)	20 (8.6)	13 (5.6)
7. Do you ask what the patient and/or relatives know about the disease before breaking information?	93 (40.1)	86 (37.1)	53 (22.8)
8. Do you ask permission from the patient and/or their relatives before breaking bad news? (I will give you information about the disease. Is it okay for you?	98 (42.2)	65 (28.0)	69 (29.7)
9. Do you use medical terminology when breaking bad news?	29 (12.5)	87 (37.5)	116 (50)
10. Do you provide clear information about the disease?	205 (88.4)	19 (8.2)	8 (3.4)
11. Do you act sincerely and affectionately when breaking bad news?	149 (64.2)	64 (27.6)	19 (8.2)
12. Do you check whether the patient understands the information you give?	175 (75.4)	45 (19.4)	12 (5.2)
13. Do you use preparatory phrases such as "I'm sorry/I wish I could give you better news" before breaking bad news?	100 (43.1)	75 (32.3)	57 (24.6)
14. Do you allow for a period of silence and emotion after breaking bad news?	160 (69)	50 (21.6)	22 (9.5)
15. Do you empathize with your patient?	176 (75.9)	43 (18.5)	13 (5.6)
16. Do you share your feelings when the patient is emotional?	96 (41.4)	77 (33.2)	59 (25.4)
17. Do you allow patients and/or relatives to ask questions?	208 (89.7)	18 (7.8)	6 (2.6)
18. Do you explain what has been done thus far and what will be done next in your meetings with the patient.?	190 (81.9)	34 (14.7)	8 (3.4)
19. Do you inform us about the multidisciplinary approach in case of a possible treatment?	180 (77.6)	35 (%15.1)	17 (7.3)
20. Do you arrange follow-up meetings with the patient and/or relatives?	96 (41.4)	66 (28.4)	70 (30.2)

When the answers of the participants to the questions prepared according to the SPIKES protocol are evaluated, the five items that they apply the most and the five items that they apply the least are shown in Table 2 and Table 3.

Table 2. The most applied substances according to the SPIKES protocol

Questions	n	%
1. Do you allow patients and/or relatives to ask question?	208	89.7
2. Do you provide sufficient and clear information about the disease?	205	88.4
3. Do you introduce yourself during the interview?	199	85.8
4. Do you make eye contact with the patient and/or their relatives?	198	85.3
5. Do you explain what has been done thus far and what will be done next?	190	81.9

Table 3. Fewer applied substances according to the SPIKES protocol

Questions	n	%
1. Do you prepare a quiet and comfortable room?	56	24.1
2. Before breaking information, do you ask what the patient and/or relatives know about the disease?	93	40.1
3. Do you arrange follow-up meetings with the patient and/or relatives?	96	41.4
4. Do you share your feelings when the patient is emotional?	96	41.4
5. Do you ask permission from the patient and/or their relatives before breaking bad news? (I will give you information about the disease, is it suitable for you? etc.)	98	42.2

The questions examining the SPIKES protocol were grouped according to subheadings. The questions investigated in compliance with the Setting up step were questions 1, 2, 3, 4, 5, and 6; the questions investigated in the Perception stage were question 7; the questions investigated in the Invitation stage were question 8; the questions investigated in the Knowledge stage were questions 9, 10, 12 and 17; the questions investigated in Empathy were questions 11, 13, 14, 15 and 16; and the questions investigated in the Strategy and Summary stages were questions 18, 19 and 20. The averages of the answers given to the questions grouped as subheadings of the SPIKES protocol are given in Table 4. The participants who attended the postgraduate seminar used medical terminology less when they broke bad news and practiced the "Setting up" stage more (P<.05). The scores of those who received postgraduate training (3.9±0.4) were significantly higher than those of those who did not (3.6±0.5) (P<.05). A total of 39.4% of the female residents and 58.6% of the male residents introduced themselves during the interviews (P<.05). No difference was observed between internal and surgical sciences in terms of the answers given to the questions (P>.05).

Table 4. Means of answers to SPIKES protocol subheadings

SPIKES	Mean ± SD
Setting up	3.6± 0.5
Perception	3.2± 1.1
Invitation	3.0± 1.1
Knowledge	3.6± 0.5
Emotions	3.5± 0.6
Strategy and Summary	3.7±0.7

DISCUSSION

In this study, most of the participants did not receive training on breaking bad news before and after graduation. In addition, the participants generally saw themselves at an intermediate confidence level in breaking bad news. The Invitation stage, which involves determining how the patient wants to receive information about his/her disease and obtaining permission before breaking information, which is recommended as one of the stages of breaking bad news, was the least practiced SPIKES item. The strategy and summary stage, which involves making and summarizing a plan for treatment, was practiced the most. Among these items, more than half of the physicians did not arrange a follow-up appointment for the patient. Research on breaking bad news suggests that clinicians' skills and experience difficulties in this regard, and the need for evidence-based education and studies on practical applications have been emphasized.[6] According to the survey results of the American Society of Oncology Clinicians' symposium on breaking bad news,

less than 10% of the participants had formal training for breaking bad news, and only 32% had the opportunity to regularly observe the interviews in which bad news was given during training.[7] A study conducted in Turkey reported that physicians experienced a very high rate of emotional difficulty while breaking bad news, with less eye contact with patients and less attention given to the language used when delivering bad news.[8]

It has been reported that physicians who struggle with delivering difficult news may hesitate to discuss crucial topics such as prognosis with the patient, inadvertently offering unrealistic hope and preferring unnecessary aggressive treatments. Consequently, some physicians may experience guilt as a result.[9] In a Malaysian study in which cancer patients evaluated physicians who gave bad news, patients gave the highest score to the physician's honesty about the severity of the patient's condition and the lowest score to allowing emotion.[10] In our study, 38% of the physicians thought that they were good at breaking bad news, whereas 35.8% stated that they had difficulty breaking bad news. Compared with the relevant literature, it was determined that the physicians who participated in our study thought that they had less difficulty breaking bad news. In our study, 35.3% of the physicians received training on breaking bad news, more than half of them did not receive any training on breaking bad news in the pregraduation period, and more than 90% did not participate in any training on the subject in the postgraduate period. This may explain why research residents perceive themselves as not sufficient at breaking bad news.

In a randomized controlled study conducted with intensive care physicians in England, it was determined that there were positive changes in the communication skills of physicians after the breaking bad news course.[11] Another study comparing research residents and specialists in Greece reported that only 35.5% of physicians were trained to give bad news and that research residents gave bad news less than five times a month, whereas specialists gave bad news approximately 10 times a month.[12] It is obvious that breaking bad news training given to physicians both before and after graduation has a significant effect on the performance of breaking bad news. Studies have shown that communication with patients and breaking bad news skills can be taught and improved.[13-15]

According to the SPIKES protocol, the first step in breaking bad news is to prepare a suitable interview environment.[5] In a study involving 350 patients in Germany, adequate time allocation and appropriate conditions that ensure privacy were two of the most important demands for patients (94.5% and 86.9%, respectively), and these arrangements were found to be satisfactory for only 60% of the patients. It has been shown to exist.[16] A study conducted in Brazil reported that 78% of physicians preferred to give bad news in private, and physicians who were experienced and had more years in the profession were more careful in choosing an environment that would ensure patient privacy.[17] In our study, the findings suggest a difference between the physicians' ability to create a suitable environment for breaking bad news and their allocation of time for the interview. While nearly half of the physicians reported challenges in providing a quiet and comfortable room, a majority indicated that they dedicated sufficient time to the interview. This incongruity raises questions about the prioritization of resources and attention in clinical settings. This underscores the importance of not only allocating adequate time but also ensuring conducive environments for such sensitive conversations to occur effectively. Future interventions and training programs could focus on addressing these disparities to increase the quality of patient-centered care during difficult conversations.

In line with the SPIKES protocol, there are important steps in the interview where it is crucial to ask questions before sharing information. During 'Perception' subheadings of the SPIKES framework, clinicians utilize open-ended questions to gain insight into the patient's perspective on their medical condition. By asking questions such as "What have you been told about your medical situation thus far?" Clinicians aim to establish a foundation of understanding before delivering potentially distressing news. This approach not only allows for the correction of any misconceptions but also enables the customization of the breaking bad news to align with the patient's comprehension level.[18] In our study, physicians received the lowest score in the second stage (perception) of the SPIKES protocol. Accordingly, fewer than half of the participants questioned whether the patients and/or their relatives had information about the disease before breaking bad news. The characteristics of the physicians, such as working in surgical or internal medical sciences departments, taking a pregraduation course on breaking bad news, attending a postgraduate seminar, and gender, did not affect this result. This may be because most of the research residents did not receive any training on providing bad news. This step requires more professional communication knowledge and attitudes.

Patients' preferences regarding information about their illnesses vary across cultures. While some cultures may not encourage open discussion of bad news, approximately 90% of patients generally prefer to discuss their medical condition and treatment options with their doctors, although half of them may not receive information about their life expectancy.[19,20] In our study, most physicians (88.4%) reported providing clear information about the disease, explaining current and future treatment plans (81.9%), and allowing patients and/or relatives to ask questions (89.7%). Physicians who received postgraduate training tended to use less medical terminology when delivering bad news.

Notably, the younger physicians in our study often provided detailed information, reflecting a commitment to honesty in healthcare delivery. Research indicates that cancer patients prioritize honesty from their physicians, particularly during information sharing.[10] The use of phrases that prepare patients before giving bad news reduces the likelihood of experiencing the shock after the bad news; thus, it is easier to convey the necessary information about the current situation.[21] Fewer than half of the physicians who participated in our study stated that they used initial sentences such as "I am sorry/I wish I could give you better news" before giving bad news, which indicates that bad news is coming and aims to reduce the negative effect of bad news.

When bad news is broken, verifying patient comprehension can prevent misconceptions about treatment efficacy or purpose. This collaborative approach to decision-making not only empowers patients but also lessens the burden on physicians if treatment outcomes are unfavorable.[22] In our study, 75.4% of the physicians confirmed patients' understanding of the information provided. These findings highlight physicians' active role in ensuring that patients and caregivers grasp the situation accurately.

Meeting the patient's emotions appropriately and responding correctly is a challenging aspect of delivering bad news.[7,23] Studies from England and Germany have highlighted patients' high preferences for factors such as physicians' emotional behavior, empathy, and closeness to the patient.[16,24] In our study, most physicians allowed time for silence and acknowledged patients' emotions after delivering bad news. However, more than half of them did not express their own feelings during this emotional moment. Sharing feelings is crucial for demonstrating empathy, yet many physicians in our study did not do so. A study with oncology patients in Turkey revealed that a significant portion did not feel that they had the opportunity to express their emotions when receiving bad news.[25] While our study suggests that physicians have a relatively better emotional approach, there are still deficiencies in expressing their own emotions, underscoring the need for training to address these shortcomings.

CONCLUSION

In conclusion, while the SPIKES protocol is widely accepted and utilized in many countries as a framework for breaking bad news, there remains a notable absence of standardized guides tailored to enhance physicians' skills in accordance with this protocol. Future studies incorporating culturally adapted guides based on the SPIKES steps specific to each country hold promise for yielding more objective results and facilitating cross-study comparisons. It is imperative that communication and breaking bad news skills training be integrated throughout medical education and postgraduate.

Ethics Committee Approval: Ethical approval for the study was obtained from the Ataturk University Faculty of Medicine Clinical Research Ethics Committee (number: B.30.2.ATA.0.01.00/102-Date 28.09.2017).
Informed Consent: Informed consent was obtained from the participants.
Peer-review: Externally peer-reviewed.
Author Contributions: Concept – BCD, YC; Design - BCD, YC; Supervision – YC, ECT; Resources - BCD, YC,ECT; Materials – BCD; Data Collection and/or Processing – BCD; Analysis and/or Interpretation YC; Literature Search – BCD, YC, ECT ; Writing Manuscript - BCD, YC, ECT; Critical Review - BCD, YC, ECT
Conflict of Interest: The authors have no conflicts of interest to declare.
Financial Disclosure: The authors declared that this study has received no financial support.

REFERENCES

1. Dean A, Willis S. The use of protocol in breaking bad news: evidence and ethos. *Int J Palliat Nurs.* 2016;22(6):265-271.
2. Atabay G. Kötü haber verme. Çınar Tanrıverdi E, editör. Tıp Eğitiminde İletişim Becerileri. 1. Baskı. Ankara: *Türkiye Klinikleri;* 2021. p.40-44. (in Turkish)
3. Fields SA, Johnson WM. Physician-patient communication: breaking bad news. *W V Med J.* 2012;108(2):32-35.
4. Tanrıverdi EC. Tıpta Kötü Haber Verme. In Aile Hekimliğinde Güncel Yaklaşımlar. Ed. Akpınar E. Bölüm 9. *Akademisyen Kitabevi.* Ankara, 2019. (in Turkish)
5. Kaplan M. SPIKES: a framework for breaking bad news to patients with cancer. *Clin J Oncol Nurs.* 2010;14(4):514-516.
6. Paul C, Clinton-McHarg T, Sanson-Fisher R, Douglas H, Webb G. Are we there yet? The state of the evidence base for guidelines on breaking bad news to cancer patients. *European Journal of Cancer.* 2009;45(17):2960-2966.
7. Baile WF, Buckman R, Lenzi R, Glober G, Beale E, Kudelka AP. SPIKES—a six-step protocol for delivering bad news: application to the patient with cancer. *The oncologist.* 2000;5(4):302-11.
8. Anuk D, Alçalar N, Sağlam EK, Bahadır G. Breaking bad news to cancer patients and their families: Attitudes toward death among Turkish physicians and their communication styles. *J Psychosoc Oncol.* 2022;40(1):115-130.
9. Dias L, Chabner B, Lynch T, Penson R. Breaking bad news: a patient's perspective. *The Oncologist.* 2003;8(6):587-596.
10. Eng TC, Yaakup H, Shah A et al. Preferences of Malaysian Cancer Patients in Communication of Bad News. *Asian Pac J Cancer P,* 2012;13:2751-2759.

11. Morton J, Blok G, Reid C, Van Dalen J, Morley M. The European Donor Hospital Education Programme (EDHEP): enhancing communication skills with bereaved relatives. *Anaesthesia and intensive care.* 2000;28(2):184-190.
12. Konstantis A, Exiara T. Breaking bad news in cancer patients. *Indian J Palliat Care.* 2015;21(1):35.
13. Baile W, Lenzi R, Kudelka A, et al. Improving physician—patient communication in cancer care: Outcome of a workshop for oncologists. *J Cancer Educ.* 1997;12(3):166-173.
14. Baile W, Kudelka A, Beale E, et al. Communication skills training in oncology: description and preliminary outcomes of workshops on breaking bad news and managing patient reactions to illness. Cancer. 1999;86(5):887-97.
15. Park I, Gupta A, Mandani K, Haubner L, Peckler B. Breaking bad news education for emergency medicine residents: A novel training module using simulation with the SPIKES protocol. *J Emerg Trauma Shock.* 2010;3(4):385.
16. Seifart C, Hofmann M, Bär T, Riera Knorrenschild J, Seifart U, Rief W. Breaking bad news–what patients want and what they get: evaluating the SPIKES protocol in Germany. *Ann Oncol.* 2014;25(3):707-711.
17. Ferreira da Silveira F, Botelho C, Valadão C. Breaking bad news: doctors' skills in communicating with patients. *Sao Paulo Med J.* 2017;135(4):323-331.
18. Baile WF, Buckman R, Lenzi R, Glober G, Beale EA, Kudelka AP. SPIKES-A six-step protocol for delivering bad news: application to the patient with cancer. *Oncologist*. 2000;5(4):302-311.
19. Fujimori M, Uchitomi Y. Preferences of cancer patients regarding communication of bad news: a systematic literature review. *Jpn J Clin Oncol.* 2009;39(4):201-216.
20. Goldstein D, Thewes B, Butow P. Communicating in a multicultural society II: Greek community attitudes towards cancer in Australia. *Intern Med J.* 2002;32(7):289-296.
21. Berkey FJ, Wiedemer JP, Vithalani ND. Delivering Bad or Life-Altering News. *Am Fam Physician.* 2018;98(2):99-104.
22. Quirt C, Mackillop W, Ginsburg A, Sheldon L, Brundage M, Dixon P, et al. Do doctors know when their patients don't?: A survey of doctor–patient communication in lung cancer. *Lung Cancer.* 1997;18(1):1-20.
23. Moawed S, Youssef I, Elgammal H. Family physicians ability versus other specialty physicians in breaking bad news skills to patient in Suez Canal University Hospital and family practice centers. *Asian Stud Med J*. 2010;3:2.
24. Brown V, Parker P, Furber L, Thomas A. Patient preferences for the delivery of bad news–the experience of a UK Cancer Centre. *Eur J Cancer Care*. 2011;20(1):56-61.
25. Fesci H, Ünal S. Kanserli Hastaların Kötü Haber Almaya İlişkin Görüşleri. *TAF Preventive Medicine Bulletin.* 2011;10(3).

ATATÜRK ÜNİVERSİTESİ YAYINLARI
ATATURK UNIVERSITY PUBLICATIONS

Invited Review Article **DOI:** 10.5281/zenodo.13310246

Medical Education and Social Accountability

Ayşe Hilal BATI[1]
Department of Medical Education, Ege University Faculty of Medicine Izmir, Türkiye

İskender SAYEK[2]
Department of General Surgery, Retired Faculty Member, Hacettepe University Faculty of Medicine, Ankara, Türkiye

ABSTRACT

The social responsibility of medical schools, whose main goal is to train "good doctors", who are aware of the health problems of society and who protect and improve health, is becoming increasingly important. Social accountability is defined as "the obligation of medical schools to direct their education, research and service activities in a way that meets the priority health needs of the society, region and/or nation they are responsible for serving." Social obligation is addressed at three different levels: social responsibility, social sensitivity and social accountability.

In recent years, reviews and reports have been published that offer recommendations for schools that prepare health professionals to clearly link their mission to the health needs of people and to demographic, economic, and cultural changes in society. One of these, the 2010 Global Compact, identified ten areas of action related to a medical school's responsibility to society. To support medical schools in Turkey in fulfilling their social responsibilities, a national framework defining the "Determinants of Social Responsibility" was prepared by the Association for Evaluation and Accreditation of Medical Education Programs (TEPDAD) with the participation of relevant stakeholders. The social responsibility of medical education is the willingness and ability to adapt to the needs of patients and health care systems, both nationally and globally. It is important for institutions and countries to initiate their obligations to society with an accreditation system that adopts standards based on social responsibility. Accreditation is not only a quality assurance tool but also a force supporting the need for improvement and change. The social obligations of medical education should be included in accreditation processes at all levels.

Keywords: Medical education, social obligation, social accountability, social responsibility, social sensitivity

Received 02.07.2024
Accepted 05.08.2024
Publication Date 14.08.2024

Corresponding author: Ayşe Hilal BATI
E-mail: hilal.bati@gmail.com
Cite this article: Batı AH, Sayek I. Medical Education and Social Accountability. *J Med Educ Family Med*. 2024;1(2):66-70

INTRODUCTION

Medical education aims to train physicians who are aware of the health needs of society, who can protect and improve health, and who can take the necessary initiatives to effectively solve possible problems. As stated in the definition of the World Health Organization (WHO), health services must be provided to healthy individuals and society to ensure not only the absence of disease or disability but also physical, mental and social well-being. Physicians must have the competencies that will enable them to provide services in this direction. For this reason, the curriculum of medical schools should include information and practices that will meet the expectations of patients and society, and scientific developments and technological opportunities that are renewed every day should be used to improve education.[1]

Today, rapidly developing and changing medical knowledge, as well as the dizzying evolution of technology, has led to excessive specialization by turning to the diagnosis and treatment of diseases rather than a community-oriented approach.[2,3,4] The incompatibility between the education of health professionals and the health needs of society significantly affects the ability of health professionals to meet patient and community expectations.[5] The widespread lack of access to health care between rural and urban areas continues to be an important indicator of health inequality.[3] The inadequacy in the use of basic health services and the abundance of resources and opportunities in metropolises also cause inequality. [6,7]

When these disparities are combined with the increasing burden of chronic disease, accountability and social determinants of health have become more important in medical education. The WHO defines the social determinants of health as nonmedical factors that affect health outcomes.[8] Drawing attention to the social determinants of health has clearly revealed the negative consequences of treating diseases and health problems without resolving their causality. This situation has led to the responsibility of providing community-based medical education to meet the health needs of society to raise competent graduates who can provide optimal health status to medical schools in the 21st century. Thus, the adaptation of educational programs in line with individual and social health needs to meet the priority health problems of the country, and the integration of social accountability into the educational programs of some medical faculties has been achieved. The social accountability of medical schools is becoming increasingly important worldwide. [9,10,11]

In recent years, reviews and reports have been produced that offer recommendations for explicitly linking the missions of schools that train health professionals to people's health needs as well as to demographic, economic, and cultural changes in society. These reports were published by structures such as the UK General Medical Council (GMC), the Association of Faculties of Medicine of Canada (AFMC), the Lancet Global Independent Commission and the Global Consensus for Social Accountability of Medical Schools (GCSA).[12]

The 2010 Global Consensus document is a major initiative developed through an international reference group of 130 organizations and individual leaders. The GCSA identifies ten areas of action derived from four specific components of a medical school's responsibility to society, specifically the institution's capabilities. The 10 strategies suggested by the Global Consensus document are valid for faculties training health professionals or health practitioners. [12,13,14] (Table 1).

These 10 areas of action are derived from four specific components that demonstrate a medical school's responsibility to society:[13]

- Responding to current and future health needs and challenges in society
- The education, research and service priorities should be reoriented accordingly.
- Strengthening governance and partnerships with other stakeholders
- Use evaluation and accreditation to assess their performance and impact.

Table 1. Ten strategic directions of the Global Consensus Group[12]

1. Anticipating society's health needs
2. Partnering with the health system and other stakeholders
3. Adapting to the evolving roles of doctors and other health professionals
4. Fostering outcomes-based education
5. Creating responsive and responsible governance of the medical school
6. Refining the scope of standards for education, research and service delivery
7. Supporting continuous quality improvement in education, research and service delivery
8. Establishing mandated mechanisms for accreditation
9. Balancing global principles with context specificity
10. Defining the role of society

To support medical schools in Turkey in improving their social obligations, a national framework on "Determinants of Social Accountability" was prepared in 2019 by the Association for Evaluation and Accreditation of Medical Education Programs (TEPDAD) with the participation of relevant stakeholders.[15]

Defining social accountability

The World Health Organization defines the concept of social accountability as "the obligation of medical schools to direct their education, research and service activities to meet the priority health needs of the society, region and/or nation they are obliged to serve".[9] This definition, which has now been adopted worldwide and entered the literature, emphasizes that medical schools should not only improve the health system but also train graduates with the knowledge and skills to work in their own societies and have a positive impact on people's health.[15]

After the concept of social accountability was announced by the WHO, medical schools aimed to increase the number of graduates who practice professionalism well and mediate changes in the health system beyond responding to the demand for social accountability. To be socially accountable, medical schools must have a positive impact on the society they serve, train physicians who are competent to meet the needs of society, and define health priorities together with stakeholders who provide community, regional and national health services.[11]

While any medical school is aware of its social obligations, there is confusion about what this obligation means. Social accountability, which the WHO clearly defines, is generally likened to interaction with society rather than education, which includes society. Additionally, it is often perceived as a school's educational responsibility as primary, with service and research activities considered secondary. In recent years, the definition of social obligation has been discussed at three different levels: social responsibility, social responsiveness and social accountability.[13]

These concepts have often been used synonymously to refer to the social obligations of faculty. However, these three levels have different and special meanings. Social accountability is the highest level of these levels.[13,15](Figure 1).

Social Accountability

Social accountability is the medical school's obligation to direct its education, research and service activities in a way that responds to the priority health problems of the society, region or nation it serves. It involves medical school graduates actively partnering with society and other stakeholders to ensure that research findings or healthcare models best impact the performance of healthcare systems and the health of people. For example, the faculty develops a strategy that encourages graduates to work in areas where they are needed most.

Figure 1. Social obligation levels of medical schools

Social responsibility

Social responsibility refers to an organization's sense of duty toward society. It is a faculty member's awareness of the community's priority health needs and challenges and works to address them.

Socially responsible school;

- is aware that it has a duty to respond to the needs of society
- recognizes that society plays a role in defining healthcare
- this situation is reflected in the courses in the education program, where public health policies and health determinants are explained.

For example, it has field experience and provides the basic competencies that graduates need to acquire to adapt to a healthcare system designed to provide equitable and effective services. The training program includes courses that cover topics such as social determinants of health and the public health and health system in a holistic manner.

Social responsiveness

Social responsiveness is the directing effect of education, research and service activities on the priority health needs of society.

Faculty clearly identify and prioritize health needs through critical evaluation. It uses its resources effectively by preparing a mission and action plan in line with these priority needs. For example, it analyzes the current health system and health workforce and trains a sufficient number of graduates who have the competencies to provide effective and equitable primary health care services.

Social responsive faculty;

- focuses on competencies that address people's health problems
- This is reflected in educational practice in the form of students learning in the community and students observing or participating in health-related community activities.

Table 2. Social obligation scale[13]

	Responsibility	Responsiveness	Accountability
1. Social needs identified	Implicitly	Explicitly	Anticipatively
2. Institutional objectives	Defined by faculty	Inspired from data	Defined with society
3. Educational programs	Community-oriented	Community-based	Contextualized
4. Quality of graduates	"Good" practitioners	Meeting criteria of professionalism	Health system change agents
5. Focus of evaluation	Process	Outcome	Impact
6. Assessors	Internal	External	Health partners

Medical schools can achieve excellence in medical education if they plan, train, and increase the potential to utilize graduates, who will address society's priority health needs and problems according to health systems. Medical schools can achieve sustainable excellence through effective partnerships with key health actors such as health policy institutions, health service organizations, health insurance programs, professional organizations, other health professional schools, and community representatives.[15]

How to Become a Socially Accountable Medical Faculty?

The obligations of a socially responsible medical school are as follows:

- train health professionals who will meet the current and future needs of society and contribute to the creation of environments where graduates can work.
- accepting social credibility/accountability as a marker of academic excellence, evaluation, and accreditation standards and mechanisms
- Ensuring that community representatives and academic individuals are included in the evaluation of medical school performance
- structured and purposeful discussions with the community and other health stakeholders to cooperate toward
- external evaluation of the impact on the health conditions of society and its ability to meet its problems

Social accountability and Medical Education Accreditation

Well-designed and authorized accreditation systems can drive quality and change, especially for medical education institutions. Accreditation can support countries in institutionalizing quality assurance approaches and guiding the development of institutions. The adaptation of accreditation standards and norms that reflect social responsibility should be supported. Thus, the real capacity of educational institutions to meet the urgent health needs of society can be evaluated. The compliance of social reliability with accreditation standards and criteria should be ensured and should be included in every stage of accreditation. The social responsibility of medical education is the willingness and ability to adapt to the needs of patients and health care systems, both nationally and globally. It also includes the responsibility to contribute to the development of medicine and society by promoting research and improvement competence. In this context, accreditation is important because it increases the quality of education, ensures that society's expectations are met and provides assurance.[16,17]

Some studies are being carried out to establish accreditation systems in many countries and regions. It is important for institutions and countries to initiate their obligations to society with an accreditation system that adopts standards based on social responsibility.[16]

CONCLUSIONS

In the 21st century, medical schools are expected to improve the quality, equity, appropriateness and effectiveness of health service delivery; align with social priorities; redefine the roles of health professionals; and provide evidence of the impact on public health.

Medical education needs to be restructured so that graduates can meet the needs and expectations of society, keep up with rapid changes in information and technology, ensure lifelong learning, use new or developing information technologies, and adapt medical education to changing health practices. The aim is to train physicians who work on the determinants of health and contribute to its harmonization with the health system and make changes. Social accountability was introduced to strengthen the health-related role of medical schools. The Global Consensus for Social Accountability of Medical Schools has suggested strategies for this purpose. The "Social Accountable Medical Faculty Determinants" document prepared by TEPDAD with the participation of relevant stakeholders in Turkey aims to increase the social reliability of medical schools.

Accreditation is a process by which an educational program is evaluated by a legal body for meeting approved criteria. In addition to being a quality assurance tool, it is a force that supports the need for improvement and change. The social obligations of medical education should be included in accreditation processes at all levels.

Peer-review: Internally peer-reviewed.
(This manuscript was prepared by the invitation of the Editorial Board and its scientific evaluation was carried out by the Editorial Board. Both authors are members of the journal's editorial board).
Author Contributions: Concept – AHB-İS; Design – AHB-İS; Supervision – AHB-İS; Resources – AHB-İS; Analysis and/or Interpretation - AHB-İS; Literature Search- AHB-İS; Writing Manuscript - AHB; Critical Review - İS
Financial Disclosure: The author declared that this study has received no financial support.
Conflict of Interest: The authors have no conflicts of interest to declare.

REFERENCES

1. Harden RM. Ten key features of the future medical school—not an impossible dream. Med Teach. 2018;*40*(10): 1010-1015.
2. Sayek I, Turan S, Batı AH, Demirören M, Baykan Z. Social accountability: A national framework for Turkish medical schools. *Med Teach.* 2011;*43*(2): 223-231.
3. Murray RB, Larkins S, Russell H, Ewe, S, Prideaux D. Medical schools as agents of change: socially accountable medical education. *Med J Aust.* 2012;*196*(10), 653-653.
4. Greer PJ, Brown DR, Brewster LG, et al. Socially accountable medical education: an innovative approach at Florida International University Herbert Wertheim College of Medicine. *Acad Med.* 2018;*93*(1): 60-65.
5. Reeve C, Woolley T, Ross SJ, et al. The impact of socially-accountable health professional education: a systematic review of the literature. *Med Teach.* 2017;*39*(1): 67-73.
6. Boelen C. Building a socially accountable health professions school: towards unity for health. *Educ Health.* 2004; 17(2):223–231.
7. Lee ST, Yang EB. Factors affecting social accountability of medical schools in the Korean context: exploratory factor and multiple regression analyses. *Med Educ Online.* 2022; 27(1):2054049.
8. Abdallaa ME, Tahab MH, Onchongaa D, et al. Entegrating the social determinants of health into curriculum: AMEE Guide No. 162. *Med Teach.* 2024; 46(3): 304–316.
9. Boelen C, Heck J. Defining and measuring the social accountability of medical schools. Geneva: World Health Organization 1995.
   https://iris.who.int/bitstream/handle/10665/59441/WHO_HRH_95.7.pdf?sequence=1&isAllowed=y. [Accessed 1 June 2024.]
10. Masud N, Alenezi S, Alsayari O, et al. Social accountability in Medical Education: students' perspective. *Frontiers Educ.* 2022;7, 868245.
11. Lee S, Yang EB. Factors affecting social accountability of medical schools in the Korean context: exploratory factor and multiple regression analyses. *Med Ed Online.* 2022;*27*(1):2054049.
12. Global Consensus for social accountability of medical schools. Accessed: 4 June 2024. Available from: https://healthsocialaccountability.sites.olt.ubc.ca/files/2011/06/11-06-07-GCSA-English-pdf-style.pdf
13. Boelen C, Pearson D, Kaufman A, et al. Producing a socially accountable medical school: AMEE Guide No. 109. *Med Teach.* 2016;*38*(11):1078-1091.
14. Rourke J. AM last page: social accountability of medical schools. *Acad Med.* 2013; *88*(3):430.
15. Türkiye Sosyal Güvenilir (Hesap Verebilir) Tıp Fakültesi Belirleyicileri Ulusal Belgesi- National Study to Develop Recommendations for Social Accountability of Medical Schools in Turkey, Tıp Eğitimi Programlarını Değerlendirme ve Akreditasyon Derneği, 2019, (https://tepdad.org.tr/wp-content/uploads/2024/02/TEPDAD_Sosyal_Guvenilirlik_2019.pdf).
16. Boelen C, Woollard R. Social accountability: the extra leap to excellence for educational institutions. *Med Teach.* 2009;33:614–619.
17. Lindgren S, Karle H. Social accountability of medical education: aspects on global accreditation. *Med Teach*. 2011;*33*(8): 667-672.