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Investigating the extent and causes of immigration tendency among medical graduates of Jundishapur university of medical sciences, Ahvaz

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Abstract

Background The migration of scientific elites is considered one of the serious threats to the health system in the country. This has grown significantly in recent years, and many short-term and long-term consequences are considered for it. This study aimed to investigate the rate and effective causes of migration among general physicians (GPs) of Ahvaz Jundishapur University of Medical Sciences.

Methods In this descriptive and analytical study, the study population was the GPs of Jundishapur University of Ahvaz in 2021 and 2022, who were conducted on 235 medical graduates. The tool for measuring the causes of migration was a researcher-made questionnaire consists of 21 items. That was used after determining the validity and reliability by available sampling method. To analyze the data, t, ANOVA, Pearson correlation coefficient and linear regression tests were performed using SPSS version 22 software.

Results Out of 225 participants, 51.1% were female and 48 were male. 68% (153) were single and 32% (72 people) were married. Male GPs' desire to migrate is significantly higher than female ($p=0.040$). And the tendency to immigrate was higher among GPs whose fathers had doctorate degrees and higher ($p=0.026$). Economic and occupational factors with the highest average (4.32), followed by social and political factors (3.73), the most important factors and the commitment of human resources with an average of (2.74), followed by national and religious affiliation with an average of (2.81) They had the least impact on the tendency to migrate.

Conclusion The desire of GPs to migrate is more than average. The desire to migrate among male GPs, doctorate degrees and above, economic and occupational factors with the highest average, followed by social and political factors had the most important influence on the tendency to migrate. It seems that the role of governing institutions in building trust, increasing efficiency And practical response to meet the material and extra-material needs of the country's GPs and planning in the field of strengthening the pull factors that improve the sense of social belonging is very important. Resolving the immigration issue requires serious, comprehensive, and long-term commitment to the

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issue of elite management, the completion of structural and legislative concepts, meritocracy, and increasing hope in the academic community.

Clinical trial number Not applicable.

Keywords Migration, General physicians (GPs), Medical education

Introduction

Today, the migration of scientific elites, especially general practitioners, is a well-known phenomenon in developing countries. Immigration to developed countries has been growing rapidly over the past decades. More than 40% of all international immigrants worldwide in 2019 (112 million) were born in Asia [1]. Reports show that Asian GPs usually migrate to other continents. In Pakistan, 20.3% of medical graduates emigrate from the country every year [2]. China has reduced the number of medical graduates migrating to America during the last 10 years [3]. In recent years, elite migration has been on the rise, with the number of Iranian students studying abroad increasing from 19,000 in 2003 to 56,000 in 2018. Also, according to unofficial statistics, the voluntary migration of educated specialists and skilled labor has led to the departure of more than 4,000 doctors in the past three years.(4).

The term brain drain indicates the intensity of the migration of elites. The migration of doctors as elite individuals causes the transfer of specialized and skilled personnel. On the other hand, the contribution of developed countries to the progress of this phenomenon will be further development and an increase in the gap between the host society and the exporting society (developing countries). McKenzie has called this issue the war and competition for talent [5, 6].

The migration of medical staff to developed countries leads to an imbalance of human resources in the source and destination countries. Migration in the medical community can lead to a decrease in the number of health personnel, disruption in the quality of services provided, a decrease in the number of medical professors, an increase in health care costs, and an increase in waiting time for patients [7].

Haq Dost et al. conducted a study to review the documents related to scholarships granted to Iranian students by the Ministry of Health and Medical Education of Iran. They found that the rate of graduate students who did not return to the country was about 40%. The results of this study indicate that the lowest and highest number of students who returned to the country were those who completed their studies in North America (10%) and European countries (70.2%), respectively [8].

The reasons for migration vary from country to country. But common reasons can be educational, political, social, cultural, family, economic, scientific and research reasons. Factors such as good services, low unemployment, better income, good job prospects, better working conditions and job satisfaction are the most important incentives in the migration of GPs against the lack of facilities in any country. The findings of a study conducted on the students of Iran University of Medical Sciences classify the factors affecting the migration of students as follows: economic, educational, administrative, professional, social and cultural factors [9].

This issue is one of the most important challenges that health and medical policy makers should prepare clear plans and laws to prevent and manage the migration process of medical professionals, manage and remove obstacles to the sustainability of the medical community [6].

In the study of E. Lo et al. (2014) entitled "Rethinking the issues of migration and brain drain of health-related professionals: new perspectives" identified seven factors that affect employee satisfaction in health-related professions in South Africa. These factors include: role clarification and job design; fair performance management; Collaborative leadership and knowledge sharing; self-efficacy; suitable and friendly working environments; Credibility of the leader and innovation and excellent relations with customers and technology [10]. In terms of role clarity and job design, health-related personnel feel comfortable in an environment where both senior management and direct supervisors appreciate their work, either through the provision of helpful feedback, or through defined structures with policies, procedures, and systems that enable employees to achieve personal and organizational goals.Fair performance management implies that employers of health-related personnel should be able to show care, interest, and empathy for employees. They should also be able to explain what is expected of health-related professionals.Participatory leadership and knowledge sharing indicate a work environment in which senior management encourages collaboration at all levels. Where individuals appreciate the personal contributions of their peers. Self-efficacy is inspired by the argument that health-related personnel perform better if they feel competent or believe in their abilities to manage responsibilities. Appropriate and friendly work environments reduce absenteeism. and creates an environment with a favorable atmosphere for social communication.

Leader credibility and innovation, excellent customer relations and technology, this factor also argues that the leader's ability to provide useful feedback also helps to build the confidence of the employee who is dealing with

a competent superior. To gain the trust of employees, managers must be knowledgeable in their work, caring for employees and friendly [10].

This type of research can effectively help the government to improve the immigration situation, so that positive factors can be identified and developed in Iran, and the migration of GPs to other countries can be prevented as much as possible. Also, identifying the negative factors can be an effective help to the government to solve the crisis caused by immigration. This study was conducted with the aim of investigating the rate and effective causes of migration among medical graduates of Jundishapur University of Medical Sciences, Ahvaz.

Method and material

Setting and population

This cross-sectional descriptive study was conducted in JundiShapur University of Medical Sciences in Ahvaz in 2022. The studied population were medical graduates of Jundishapur University of Medical Sciences in Ahvaz in the last two academic years (2021and 2022), according to the statistics obtained from the medical school, there were 400 people. The medical curriculum at Jundishapur University of Ahvaz consists of a 7-year course, and the study samples were selected from graduates from this course. In this study, considering the results of Taher Ahmadi et al.'s study [11], Sampling method was available and the required sample size of 195 people was estimated with 95% confidence interval and 5% accuracy. Which was determined by the possibility of dropping the sample size with an additional 20% of 235 people who were selected from the GPs who were willing to participate in the study according to the inclusion criteria. Unwillingness to cooperate and failure to complete the questionnaire were considered as exit criteria. Finally, out of 235 distributed questionnaires, 225 questionnaires were completely completed and analyzed (response rate 95.7%). Questionnaires were provided to the graduates through virtual space as well as paper questionnaires, and while explaining the objectives of the study, they were requested to complete the questionnaires if they wish. In order to comply with ethics in the research, the questionnaires were without names and personal details, and the GPs were assured that their information would remain confidential.

The questionnaire was designed so that the GPs answered all the questions. Otherwise, they would not receive a confirmation message. The questionnaire was designed at the internet address https://survey.porsline.ir and was made available to all participants via social networks (WhatsApp, Instagram) for three weeks. The GPs were informed via SMS through the Graduate Office and were asked to fill out the informed consent form and complete and submit the questionnaire if they liked. At their request, the questionnaire was extended for another week and was made available to the participants online for a total of four weeks.

Ethical considerations of the study including obtaining permission from the ethics committee of Ahvaz Jundishapur University of Medical Sciences (ethics code IR.AJUMS.REC.1402.011), voluntary participation in the study and confidentiality of the obtained information and written consent for participation in the study were observed.

Study tool

The data collection tool was a researcher-made questionnaire that was prepared and compiled based on a review of previous literature and studies [10]. This questionnaire included 21 items. 10 experts (GPs and medical education experts) were invited to check the content validity of the items. They were asked to rate each item from one to three on a three-point scale "essential, useful but not necessary, necessary". Finally; a content validity index (CVI) was calculated and items with a CVI of less than 0.79 were excluded, which did not include any remaining items from the CVR validation.

After that, the face validity of the questionnaire was examined using the opinions of 10 GPs. According to their opinions, necessary changes were made for better understanding. Cronbach's alpha coefficient was determined to be 0.92, which indicates the acceptable internal consistency of the items. Values of Welfare economic factors $\alpha = 0.89$, socio-political factors $\alpha = 0.84$, educational factors $\alpha = 0.89$, family factors $\alpha = 0.89$ and national religious factors $\alpha = 0.85$, show good internal consistency.

This instrument was two-part. The first part of it was related to the personal characteristics of medical graduates including age, sex, marital status, education level of parents, history of traveling abroad, purpose of migration. In this section, GPs were asked to state their tendency to migrate in a 10-point range from 1 (the least tendency) to 10 (the most tendency). The second part of the survey questionnaire was about factors affecting migration, which was designed on a five-point Likert scale from very high [5] to very low [1]. This part of the questionnaire included 21 items. Welfare economic factors (5 items), socio-political factors (4 items), educational factors (7 items), family factors (2 items) and national religious factors (3 items). The questionnaire was in Persian, because Persian is the mother tongue of Iranian GPs. All questionnaires were anonymous.(supplemenatery1).

Analysis

The data of this research was analyzed using SPSS software version 22. Continuous data were reported with mean and standard deviation and categorical variables with number and percentage. The statistical tests used in

Table 1 Comparison of the tendency to migrate by demographic variables among GPs

Demographic variables	Number (%)	Tendency to migrate Mean ± SD	*P* value
Gender			
Male	115(51.1)	6.03 ± 3.8	0.040
Female	110(48.9)	6.85 ± 2.8	
Marital status			
Single	153(68.0)	6.60 ± 2.9	0.202
Married	72(32.0)	6.06 ± 3.1	
Foreign trip experience			
no	107(47.6)	6.61 ± 2.8	0.389
yes	118(52.4)	6.26 ± 3.1	
The purpose of migration			
education	63(28.0)	5.13 ± 3.3	0.000
work and life	162(72.0)	6.93 ± 2.7	

Table 2 Comparison of the tendency to migrate by parental education level of GPs

Demographic variables	Number (%)	Tendency to migrate Mean ± SD	*P* value
Father's academic degree			
Diploma and less	75(33.3)	5.71 ± 2.9	0.026
Master and bachelor	94(41.8)	6.63 ± 3.01	
doctorate and more	56(24.9)	7.05 ± 2.8	
Mother's academic degree			
Diploma and less	123(54.7)	6.08 ± 2.9	0.151
Master and bachelor	90(40.0)	6.80 ± 2.9	
doctorate and more	12(5.3)	7.17 ± 3.1	

this study included Pearson's correlation test, independent t-test, ANOVA test, and Tukey's post-hoc test. In order to investigate the relationship between burnout and the influence factors, Pearson's correlation coefficient and linear regression model were used. The normality of all variables was checked using statistical test. Based on the Kolmogorov-Smirnov test, the variables seem to be normal, so we used parametric tests to check its relationship with the desire to migrate. Analysis with Pvalue ≤ 0.05 was considered statistically significant in this study.

Ethical considerations of the study including obtaining permission from the ethics committee of Ahvaz Jundishapur University of Medical Sciences (ethics code IR.AJUMS.REC.1402.011), voluntary participation in the study and confidentiality of the obtained information and written consent for participation in the study were observed.

Results

A total of 225 completed questionnaires were analyzed. Of these, 110 people (48.9%) were female and 153 people (68%) were single.

The average age of the samples was 30.12 ± 2.8 years. The average tendency of GPs to migrate was 6.43 ± 2.9 out of 10.

The comparison of average tendency of GPs to migrate by demographic variables was showed in Table 1. The comparison of the mean scores of GPs' tendency to migrate by gender showed that there is a statistically significant difference between the tendency of GPs to migrate by gender, and the tendency to migrate is significantly higher in male GPs than in female ($p = 0.004$). While there was no statistically significant difference in the tendency to migrate in unmarried and married GPs ($p = 0.202$). The mean score of tendency to migrate in the group of GPs who migrated abroad for the purpose of work and residence was significantly higher than the group that migrated abroad for the purpose of education ($p = 0.000$). (Tabel1)

The comparison of average tendency of GPs to migrate by Parental education level of GPs was showed in Table 2.There was a statistically significant difference between the mean scores of tendency to migrate and the educational qualifications of fathers. And the desire to immigrate was higher among GPs whose fathers had doctorate degrees or higher ($p = 0.026$). However, according to Tukey's post hoc test, there was no significant difference between other documents. While there was no significant difference between the mean scores of the desire to migrate and the educational qualifications of the mothers ($p = 0.151$). Also, the Pearson correlation test showed that there is no significant relationship between the age of GPs and the tendency to migrate ($r = 0.03$, $p = 0.65$). (Table 2)

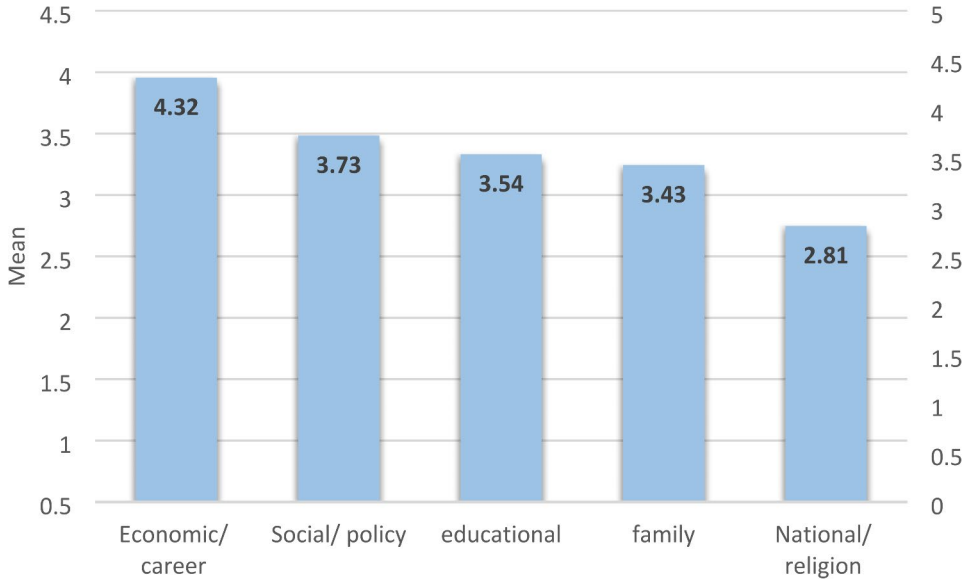

Fig. 1 The mean scores of influence factors in the tendency to migrate among GPs

Table 3 Correlation between tendency to migrate and influence factors among GPs

Demographic variables	Economic/ welfare	Social/ policy	Educational	Family	National/ religion
r	0.583	0.504	0.282	−0.319	−0.559
p	0.000	0.000	0.000	0.000	0.000

Table 4 Logistic regression analysis for influence factors in the tendency to migrate among gps

Variables	B	Std. Error	Beta	*P*	95% C.I. (Lower - Upper)
Economic/ welfare	1.194	0.291	0.348	**<0.001**	(0.621–1.766)
Social/ policy	0.441	0.307	0.115	0.152	(-0.164-1.046)
Educational	-0.068	0.266	−0.016	0.800	(-0.592-0.457)
Family	-0.450	0.144	−0.171	**0.002**	(-0.733- -0.166)
National/ religion	-0.617	0.154	-0.260	**<0.001**	(-0.920- -0.314)

Figure 1 shows the average scores of factors influencing the tendency of GPs to migrate. economic and welfare factors with the highest average (4.32) followed by social and political factors (3.73) are the most important factors; And religious tendencies and patriotism with an average of 2.81 had the least impact on the tendency to immigrate (Fig. 1).

Table 3 shows the relationship between the influence of various factors on the tendency to migrate among GPs. As the figures in the table show, there is a positive and significant relationship between economic and welfare, social and political, and educational factors. But there is a reverse and significant difference between family and national religious factors (Table 2). It seems that GPs who have more family affiliation and national religious interest show less tendency to migrate.(Tabel 3).

Regression analysis

For assessing the association between tendency to migrate and influence factors among GPs was used linear regression, and the results are summarized in Table 4. We observed that the Economic/ welfare (OR = 1.194, p = p<0.001), Family (OR=-0.450, p = 0.002) and National/ religion (OR=-0.617, p<0.001) were statistically associated with tendency to migrate (Table 4).

Discussion

In this study, the degree of desire to migrate was asked in the form of a spectrum between one and ten, the least degree of desire [1] and the greatest degree of desire [10]. The results showed that the average score of the desire to emigrate of the graduated general practitioners was 6.43 out of 10, which is in line with the findings of the study by Tahir Ahmadi et al. [11] The mentioned number is a considerable number and requires that all efforts be made so that the migration of GPs as a group of elites who have a direct role in the health of society does not take place and their capacity and capabilities are used in the best way. Probably, this finding is indicative of the fact that a percentage of GPs are dissatisfied with the current situation.

This dissatisfaction can be caused by various factors that GPs' opinions are related to 6 categories of economic and occupational factors, political and social factors, educational and educational factors, family, the factor of national and religious affiliation, and the factor of commitment to the service of human resources were considered in this study.

The comparison of the mean scores of GPs' tendency to migrate by gender showed that there is a statistically significant difference between the tendency of GPs to migrate by gender, and the tendency to migrate is significantly higher in male GPs than in female ($P = 0.040$). p). The results of a study aimed at investigating the factors influencing the tendency of GPs to migrate abroad showed that men tend to migrate more than women, while only 13% of women said that they would immigrate immediately if it was possible to find a job abroad. This ratio reaches 21% in men, which is consistent with the results of the present study [12]. The reason for less immigration among female GPs can be more adherence and dependence on the family. Migration can cause people to be separated from their family and friends, creating tension and conflict in their relationships. Migration can also make it challenging for women to form new relationships in a new environment.

No significant relationship was observed between the desire to migrate and marital status in the present study. ($p = 0.202$) However, being single was a predictor of the desire to migrate in previous studies (13–14). The findings of the study by Aladdini et al. The average level of willingness to migrate in single people is 61.78 and in married people is 51.02, a statistically significant difference that is not in line with the results of the present study and the reason for this can be due to the low proportion of married people in the study (32% against 68% [15].

The mean score of tendency to migrate in the group of GPs who migrated abroad for the purpose of work and residence was significantly higher than the group that migrated abroad for the purpose of education ($p = 0.000$). The reason for this can be better job opportunities with higher quality and higher income in other countries, better living conditions such as security, appropriate health and educational services, and more amenities, the possibility of creating a better balance between work and life with more reasonable working hours and more holidays. Work experience in countries with more efficient health systems. The mentioned factors make the desire of GPs to migrate more towards work and life.

There was no statistically significant difference in the tendency of GPs to migrate and the history of traveling abroad ($p = 0.389$). This result shows that the travel history of GPs abroad has no effect on their desire to emigrate, and other factors such as economic conditions, job opportunities, quality of life, etc. are more influential on the decision of GPs to emigrate, and the history of traveling abroad has Loneliness cannot be a suitable criterion for predicting the desire to migrate.

There was a statistically significant difference between the mean scores of the tendency to migrate and the educational qualifications of fathers, and the tendency to migrate was higher in GPs whose fathers had doctorate degrees and higher ($p = 0.026$), but according to Tukey's post hoc test, there was a significant difference between other GPs. There was no evidence that the migration of GPs seems to be influenced by the level of father's literacy because, in the traditional gender role, fathers indirectly contribute to migration by allocating money to books, language reinforcement classes. The significant influence of fathers in addition to It can also be a pattern of male dominance. Educated fathers may spend more time with their children and involve them more in language learning activities.

No significant difference was observed between the mean scores of the desire to migrate and the educational qualifications of the mothers ($p = 0.151$). This result indicates that the change in the educational qualifications of the mothers has no effect on the willingness of children to migrate and other factors such as the economic, social or cultural status Willingness to immigrate.

Based on the findings of this research, 6 categories of factors, including economic and occupational, political and social, educational and educational, family, national and religious affiliation, and commitment to the service of manpower, have an effect on migration and the activity of manpower in the field of health. The average scores of the factors Economic and occupational factors with the highest average (4.32) and then social and political factors (3.73) are the most important factors and the commitment of human resources with an average of (2.74) and then dependence. Nationality and religion with an average of (2.81) had the least impact on the tendency to migrate.

The category of economic and occupational factors includes job satisfaction and better job security abroad, unfair working conditions in the country, lack of economic stability in the country, lack of amenities and high cost of living in the country, the existence of successive crises in the country that Among other factors, the economic instability of the country was the most effective factor promoting migration among other factors in this category. The result of the present study showed that economic factors were the first influential factor in the tendency to migrate among general practitioners. The findings of Haq Doust et al. From the point of view of economic and social factors affecting migration, more than 51% of the participants believed that economic and social instability in Iran, the existence of institutionalized

corruption in the country and better quality of life abroad are the most important factors affecting migration in the field of health. which is in line with the results of the present study (4). Also, the results of a study titled "Investigation of the extent and causes of medical students' willingness to migrate abroad" showed that economic factors had the highest correlation coefficient with the variable of willingness to migrate. which is consistent with the results of the present study [16]. The findings of the study by Lee and Moon (2013) who studied the desire, reasons and preferences of 717 nursing students in Korea to migrate abroad show that two main reasons The migration of these participants consisted of (1) Economic reasons (rights) and (2) professional development, which is in line with the results of the present study. The elites are the most important economic factor, which can be caused by things such as the incompatibility of wages with the cost of living, the low value of the country's currency compared to other countries, economic instability and the lack of hope for the country's economic future, which causes the migration of scientific elites.

The category of political and social factors includes higher social support abroad, the style of governance and statehood in the country, the existence of individual and social freedoms abroad, living as a second-class citizen in the destination country, among which the style of governance and the state Being in the country was the most effective factor in enhancing migration among the factors in this category. In a study titled "Investigation of Factors Affecting the Tendency of Students to Migrate Abroad", the obtained results indicate that the lower the acceptability of the ruling system and the level of satisfaction with the performance of government institutions, and the lower the judgment about the future political and social stability. To be more pessimistic, the tendency to migrate increases, which is consistent with the results of the present study [16, 17]. Reasons such as the feeling of social discrimination, the need for social security, higher quality of life, more social security and freedoms, the weakness and social status of elites in the country, the lack of meritocracy, the criterion of relationships instead of rules in society, and the lack of accountability of managers, in A number of studies have been noted (18–19). In order to control the migration of physicians, it is not only necessary to reduce economic problems and bottlenecks through comprehensive planning and provide job opportunities to attract physicians, but also to reform the political and social turmoil that causes dissatisfaction. Efforts to provide conditions that strengthen the positive attitude of physicians towards the political and social system and their participation in social and national economic development programs can be facilitated.

The category of educational and educational factors includes better educational and working conditions during residency abroad, lack of meritocracy and the existence of discrimination in the acceptance of assistantship exams in the country, better educational opportunities for children abroad, non-acceptance of current educational qualifications in the destination country, acceptance problems In the difficult exams to obtain admission in the destination country, the time-consuming process of obtaining admission and continuing education in the destination university, the high costs of studying abroad, among which better educational and working conditions during residency abroad are the most effective factors. Strengthening immigration and the high cost of studying abroad was the most effective factor preventing immigration among the factors of this category. The findings of a study entitled Sociological Investigation of the Elites' Emigration Propensity show that the most important internal repulsions related to the elites Unfavorable conditions for continuing education and research and insufficient appreciation of scientific elites are in line with the present study [20]. On the other hand, low salaries during the internship period, inappropriate working conditions for residents and GPs, and low quality of clinical and research training were reported as other factors affecting migration among Pakistani students [21]. The better educational and working conditions during the residency period abroad was the most effective factor in enhancing migration in the category of educational and educational factors, which can be attributed to the unfavorable condition of the residency period in the country. High workload in educational and therapeutic hospitals, long hours, right Low salary or scholarship, lack of insurance, work pressure of professors, humiliation by seniors, many guards, suicide of residents are some of the problems that medical residents face during their studies. The third influencing factor in the migration of GPs is educational and academic with an average of (3.54), which indicates that the decision to migrate GPs can be influenced by their educational and educational needs. The reason for this can be things such as the low quality of clinical education and inefficient educational systems, unfavorable residency conditions.

Therefore, raising the level of educational and educational quality, especially clinical education, supporting immigrant students and ensuring academic security, facilitating the process of continuing education at the destination university, creating incentives for entrepreneurship, encouraging young people and financially supporting projects, informing students before choosing a field of study, creating a logical connection between the type of field and the student, and facilitating residency conditions can help control physician immigration.

The category of family factor includes dependence on the family and unwillingness of the family to migrate, among which the dependence on the family was the most

effective factor preventing migration among the factors of this category. In explaining the family factor, it can be said that the family is the first cornerstone of the social structure in which a person is placed. It plays an important role in the formation of a person's personality and beliefs and has always been among all human societies as the most fundamental social institution, the foundation of societies and the origin of human culture and history. On the other hand, the attitude towards migration is a process that includes identifying the problem, searching for information, evaluating the reasons and making the final choice that the family's decision can prevent migration. Also, the family is one of the most important institutions whose members have special attachment and dependence towards each other. In the Iranian family, this dependence on the family is more and the children rely more on the family, which can be one of the reasons for preventing the migration of GPs. The national and religious affiliation class includes being interested in Iran, serving the people of Iran, and trying to make Iran proud. Religious beliefs, among which interest in Iran was the most effective factor preventing migration among factors in this category. The findings of a study show that more than half of people who are proud of their nationality had a weak tendency to migrate abroad and stated that they would not migrate even if possible. The same conditions are true for religiosity. 39% of the people who stated that their religiosity is weak go abroad. While this ratio among the people who have stronger religiosity reaches half, i.e. 13%. Another expression of common religious affiliations can strengthen the feeling of solidarity with the Muslim community [22]. The findings of a study state that the main reason for the elites who stayed in Iran is patriotism, which is in line with the results of the present research [23]. According to the findings of the present study, GPs who have more national and religious interest show less tendency to migrate. Also, thinkers believe that religious affiliation is one of the characteristics of tendency and adherence to traditional identity patterns, and separates a person from a modern identity that is cosmopolitan. It moves away from its coordinates and thus strengthens the traditional values of belonging to the society and staying in it, and religious affiliation is considered a part of the native capital that slows down the migration process.

It is suggested that by strengthening the sense of patriotism and religious values and consequently the consequent religiosity among the members of the society, especially the educated class, an effective step can be taken to reduce the migration of these forces abroad so that their skills and expertise can be used for the development of the country.

The complex issue of medical graduate migration does not have a ready-made solution. All stakeholders, namely the governments of the countries of origin and the host country, professional associations, international institutions and the medical workforce in the country, must focus and take bold steps to prevent or reduce the unwanted migration of intelligent students from the country. Partnerships between institutions in developed and developing countries are needed to encourage doctors to return. Reviewing the salary structure, improving the quality of education and making the work environment more conducive for trainees after graduation are among the measures that may help in dealing with the migration of physician.

Despite the valuable findings, this research faced several limitations. First, the available sampling method may not be an accurate representative of the general population of general practitioners and the results obtained may not be generalizable to other general practitioners graduated from other universities. Also, the use of self-report questionnaires may lead to response bias, because GPs may not provide accurate and true answers for various reasons.

Conclusion

The desire of GPs to migrate is more than average. The tendency to migrate among male GPs, doctorate degrees and above, and economic and occupational factors with the highest average, followed by social and political factors, the most important factors, and the commitment to serve the human force with the average, followed by national and religious affiliation with the lowest average. They tended to migrate. It seems that the role of the governing institutions in building trust, increasing efficiency and practical responsiveness to meet the material and extra-material needs of the country's GPs and planning in the field of strengthening the pull factors that improve the sense of social belonging is very important. that it is necessary to solve the problem of elite immigration, it requires attention to reforms in all economic, political, cultural, social, and educational structures of the country, and improvement of social conditions and welfare, quality of life, and increasing hope for the future should be on the agenda.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12909-025-06930-4.

Supplementary Material 1

Supplementary Material 2

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Author contributions
"M.T. and N.Kh. wrote the main manuscript text and A.Sh. prepared Fig. 1. All authors reviewed the manuscript."

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Data availability
The dataset/raw data presented in the study is available on request from the ResearchDevelopment Unit of Ahvaz Jundishapur University of Medical Sciences(Research@ajums.ac.ir) during submission or after publication. The data are notpublicly available due to privacy ethics.

Declarations

Ethics approval and consent to participate
This study was reviewed by the ethics committee of Jundishapur University of Medical Sciences and approved. (IR.AJUMS.REC.1402.011). Participants provided informed consent, and their confidentiality and anonymity were maintained throughout the research process. The study complied with the Declaration of Helsinki, ensuring the protection of participants' rights and welfare.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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