

**Factors affecting intent to immigration among Iranian health workers in 2016**

Heshmatollah Asadi<sup>1</sup>, Batoul Ahmadi<sup>2</sup>, Saharnaz Nedjat<sup>3</sup>, Ali Akbari Sari<sup>4</sup>, Hasan Abolghasem Gorji<sup>5</sup>, Gholamhossein Salehi Zalani<sup>6</sup>

<sup>1</sup> M.Sc. of Health Services Management, Department of Health Management and Economics, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

<sup>2</sup> Ph.D. of Health Services Management, Associate Professor, Department of Health Management and Economics, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

<sup>3</sup> Ph.D. of Epidemiology, Professor, Department of Epidemiology and Biostatistics, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

<sup>4</sup> Ph.D. of Health Policy & Management, Professor, Department of Health Management and Economics, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

<sup>5</sup> Ph.D. of Health Services Management, Assistant Professor, Department of Healthcare Management, School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Iran

<sup>6</sup> Ph.D. of Psychology, Assistant Professor, Department of Health Technology Assessment (HTA), Deputy of Curative Affairs, Ministry of Health and Medical Education, Tehran, Iran

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**Abstract**

**Background:** Loss of human resources in the health sector through migration has caused many problems in the delivery of healthcare services in developing countries.

**Objective:** The aim of this study was to determine factors influencing intention to migrate in skilled human resources in Iran's healthcare sector.

**Methods:** This cross-sectional study was carried out in 2016 in Iran. The study population included health sector human resources at the Tehran and Iran University of Medical Sciences. Using multi-stage cluster sampling, 827 people were selected for participation. Participants included four groups: hospital staff, health workers, medical students, and postgraduate students (Masters and PhD). Data were collected using a valid and reliable questionnaire and analyzed by descriptive parameters, chi-square and logistic regression test using SPSS version 18.

**Results:** Inclination to migrate, in the study population, was 54.77%. There was a significant relationship between inclination to migrate and age, work experience, employment status, marital status, familiarity with a foreign language, foreign language skills, foreign language courses, having relatives or family living abroad, and prior experience of being abroad ( $p < 0.05$ ). The most important factors influencing inclination to migrate were: reaching out for better life ( $81.92 \pm 21.95$ ), interdisciplinary discrimination ( $80.83 \pm 20.75$ ), and experience of living and studying abroad. ( $80.55 \pm 18.12$ ),

**Conclusion:** Considering the high rate of intention to emigrate in the studied population (54.77%), a lot of whom will emigrate if their situation is ready, it can be a serious problem for the health system in the near future in which it will face lack of skilled health workers, and so requires more attention of health sector authorities.

**Keywords:** Immigration, Manpower, Delivery of Health care, Iran

**1. Introduction**

Human resources are important for a country's development, and a lack of human resource capital, delays processes of growth and development, especially in developing countries (1). In recent years, the importance of human

**Corresponding author:**

Associate Professor Dr. Department of Health Management and Economics, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran. Tel: +98.2142933170, Email: [ahmadiba@tums.ac.ir](mailto:ahmadiba@tums.ac.ir)

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resources has been neglected in health systems of developing countries (2). Additionally, one of the potential risks in developing countries is migration of skilled human resources, otherwise known as brain drain that reduces human resources' capital (3). Brain drain is the international transfer of resources in terms of human capital and is ultimately used for the migration of professionals from developing countries (origin) to developed countries (destination) (4). In terms of economic calculations made by industrialized countries, attraction of a well-educated person with a master's or doctorate degree from a developing country is valued at a million dollars for the destination country. Hence, it is observed that developing countries, despite having 80% of the world's population, have only 20% of global income and hold only 1% of human resources related to the sciences (5). Migration can be a major cause of decline in the healthcare sector of the source country in terms of capacity of health personnel, disruption to service provision, dissatisfaction and development of a situation whereby other staff quit, increased waiting times, rising costs of care, loss of many experienced teachers, loss of active members of the population, and an increased number of dependents in a society (6, 7). According to reports on statistics showing the extent of migration in countries of the Organization for Economic Co-operation and Development (OECD): Iran, South Korea and the Philippines had the most significant statistics. According to this report, among the university educated Iranian population; about 25% was living in countries of the OECD (8). This means that one in four Iranians with a college degree was working abroad. In 2009, Iran had the highest rate of migration of skilled and educated people among 91 developed and developing countries (9). Various studies have introduced a wide range of variables as factors affecting human migration. Variables such as social, cultural, economic, professional issues, bureaucracy and globalization are some causes of migration of skilled human resources (10, 11). Lufterz et al., conducted a study in 2013 in which they found that the most common causes of migration were socioeconomic and political, and that the most important reason for selecting migration to Canada was family issues (12). Nouri Hekmat et al., revealed that from the viewpoint of students of Iran University of Medical Sciences, important factors affecting migration included economic and education considerations as well as administrative, professional, globalization, social and cultural factors (13). During the last 10 years, only one study has been done on causes of migration in the field of Medical Sciences in Iran. There exists also, a gap in the available information in this area, so that most of the available information was from international reports of organizations such as the IMF (International Monetary Fund). Findings of this study can inform the Iranian policy makers of the factors influencing the migration of the healthcare workforce and guide the initial step in planning to prevent or reduce migration of Iranian health care workers. Accordingly, this study was done to determine factors affecting migration of skilled human resources in the health sector in Iran.

## **2. Material and Methods**

### ***2.1. Research design and selection criteria***

The present study was cross-sectional and was conducted in 2016 in Iran in the Eastern Mediterranean region. The study population included hospital staff, health center staff, medical students and postgraduate students affiliated to Tehran and Iran University of Medical Sciences. The inclusion criteria were: 1) being an Iranian, 2) having completed studies in health sciences or working in healthcare related organizations.

### ***2.2. Sampling***

Given that in previous studies (13), the standard deviation of the factors affecting migration was determined (SD was equal to 0.7), the sample size determined to be 189. Since there were four main classes, the number of samples was multiplied by the number of groups (four groups). That is to say, the final sample contained 756 subjects and given that it was probable that some questionnaires would be left unanswered, 850 questionnaires were distributed. Therefore, sampling was conducted according to the multi-stage cluster method and 827 samples were applied to the study. Postgraduate students of Iran and Tehran universities and medical students of both Schools of Medicine were sampled. In addition, three hospitals and four health centers were selected randomly from Iran and Tehran Universities of Medical Sciences. The hospitals affiliated to Iran University of Medical Sciences included Firoozgar, Shahid Fahmideh and Shafa Yahyaieian hospitals, and the hospitals affiliated to Tehran University of Medical Sciences included Roozbeh, Farabi and Sina hospitals. The health centers affiliated to Iran University of Medical Sciences included Olympics, Saadat Abad, Shahid Kazemian and Shahid Ghafari health centers, and those affiliated to Tehran University of Medical Sciences included Farmanfarmayan, Akbar Abad, and 14 Masoum and Meysam health centers.

### ***2.3. Instrument and data collection***

Data were collected using a researcher-made questionnaire. The questionnaire was reviewed by seven professors of Tehran and Iran University of Medical Sciences (four professors from Tehran University of Medical Sciences and

three professors from the Iran University of Medical Sciences), in order to confirm its validity, and the questionnaire was revised and redesigned after comments. The test-retest method was used to determine reliability of the questionnaire. For this purpose, a small group of 20 people was selected out of the main sample, and questionnaires were distributed among them. After three weeks, questionnaires were re-distributed and then analyzed using the Intraclass Correlation Coefficient (ICC) test. After calculating ICC of the questions, questions with ICC index evaluation more than 0.7 were approved, and directly entered into the final questionnaire, but questions with ICC index evaluation of less than 0.7 were re-examined, therefore, 10 questions were corrected and four were eliminated; finally, 40 questions were retained in the questionnaire. The questionnaire consisted of 12 key dimensions including: gaining experience (two questions), strengthening the scientific status of the person (two questions), lack of utilizing the skills of graduates (three questions), relating to children (two questions), issues related to the workplace (eight questions), discrimination interdisciplinary (four questions), problems in the research field (three questions), problems in the field of education (two questions), structure of the Ministry of Health (two questions), reaching for a better life (two questions), economic and financial situation (three questions), and political and social issues (seven questions). The average score for each dimension could be obtained by assigning the scores to the choices as follows: "ineffective" = 0, "very low" = 1, "low" = 2, "average" = 3, "high" = 4, and "very high" = 5. Finally, for a better comparison between the scores of each dimension with regard to the number of the questions, they were changed into 0 to 100 scores. After final confirmation of questionnaires and with the necessary permits from the Tehran and Iran University of Medical Sciences, questionnaires were distributed among the groups of participants and then collected after a week. Considering the heavy workload of staff (health centers and hospitals), questionnaires were distributed and collected by researchers during hours and days when there was a lower workload.

#### **2.4. Ethics**

In this study, ethical considerations were taken into account. To this purpose, necessary permits were obtained from Tehran and Iran Universities of Medical Sciences to distribute the questionnaires, and the subjects were assured of the confidentiality of the information at all stages of the research.

#### **2.5. Statistical analysis**

After collection of questionnaires, data were analyzed using SPSS version 18 (SPSS Inc., Chicago, Illinois, USA) using descriptive statistics and chi-square tests, Fisher's exact test, and logistic regression analysis.

### **3. Results**

Among the 827 studied subjects, 453 subjects (54.77%) had an inclination to migrate. Other findings were related to demographic data, and their relationship with inclination to migrate are presented in Table 1. The findings of this study demonstrate a significant relationship between inclination to migrate and variables such as age, work experience, employment status, marital status, familiarity with a foreign language, foreign language skills, foreign language courses, having relatives or family abroad, and experience abroad ( $p < 0.05$ ). The findings of this study show that people less than 35 years old and with less than five years' work experience, informal employment status, familiarity with more than one foreign language, high level of foreign language skill, relatives living abroad, experience of being abroad and those who had taken a foreign language course, were the most inclined to migrate (Table 1). Table 2 shows reasons for inclination to migrate. The results of this study demonstrated that all causes of migration received top rates (above 70), respectively. The findings also revealed that the most important factors affecting inclination to migrate in the health sector human resources included reaching out for a better life, interdisciplinary discrimination, and to experience education or living abroad. Using logistic regression, factors affecting people's inclination to migrate, shown in Table 3, demonstrate that age, level of skill in a foreign language, foreign language courses and having relatives living abroad were effective on inclination to migrate.

**Table 1.** Demographic characteristics and intention to migrate

Demographic variables		n (%)	Intention to migrate		p-value
			Yes (%)	No (%)	
Designation	Healthcare center	197 (23.82)	93 (47.20)	104 (52.79)	0.062
	University (Postgraduate student)	239 (28.89)	134 (56.06)	105 (43.93)	
	Hospital	222 (26.84)	123 (55.40)	99 (44.59)	
	University (Medical student)	169 (20.43)	103 (60.94)	66 (39.05)	
Gender	Male	333 (40.26)	183 (54.95)	150 (45.04)	0.932
	Female	494 (59.73)	270 (54.65)	224 (45.34)	
Age (years)	< 3	630 (77.30)	374 (59.36)	256 (40.63)	0.001
	> 35	185 (22.69)	74 (40.00)	111 (60.00)	
Work experience (years)	< 5	525 (64.89)	310 (59.04)	215 (40.95)	0.002
	> 5	284 (35.10)	136 (47.88)	148 (52.11)	
Employment status	Permanent	277 (33.65)	131 (47.29)	146 (52.70)	0.002
	Primary or Unemployment	546 (66.34)	320 (58.60)	226 (41.39)	
Marital status	Single	458 (56.05)	274 (59.82)	184 (40.17)	0.001
	Married	359 (43.94)	174 (48.46)	185 (51.53)	
Perceived Socio-Economic Status	High	32 (3.86)	20 (65.50)	12 (37.50)	0.627
	Upper middle	255 (31.44)	136 (47.62)	119 (52.38)	
	Middle	431 (53.14)	235 (54.52)	196 (45.48)	
	Lower middle	80 (9.86)	46 (57.50)	34 (42.50)	
	Low	13 (1.60)	9 (75.00)	4 (25.00)	
Familiarity to foreign language	One language	683 (84.52)	366 (53.58)	317 (46.41)	0.031
	At least two language	125 (15.47)	80 (64.00)	45 (36.00)	
Foreign language skills	One skill*	298 (37.81)	130 (43.62)	168 (56.37)	0.001
	Two skills**	274 (34.77)	159 (58.02)	115 (41.97)	
	Three skills***	216 (27.41)	147 (68.05)	69 (31.94)	
Had taken foreign language courses	Yes	264 (37.76)	180 (68.18)	84 (31.81)	0.001
	No	435 (62.23)	200 (45.97)	235 (54.02)	
Having relatives/close friends abroad	Yes	443 (53.95)	279 (62.97)	164 (37.02)	0.001
	No	378 (46.04)	172 (45.50)	206 (54.49)	
Have been abroad before as student or for professional experience	Yes	65 (7.95)	45 (69.23)	20 (30.76)	0.014
	No	752 (92.04)	402 (53.45)	350 (46.54)	

\*having one skill (reading) \*\*having two skills (reading and speaking/writing) \*\*\*having three skills (reading, speaking and writing). Note: Frequency totals may be less than the stated *n* due to missing values.

**Table 2.** Factors influencing intention to migrate in the sample

Influencing Factors	Causes	Mean score* (SD)
Personal factors	Achieving a better life	81.92 (21.95)
	Gaining new experiences	80.55 (18.12)
	For children	71.86 (27.68)
Occupational factors	Interdisciplinary discrimination	80.83 (20.75)
	Strengthening the scientific status	79.95 (19.42)
	Workplace problems	76.76 (20.66)
Economic factors	Economic & financial problems	77.46 (25.38)
Structural factors	Educational system problems	77.41 (21.27)
	Structural problems arising from Ministry of Health	77.27 (23.34)
	Problems in the field of research	74.56 (23.20)
	Lack of optimal use of the knowledge and experiences of graduates	71.53 (20.83)
Socio-political factors	Socio-political limitations	74.06 (22.29)

\* Attainable score: 0-100

**Table 3.** Factors predicting intention to migrate in the studied sample

Variables		OR	95% CI
Designation	Healthcare center (Ref)	1	
	University (Postgraduate student)	1.050	-0.403, 0.501
	Hospital	1.143	-0.296, 0.565
	University (Medical student)	1.001	-0.529, 0.532
Age (years)	< 35	2.262	0.301, 1.332
	> 35 (Ref)	1	
Work experience	< 5	1.010	-0.489, 0.510
	> 5 (Ref)	1	
Employment status	Permanent (Ref)	1	
	Primary or Unemployment	1.120	-0.359, 0.586
Marital status	Single	0.771	-0.591, 0.072
	Married (Ref)	1	
Familiarity to foreign language	One language (Ref)	1	
	At least two language	1.317	-0.145, 0.697
Foreign language skills	One skill (Ref)	1	
	Two skills	1.414	-0.009, 0.702
	Three skills	1.713	0.123, 0.953
Had taken foreign language courses	Yes	1.807	0.221, 0.946
	No (Ref)	1	
Having relatives/close friends abroad	Yes	1.790	0.280, 0.884
	No (Ref)	1	
Have been abroad before as student or for professional experience	Yes	1.454	-0.216, 0.965
	No (Ref)	1	

CI: confidence interval; OR: Odds ratio; Ref: Reference

#### 4. Discussion

Iran is a country with a high level of migration and a great number of Iranians migrate to other countries every year (14). Among students of medical science who were sent abroad from Iran supported by scholarships, 39.6% haven't returned to the country (15). Results of the present study reveal that 54.77% of participants had an inclination to migrate. The results of the present research were consistent with those reported by Lee and Moon about the inclination to migrate in nursing students (16). Additionally, Alaeddini et al., found similar results in a study to determine inclination to migration and its causes among Iranian doctors (17).

##### 4.1. Individual factors

These factors include experience, for children's safety, and to achieve a better life. Yeganeh-Arani et al., in their study demonstrated that for students of the medical department of Malawi, experience of studying in a better environment in a foreign country, and achieving a better position were the most important factors on inclination to migrate (18). Kingma and Buchan found that individual progress was the most important factor influencing migration of nurses (19). Sheikh et al., also found that having a better life and having better position and opportunities were reasons for migration among Pakistani doctors (20). Hence, some people tend to migrate because of their personal situations, and they may emigrate regardless of the conditions of their country.

##### 4.2. Occupational factors

Occupational factors included reasons related to the work environment, to strengthen scientific-professional status and interdisciplinary discrimination. Reasons related to the work environment were the most frequent cause of migration in the context of migration of human resources in the health sector. Lack of equipment and facilities in hospitals, high numbers of patients, high-risk environment, safety at work (21); job satisfaction, better working environment abroad, better management abroad, pressure of colleagues in the country of origin, high working hours and heavy workload, job position (22); improvement of workplace status (23); the status of current job satisfaction (24); poor employment conditions in the country of origin (25) and to advance career and job status (26) were all reasons related to occupational factors mentioned in various studies as reasons for migration among workers in health resources. Therefore, to keep employees in the country, work environments must be taken into special

consideration. Job promotion conditions in the workplace have to be fair so that interdisciplinary discrimination could be reduced.

#### **4.3. Structural factors**

Structural factors included problems caused by misdirected policies and regulations of the Ministry of Health, lack of optimal utilization of graduates, problems with the education system and problems in some areas of research. Kolčić et al., introduced the structure of Croatia's healthcare organization as a main reason for inclination of medical students to migrate (27). A study conducted in Pakistan also showed that working in a better healthcare organization provided motivation for migration (28). Results of other studies revealed reasons for migration of general practitioners as an unclear role of general practitioners, requirement for physicians to work in rural and underserved areas, low quality education in the country of origin, higher quality education in destination countries, limited access or lack of access to specialist training and availability of better research funds in the destination country (29, 30). In fact, the consistency between the results of different studies and those of the present study indicate that the importance of these factors in migration of employees is confirmed, and more investment on research needs to be done in order to keep the employees in the country. Furthermore, education practices have to be reviewed and cumbersome rules and regulations should be removed from the Ministry of Health.

#### **4.4. Economic and financial reasons**

Financial and economic reasons can also be mentioned as important factors in migration. Solberg et al., identified economic factors as the most important in migration among Icelandic physicians (22). Income, payment, to improve income, to secure a better rate of pay abroad, inconsistency in level of income, economic factors, higher income, financial success, the search for more money, economic problems, salary cuts, low wages, more remuneration, expectation of a higher salary, high-income tax and low salary were the most important factors influencing migration of health human resources in European, Asian and African countries (28, 31-35).

#### **4.5. Socio-political reasons**

It seems that this category of reasons formed the basic idea of migration. Moreover, these factors were completely beyond the control of the health system, and related to society at the macro level. In a study conducted in Uganda on migration of physicians, it was found that one reason for inclination to migrate among medical students was political considerations (21). A study in Pakistan on medical students, revealed that discrimination and religious reasons caused migration (20). In another study conducted on pharmacists in nine countries, sociopolitical environment of the country of origin was expressed as a reason for emigration (36).

The World Health Organization (WHO), in a report in 2006, stated that the main factor in decisions to migrate was to achieve a better life and livelihood. Unhappiness and dissatisfaction with current living and working conditions were termed push factors that lead to more stimulation for a decision for migration. Additionally, awareness of a better job elsewhere and the hope of finding better conditions led to intensification of the immigration process, were termed as pull factors. The WHO emphasizes that factors such as lack of prospect for promotion, poor management, high workload and heavy workload, lack of facilities, poor living conditions, and high level of violence and crime constituted push factors; while hope of earning better pay, promotion of skills and abilities, the aim of obtaining experience, a more secure environment, and family issues were all considered as pull factors (37).

#### **4.6. Demographic factors**

Results of the present research showed a significant inverse relationship between age and inclination to migrate, while logistic regression results also demonstrated that people under 35 years of age were more likely to migrate. Other studies also reported a relationship between age and inclination to migrate (16, 18, 38, 39). The results of Selmer et al., demonstrated that younger people were more motivated by external reasons and when they intended to migrate, they faced fewer hazards or risks. Also, it was expressed that young people were motivated by adventure, money and career, and that they placed great value on economic benefits (40). Additionally, there was a significant inverse relationship between work experience and inclination to migrate and people with less than five years' work experience were more likely to migrate. However, people with permanent employment status were less likely to migrate and these two variables (i.e., work experience and employment status) were interconnected. The results of this study are consistent with findings of Oyeyemi et al. The study by Oyeyemi et al., also found a significant inverse relationship between work experience and inclination to migrate in physiotherapists (41). This may have been because individuals have different dependency considerations within the country. In other words, people with less experience and informal employment status had less dependency considerations. On the other hand, this issue

was probably dependent on immigration policy in the destination country because immigration countries have policies that account for conditions such as age and number of years in employment. Therefore, it is suggested that in order to prevent migration of health sector human resources, some action should be taken to provide job security for recent graduates. Our findings show a significant relationship between marital status and inclination to migrate, while single people were more likely to migrate, and similar results are reported in Santric-Milicevic et al., (38). Ribeiro et al., reports that marital status and marriage were factors that affected non-return to the country of origin (35). In the present study, there was a significant relationship between inclination to migrate and variables such as familiarity with foreign language, foreign language skills, and having taken a foreign language course (Table 1). Moreover, results of logistic regression also showed that people who had more foreign language skills and those who had passed a foreign language course were more inclined to migrate. Santric-Milicevic demonstrated that the reasons for Serbian nurses to work abroad were related to foreign language skills (38). Other studies have also reported that language was effective in selecting a country for immigration, and linguistic similarities facilitate migration (35). But another study reported that the number of foreign languages that a person could speak had no relationship with inclination to migrate (42). The cause of inconsistency between these different studies was probably due to differences in the studied countries, destination countries, or language of the destination country. WHO statistics showed that the rate of foreign human resources was higher in English-speaking countries (37). It is recommended that further research be done to investigate this aspect. Having relatives abroad was also determined as a contributing factor on inclination to migrate in this study. Other studies (23, 29, 33, 38) also found that having relatives and friends abroad was related to inclination to migrate. Experience of being abroad was an important factor influencing inclination to migrate, and has been mentioned in various other studies (22, 36, 38). The results of this study, in relation to demographic factors, can be applied to inform policy-makers and health authorities on identification of whom they should focus on to prevent migration. Therefore, programs designed to prevent migration, should target groups of the population that are the most likely to migrate. These programs should focus particularly on young people, particularly those who are recent graduates.

## 5. Conclusions

The findings of the present research show that inclination to migrate was 54.77% among Iran's health professionals. Achieving a better life, interdisciplinary discrimination, and gaining new experience were considered as the main reasons for migration among health professionals. It is recommended that, as a first step to preventing migration, certain organizations be developed to assess the immigration status of human resources and to evaluate the policy of the health system in relation to immigration. Finally, conducting research on approaches to prevent migration of health human resources in Iran and to study the experiences of other countries, is an appropriate guideline for future research. One limitation of this study was the lack of cooperation by Shahid Beheshti University of Medical Sciences that did not permit us to distribute the questionnaires. For this reason, only two universities of Medical Sciences (Iran and Tehran) were studied.

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## Conflict of Interest:

There is no conflict of interest to be declared.

## Authors' contributions:

All authors contributed to this project and article equally. All authors read and approved the final manuscript.

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