

## ORIGINAL ARTICLE

DOI: <https://doi.org/10.18502/fem.v7i1.11694>

# General medicine interns' attitude in continuing their education in emergency medicine residency programs

Ali Vafaye<sup>1</sup>, Kamran Heydari<sup>1</sup>, Hossein Mardanparvar<sup>2</sup>, Ali Alizadeh Kaseb<sup>1</sup>, Saeed Safari<sup>3\*</sup>

1. Department of Emergency Medicine, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

2. Department of nursing, Faculty of nursing &amp; midwifery, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.

3. Men's Health and Reproductive Health Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

\*Primary corresponding author: Saeed Safari; Email: [safari266@gmail.com](mailto:safari266@gmail.com).

Published online: 2022-07-07

**Abstract:** **Introduction:** Emergency medicine (EM) is a relatively new medical specialty, which concerns patients who need vital and urgent medical care. This study aimed to evaluate the general medicine interns' attitude in continuing their education in EM residency programs.

**Methods:** This study is a prospective cross-sectional study, which was performed on 180 medical students during their internship using convenience sampling. Data were collected using a valid and reliable researcher-made questionnaire and analyzed using SPSS 26 software.

**Results:** One hundred and eighty medical students in the internship period with the mean of  $25.65 \pm 2.72$  (23 – 46) years were studied (53.3% male; 76.7% single). Only 33 (18.3%) interns indicated their interest in continuing their education in EM residency programs. 30 (16.66) cases were not interested in continuing their education in any residency program (61.1% of whom cited migration as the reason, 13% cited not working as a specialist, 14.8% indicated lack of economic justification, and 11.1% cited other reasons for not wanting to enter residency programs). The mean overall interest score to EM residency program was  $59.61 \pm 12.66$  % (20 – 96.41%). The lowest and highest interest scores obtained in the economic status ( $47.91 \pm 21.13$ %) and education status ( $70.59 \pm 15.77$ %) of EM specialty, respectively. The mean overall interest score was not statistically different between male and female students ( $p = 0.366$ ). There was a significant statistical correlation between gender and type of discipline chosen, and female mostly chose non-surgical disciplines ( $p = 0.001$ ).

**Conclusion:** The interest of general medicine interns in continuing their education in EM residency program was average. The economic field of EM has been one of the best factors in attracting students to continue their studies in this field.

**Keywords:** Attitude; Emergency Medicine; Medical Students

Cite this article as: Vafaye V, Heydari K, Mardanparvar H, Alizadeh Kaseb A, Safari S. General medicine interns' attitude in continuing their education in emergency medicine residency programs. *Front Emerg Med.* 2023;7(1):e4.

## 1. Introduction

Emergency medicine (EM) is a relatively new medical specialty, which concerns patients who need vital and urgent medical care. The necessity for establishment of this specialty in Iran was first proposed in an enactment in 1996, and then as a strategic plan in the Ministry of Health in 2000. After that, Iran University of Medical Sciences started to train the first group of EM residents in 2001 (1).

Choosing a discipline in any educational stage is one of the important decisions anyone makes throughout their lifetime. The most important pre-requisite for concentration is interest. In fact, higher interest leads to higher concentration, more contemplation, better memorization, and faster recall (2-4). Overall, efficient, interested, and committed human resources in any discipline play an important role in improving public health (5). On the other hand, since one of the most important factors affecting efficiency and success of human resources is interest in and satisfaction with their dis-

cipline, paying attention to this matter should be a priority in educational planning (6). Studies have shown that students with less interest in and satisfaction with their study discipline have a higher rate of poor grade point average (GPA) (7). There is a correlation between interest in and satisfaction with the study discipline and achievements among university students (8). Additionally, interest in and satisfaction with the study discipline has a direct correlation with job satisfaction and efficiency in the future, and is, therefore, of great importance in human resource management studies (9). Meanwhile, more attention should be paid when selecting a discipline related to medicine, including medicine itself, as it is connected with people's health (10).

Choosing a specialty in medicine is a complex process and fitting personality, lifestyle, income, and job opportunities are all factors that can affect its selection. Experiences, performance, interests, attitude, and economic, social, and cultural status are among the factors that affect choosing a discipline (11). In a study, Hin Ko stated that medical students

believed that personal interest was the most important factor affecting discipline choice. Factors such as geographical location and consultation had a weaker effect on tendency to choose a specific discipline in the study (12). If individuals can choose a discipline based on their personal interest, they can receive their education or continue it with patience and good behavior and without bearing much mental pressure, and can be more effective (13). This study aimed to evaluate the general medicine interns' attitude in continuing their education in EM residency programs.

## 2. Methods

### 2.1. Study design and participants

This prospective cross-sectional study was performed on 180 medical students during their internship in Shahid Beheshti University of Medical Sciences (SBMU), Tehran, Iran. The medical students' interest score for participating in the EM residency program was evaluated using a valid and reliable questionnaire. The study protocol was approved by Ethics Committee of SBMU (code: IR.SBMU.MSPREC.1399.092). Researchers adhered to the Helsinki recommendations regarding the ethical considerations and confidentiality of information.

### 2.2. Participants

Participants consisted of medical students during their internship in SBMU who were willing to participate in the study and exclusion criteria were not willing to participate in the study and not completely filling out the questionnaire. Participants were selected using convenience sampling method.

### 2.3. Data gathering

The data were gathered using a researcher-made questionnaire, consisting of questions evaluating the participants' interest in different medical specialties, which assessed their interest in four categories of social, economy, education, and job, as well as questions on choosing EM or other disciplines as their future specialty (appendix 1). To confirm the validity of the data gathering tools, content validity method was applied. The questionnaire was prepared studying literatures and opinions of emergency department nurses, residents, and professors supervising and consulting the study. Then the required revisions were performed based on the opinion of 10 EM specialists who were professors in SBMU and thus, the validity of the data gathering tool was confirmed. Considering the types of variables, the reliability of the questionnaire was also confirmed via assessing its internal homogeneity in a preliminary study on 40 students. Cronbach's alpha was found to be 0.84 for the questionnaire. In total, 30 questions in 4 fields of social (6 questions), economy (4 questions), education (9 questions), and job status (11 questions) were asked, and the participants gave their opinion using completely disagree, disagree, neither agree nor disagree, agree, and completely agree, which received 1-5 points (or 20

**Table 1** Baseline characteristics of studied medical students in internship period

Variable	Number (%)
<b>Gender</b>	
Male	96 (53.3)
Female	84 (46.7)
<b>Marital status</b>	
Single	138 (76.7)
Married	42 (23.3)
<b>Time elapsed since the start of education (year)</b>	
4	3 (1.7)
5	26 (14.4)
6	126 (70.0)
7	23 (12.8)
8	2 (1.1)
<b>Interested residency program</b>	
Emergency medicine	33 (18.3)
Physical medicine and rehabilitation	11 (6.1)
Radiology	16 (8.9)
Ophthalmology	16 (8.9)
Cardiology	15 (8.3)
Orthopedy	17 (9.4)
Neurosurgery	7 (3.9)
General surgery	15 (8.3)
Others	50 (27.8)

Data are presented as mean  $\pm$  standard deviation or frequency (%).

– 100%), respectively. The scores given by the students were categorized into 3 levels of low (receiving  $\leq$  50% of the possible score), average (receiving 50-70% of the possible score), and high (receiving 70-100% of the possible score) (14). A trained EM resident was responsible for data gathering.

### 2.4. Statistical analyses

To determine required sample size, Cochran formula for a population with fixed size was used. The required sample size was determined to be 176, but since some questionnaires might have been filled out incompletely and to prevent loss of samples, we added 4 samples and selected 180 participants. Data were analyzed using SPSS version 26 software. The findings were reported using mean  $\pm$  standard deviation or frequency (%). Chi square test and independent t-test were used for comparisons.

## 3. Results

One hundred and eighty medical students in the internship period with the mean of  $25.65 \pm 2.72$  (23–46) years were studied (53.3% male; 76.7% single). Table 1 shows the baseline characteristics of studied students. Only 33 (18.3%) interns indicated their interest in continuing their education in EM residency programs. 30 (16.66) cases were not interested in continuing their education in any residency program (61.1% of whom cited migration as the reason, 13% cited not working as a specialist, 14.8% indicated lack of economic justification, and 11.1% cited other reasons for not wanting to enter residency programs).

**Table 2** The interest scores of medical students in the internship period regarding the continuing the education in the emergency medicine residency program

Field	Mean $\pm$ SD	Interest score		
		Low (<50%)	Average (50-70%)	High (>70%)
		Number (%)		
Education status	70.59 $\pm$ 15.77	11 (6.1)	72 (40)	97 (53.1)
Job status	57.00 $\pm$ 18.07	72 (40)	68 (37.8)	40 (22.2)
Economic status	47.91 $\pm$ 21.13	71 (39.4)	89 (49.4)	20 (11.1)
Social status	62.82 $\pm$ 12.59	28 (15.6)	111 (61.6)	41 (22.8)
Overall interest	59.61 $\pm$ 12.66	49 (27.2)	94 (52.2)	37 (20.6)

Data are presented as mean  $\pm$  standard deviation (SD) or frequency (%).

The mean overall interest score to EM residency program was 59.61  $\pm$  12.66 % (20 – 96.41%). The lowest and highest interest scores obtained in the economic status (47.91  $\pm$  21.13%) and education status (70.59  $\pm$  15.77%) of EM specialty, respectively (table 2).

The mean overall interest score was not statistically different between male and female students ( $p = 0.366$ ). There was a significant statistical correlation between gender and type of discipline chosen, and female mostly chose non-surgical disciplines ( $p = 0.001$ ). The mean interest score in field of economic status was significantly higher in groups choosing EM as the interested discipline (55.81  $\pm$  18.91% vs. 45.87  $\pm$  21.25%;  $p = 0.010$ ).

#### 4. Discussion

The mean overall score of interest to EM residency program of studied students was 59.61% (average level). The mean interest score was 70.59% (high) in the field of education, 57% (average) in the field of job status, 57% (average) in the field of economic status, and interest in the field of social status was 57% of the total score. 20.6% of the students showed interest in continuing their education in EM residency programs, while 79.4% did not show interest in doing so. 70% tended to continue their education in residency programs in Iran and 30% did not.

The results of the present study showed that the majority of the students who participated in the study tended to continue their education, which is in line with studies by Anderson et al. (15), Ireland et al. (16), Al-Dlaigan et al. (17), Hashemipur et al (18), Vahid Dastjerdi et al. (19), and Sadeghi et al. (20) but in contrast to Ghaderi et al.'s study, which claimed shortage of research equipment and professional future lead to a decrease in medical students' interest in continuing their education (21), and also the study by Arfaei et al., which stated that midwifery students weren't interested in continuing their education in higher levels (22). This dissatisfaction and disinterest in professional future and continuing education in medicine is not limited to Iran. Rowsell et al. in England (23) and Finset et al. in Norway (24) have shown that the majority of general practitioners were not satisfied with their professional future and were not interested in continu-

ing their education. The results of the present study showed that most students were more interested in continuing their education than working as a general practitioner, which is in contrast with the study by Gharehaghaji et al., which stated that most radiology students prioritized having a job over continuing their education (25). In addition, there was no statistically significant correlation between sex and interest in continuing education in the present study, which is in line with Gharehaghaji et al.'s study (25) but in contrast to Vahid Dastjerdi et al.'s study, which showed that most of those taking admission exams for dental residency programs were female, which is the result of the increase in women's presence in dental residency programs (19).

In the present study, analysis of data using chi-square test showed that there was a significant statistical correlation between sex and type of discipline chosen, and women mostly chose non-surgical disciplines such as physical medicine, ophthalmology, and radiology, while men more frequently chose surgical disciplines such as orthopedics, neurosurgery, and general surgery, which is in line with the study by Buddeberg-Fischer et al., which stated sex significantly affects discipline choice and women mostly chose non-surgical disciplines and men chose surgical disciplines (26), as well as the study by Alizadeh et al., which showed preferred specialty disciplines were different between sexes and women mostly chose radiology, dermatology, and cardiology, while men mostly chose surgical disciplines such as orthopedics, ophthalmology, and cardiology (11).

The results of the present study showed that mean score of the economic field in those interested in continuing their education in EM residency programs was vastly higher than those not interested, which is in line with the study by Gillavand et al., which stated that better economic status was among the most important reasons for students' interest; however, the results of these two studies are contradictory when it comes to fields of job and social status, as in the present study mean interest score of students in the fields of job and social status were not significantly different between those interested and those not interested, but in Gillavand's study, access to better job positions and gaining a better social status were introduced as the most important reasons for students' interest (27). The results of the present study re-

vealed that the mean interest score of general medicine interns in EM discipline was average to high, which is in line with the study of Dey et al., which stated that the majority of medical students are interested in EM (28). The present study showed that the mean interest score of those planning to continue their education was the lowest in the economic status field, while the interest score in the field of social status was average, which is in contrast to Alizadeh et al.'s study that believed economic factors were of highest importance in choosing a discipline and stated that the social factors were less important (11). Results of the present study revealed that students were more interested in continuing their education in emergency medicine, ophthalmology, and radiology, which contradicts the results of Alizadeh et al.'s study that introduced dermatology, radiology, and orthopedics as the disciplines students were most interested in (11).

The present study showed that mean interest score in the field of job has been average, which is in line with Fevzi Dikici et al.'s study that introduced gaining high income and professional reputation as the reasons for students' interest in choosing a discipline (29). In their study, Mahshidfar et al. stated that 40% of medical students were interested in continuing their education in EM residency programs, but this rate was 20.6% in the present study (30).

## 5. Limitations

All the limitations corresponding to retrograde cross-sectional studies were among the limitations of the present study. Other limitations included performing the study on medical students of one university can be pointed out. Therefore, similar studies in other universities of medical sciences are required to generalize the results of the present study to all medical students.

## 6. Conclusion

The interest of general medicine interns in continuing their education in EM residency programs was average. The economic field of EM has been one of the best factors in attracting students to continue their studies in this field.

## 7. Declarations

### 7.1. Acknowledgment

This study is derived from a research plan approved by the vice chancellor for research of SBMU. Hereby, we would like to thank all the authorities of faculty of medicine of SBMU and general medicine interns.

### 7.2. Authors' contribution

All the authors met the standards for gaining authorship based on the recommendations of the international committee of medical journal editors.

### 7.3. Conflict of Interest

Hereby, the authors declare that there is no conflict of interest regarding the present study.

### 7.4. Funding

No financial support was received for this project.

## References

1. Shojaee M, Kariman H, Hatamabadi HR, Sabzghabaie A, Dolatabadi AA, Moghadam MA, et al. History and Guideline of Emergency Medicine Residency Discipline in Shahid Beheshti University of Medical Sciences, Iran; Review of 2014. *Iran J Emerg Med.* 2014;1(1):2-10. [Persian]
2. Rice CD, Glaros AG, Shouman R, Hlavacek M. Career choice and occupational perception in accelerated option and traditional dental students. *J Dent Educ.* 1999;63(4):354-58.
3. Hashemnia M, Savari M, Saki S. Rate of interest in the field of agricultural extension and education to more students pursuing higher education. *Iranian Congress of Agricultural Extension and Education Sciences and Natural Resources.* 2012;4(1):1-18. [Persian]
4. Alhalimi AA, Almulhim KN. The ideal applicant to emergency medicine residency programs in Saudi Arabia; Program directors' view. *Front Emerg Med.* In press.
5. Satari M, Jamalian R, Seyfalelami S. Study of the nursing, midwifery and health students' views about own future. *Avicenna J Clin Med.* 2001;7(4):15-9. [Persian]
6. Fattahi Z, Javadi Y, Nakhaee N. A survey on dentistry students' satisfaction with their discipline and some of the related factors. *Stride Dev Med Educ.* 2004;1(1):32-40. [Persian]
7. Motlagh M, Elhampour H, Shakurnia A. Factors affecting students' academic failure in Ahvaz Jundishapur University of Medical Sciences in 2005. *Iran J Med Educ.* 2008;8(1):91-9. [Persian]
8. Edraki M, Abdoli R. The Relationship between Nursing Students' educational Satisfaction and their academic success. *Iran J Med Educ.* 2011;11(1):32-9. [Persian]
9. Pascarella E, Terenzini P, Feldman K. How college affects students. *Jossey-Bass San Francisco. A Third Decade of Research.* Indianapolis: Jossey-Bass; 2005. 848 p.
10. Zarghami M, Ghaffari Saravi V, Khalilian A, Sefidchian A. Factors influencing the specialty field choices of medical school graduates. *J Babol Uni Med Sci.* 2003;5(5):18-23. [Persian]
11. Alizadeh y, khoshbakht pishkhani M, kazemnejad E, khoshrang H, behboodi H, mohamahi M, et al. Factors Related to medical students' interest in choosing a specialty field. *J Gillan Uni Med Sci.* 2013;23(89):29-36. [Persian]
12. Ko H, Lee T K, Leunge Y, Vikis Eyoshida EM. Factor influencing Career Choice made by medical stu-

- dents, Residentand, practicing physicians. *BC Med J*. 2007;49(9):482-89.
13. Duff A, Boyle E, Dunleavy K, Ferguson J. The relationship between personality, approach to learning and academic performance. *Pers Individ Differ*. 2004;36(8):1907-20.
  14. Mahmoody Z, Mahmoody F, Mobaraki A, Mardanparvar H. Status of internship clinical from viewpoint of Yasoj senior operation room and anesthesia students. *J Educ Ethics Nurs*. 2017;3(3):9-13. [Persian].
  15. Anderson R, Beal JJCd. Professor PMC James—an appreciation. His work in academic dental public health and the speciality. *Community Dent Health*. 1993;10(3):213-6.
  16. Ireland R, Palmer N, Bickley SJBdj. A survey of general dental practitioners' postgraduate education activity and demand for extended modular postgraduate programmes. *Br Dent J*. 1999;187(9):502-6.
  17. Al-Dlaigan Y, Al-Ghamdi M, Al-Shahrani A, Al-Shahrani M. Postgraduate specialties interest, career choices and qualifications earned by male dentists graduated from King Saud University. *Saudi Dent J*. 2011;23(2):81-6.
  18. Hashemipur M, Navabi N, Sardari E. Factors affecting the desire to continue studying in the Faculty of Dentistry, Kerman, Rafsanjan and Zahedan. *Iran J Med Educ*. 2011;8(11):979-82. [Persian]
  19. Vahiddastjerdi E, Mahdian m, Nazarali SH, Badiie M. Study motives and career plans of postgraduate students in Dental School, Shahid Beheshti University of Medical Sciences. *J Dent Sch*. 2011;29(1):36-42. [Persian]
  20. Sadeghi M, Bahgerian A. Postgraduate aspiration in dental students at Rafsanjan University of medical sciences. *J Rafsanjan Uni Med Sci*. 2013;12(2):103-14. [Persian]
  21. Ghaderi R, Dastjerdi R, Soroush Z. Effective Factors in Attitude of Medical Sciences Students of Birjand University of Medical Sciences toward Field of Medical in 2001. *J Med Educ*. 2002;10(1):47-56. [Persian]
  22. Arfaei K, Akbari S, Alavimajd H. Interesting to Field of Midwife and Their Correlate Factors in students of Tehran Universities of Medical Science. *Sci Health J*. 2008;3(1):29-32. [Persian]
  23. Rowsell R, Morgan M, Sarangi J. General practitioner registrars' views about a career in general practice. *Br J Gen Pract*. 1995;45(400):601-4.
  24. Finset K, Gude T, Hem E, Tyssen R, Ekeberg O. Which young physicians are satisfied with their work? A prospective nationwide study in Norway. *BMC Med Educ*. 2005;5(1):19.
  25. Gharehaghaji N, Mirahadi M. Evaluating motivation and interest in choosing career or higher education study among radiology students in Tabriz University of Medical Sciences. *Educ Dev Jundishapur*. 2014;5(2):148-55. [Persian]
  26. Buddeberg-Fischer B, Klaghofer R, Abel T, Buddeberg C. Swiss residents' speciality choices—impact of gender, personality traits, career motivation and life goals. *BMC Health Serv Res*. 2006;6:137.
  27. Gillavand A. Comparison of Interest Rates of Pursuing a Specialty among Autonomous Campus with Dentistry Students of Ahvaz Jundishapur University of Medical Sciences. *Jundishapur Sci Med J*. 2016;15(3):347-54. [Persian]
  28. Dey C, Grabowski G, Gebreyes K, Hsu E, VanRooyen M. Influence of international emergency medicine opportunities on residency program selection. *Acad Emerg Med*. 2002;9(7):679-83.
  29. Fevzi Dikici M, Yaris F, Topsever P, Muge Filiz T, Serdar Gurel F, Cubukcu M, et al. Factors affecting choice of specialty among first-year medical students of four universities in different regions of Turkey. *Croat Med J*. 2008;49(3):415-20.
  30. Mahshidfar B, Kianmehr N, Mofidi M. Assessment of Emergency Medical Education on Knowledge Alterations of Medical Students in Rasoul Akram Hospital (2005-2006). *Qom Uni Med Sci J*. 2007;1(3):31-8. [Persian]



**Appendix 1** The questionnaire that the students were asked to fill out and rate the statements on emergency medicine based on a 5-point scale (completely disagree, disagree, neither agree nor disagree, agree, and completely agree)

Field	No.	Questions
Education status	1	Duration of educational course is proportionate to the content of the course
	2	The nature of the discipline includes basic information, clinical knowledge, and necessary skills for diagnosis, learning, and treating patients
	3	Includes specialized educational contents and the educational contents aid in gaining clinical skills
	4	The number of residents' shifts during the educational course is appropriate
	5	There is congruence between practice and theory
	6	There is enough free time during the residency program and afterwards
	7	Theoretical knowledge can be used in clinical settings
	8	The contents of theoretical and practical lessons match
	9	Education can be continued in higher subspecialties
Job status	1	Workplace has little stress and work pressure
	2	Continuous care is provided following the treatment of patients
	3	Has decision-making power regarding patients' treatment method
	4	Has occupational independence, creativity, and job security
	5	Occupational encounter with diseases is low
	6	They don't have many night shifts and the extent of staying in the hospital during the shifts is low
	7	Includes working with people and has high occupational diversity
	8	It doesn't have much practical work
	9	It has little occupational responsibility and the number of complaints against them is less than other disciplines
	10	It is unpredictable and exciting
	11	There is little possibility of argument and fighting with the patients and those accompanying them
Economy	1	Has good job market and future
	2	Its income is proportionate to the workload
	3	The penalty for medical errors is low considering the nature of the discipline
	4	Has more adequate income compared to other medical specialties
Social status	1	Has high social status and respect among the patients and those accompanying them
	2	Is appreciated by the patients and those accompanying them
	3	High rate of social contact with people is among its advantages
	4	There is no interference between work and personal life
	5	The public has good attitude towards them
	6	The atmosphere is good during the residency program

- Would you choose emergency medicine discipline as a specialty for continuing your education?

Yes  No

- Which discipline do you prefer?

1. Physical medicine Radiology  3. Ophthalmology  4. Cardiology  5. Orthopedics  6. Neurosurgery  7. Surgery  8. Other

- Are you interested in continuing your education in residency programs in Iran?

Yes  No

If not, why?

1. Migration  2. Not working as, a specialist  3. Lack of economic justification  4. Other

GCS: Glasgow Coma Scale; SaO<sub>2</sub>: oxygen saturation.