

Factors Influencing Lebanese Medical Students' Decisions to Train Abroad: Evaluation of a Conceptual Framework

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Abstract: *Objective:* To evaluate a conceptual framework portraying the factors underlying the intentions of medical students to train abroad.

Methods: Eligible subjects were students in the pre-final and final years of medical studies in Lebanon. A survey questionnaire based on the conceptual framework inquired about demographic and educational characteristics, influencing factors, and intentions to train abroad. We assessed each of the factors for its frequency, distribution, and association with the intention to train abroad.

Results: Of 576 eligible students, 425 (74%) participated. The frequency of the framework factors varied from 16% to 94% and was the highest for factors related to training and professional career. The factors independently associated with the intention to train abroad related to residency training, concern with professional career and political conditions. The intention to train abroad was also associated with thinking that the general public considers doctors trained abroad as more qualified (OR=6.3; 95% CI=1.2-33.2); receiving information about abroad training from doctors trained or training abroad (OR= 9.7; 95% CI=1.7-56.6); having relatives or friends living abroad (OR=6.9; 95% CI=1.4-35.7); and witnessing residents traveling to retrain abroad (OR=22.2; 95% CI=4.5-111.1).

Conclusions: Issues related to residency training, concerns about future career, and political conditions are the main motivators for Lebanese medical students to train abroad. The proposed conceptual framework provides a useful tool, but requires further evaluation.

Keywords: Medical student, medical training, physician migration, Lebanon.

INTRODUCTION

As demands on health systems have been rapidly rising worldwide, demands on their human resources have also been growing [1]. Many high income countries responded to these demands by recruiting healthcare workers mainly from low income countries (LIC), resulting in a large wave of international migration of physicians [2, 3]. This phenomenon is likely to worsen with the projected physician shortages in high income countries [4-7], and plans to remediate these shortages, at least partly, through more international recruitment [8].

The Lebanese physician workforce has endured severe losses through international migration. Indeed, Lebanon has the highest emigration factor in the Middle East and North Africa and the 7th highest in the World [8]. The United States (US) physician workforce, alone, included in 2004 about

40% of Lebanese medical graduates of the preceding 25 years [9]. After adjusting for country population size, Lebanon ranked 2nd as source country of international medical graduates practicing in the US [9]. In 2005, 96% of students of Lebanese medical schools intended to train abroad [10].

We have previously developed, using qualitative methodology, a conceptual framework depicting the factors influencing the decisions of graduating Lebanese medical students to train abroad [11]. The main influencing factors were categorized as push, pull, retain and repel factors and related to the following: residency training, professional career, personal conditions, political conditions, and social conditions. There were three additional factors: societal expectations that students should train abroad; marketing of abroad training; and an established culture of migration [11]. There were also perceived "barriers" to abroad training. However, this proposed framework has not been evaluated.

The objective of the present study was to quantitatively assess the main motivators for Lebanese medical students to train abroad and to evaluate the proposed conceptual frame-

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work by assessing each of its factors for its frequency, distribution, and association with the intention to train abroad.

MATERIALS AND METHODOLOGY

We used a survey methodology to collect data for this study. Eligible subjects were students in the pre-final and final years of medical studies in Lebanon. We excluded one recently established medical school, as it did not have a pre-final or a final year class at the time. The Institutional Review Boards of all involved institutions approved the study (American University of Beirut, Beirut Arab University, Lebanese University, Saint Joseph University, and University of Balamand).

Questionnaire

The questionnaire was developed using the results of a qualitative study of the intentions and motives of Lebanese medical students to train abroad [11]. The participants in the qualitative study were recruited from the same target population. The qualitative study was conducted about 4 months prior to this survey. The questionnaire included questions relating to (see **Appendix**):

- (1) Student's demographic characteristics (age, sex, marital status, socio-economic status (SES), having a Lebanese citizenship, and having an additional citizenship) and educational characteristics (medical school, year of medical education, planned residency type).
- (2) The main influencing factors: residency training, professional career, personal conditions, political conditions and social conditions. The additional factors were: societal expectations, marketing of abroad training, and the culture of migration.
- (3) The perceived barriers to abroad training: expenses associated with training abroad, the required process of certification, getting visas, and other.

The questionnaire included additional questions about student's intention to train abroad, the results of which are reported elsewhere [10]. All questions had a closed ended format. Answer options for most questions consisted of 7-point Likert scales ranging from -3 to +3 with the following anchors: "I strongly disagree" (for -3), "I neither agree or disagree" (for 0) and "I strongly agree" (for +3). The questionnaire was in English which as a language of instruction in all medical schools, albeit to varying degrees. In order to ensure the clarity and feasibility of the questionnaire we pilot tested it with a convenience sample of 10 physicians who had recently graduated from Lebanese medical schools.

Data Collection

During the months of October and November 2005, an investigator from each of the five participating medical schools invited eligible students to participate in the study. These were verbal invitations at the end of a class. Willing participants filled out a paper-based anonymous and confidential survey questionnaire. Eligible students were contacted on a second occasion to invite those who had not participated to consider doing so.

Data Analysis

We first conducted a descriptive analysis of students' demographic and educational characteristics using mean and standard deviation for continuous variables and frequencies and percentages for categorical variables.

For the evaluation of the theoretical framework we conducted for each of its factors the following series of analyses:

1. To assess the frequency of each factor, we conducted a descriptive analysis for each factor using percentages.
2. To assess the distribution of each factor, we conducted a bivariate analysis using Student's t-test and the Chi-Square test to assess whether a factor is associated with any of the demographic or educational variables. We then conducted a multivariable analysis using logistic and multinomial regression models with each factor as the dependent variable and the demographic and educational characteristics as the independent variables.
3. To assess whether intention to train abroad was associated with any of the factors of the conceptual framework, we conducted multivariable analyses using logistic regression models with backward elimination with the intention to train abroad as the dependent variable (with yes/no categories), the factor as the independent variables and demographic and educational characteristics as the covariates; we considered only the factors that were associated with the intention to train abroad in the bivariate analysis.

Finally, we used the statistical results to modify the above mentioned conceptual framework for medical students' decisions to train abroad [11]. The modification aimed to highlight the most prevalent factors and those that are independently associated with the intention to migrate.

We considered two-sided p values and $p < 0.05$ as statistically significant. We used Microsoft Office Excel 2003 for data management and SPSS, version 13.0 (SPSS, Inc., Chicago, Illinois), for data analyses. The strengths of the relationships of the variables in the regression analyses are expressed as odds ratios (OR), indicating for example the relative odds of the tested factor to be associated with intending compared to not intending to train abroad.

RESULTS

Of 576 eligible students, 430 responded to the survey. We excluded 5 responses because of missing data. The survey response rate was thus 74%. The Table 1 shows the demographic and educational characteristics of respondents.

Influencing Factors

Most students considered the factors related to residency training as motivators to train abroad: residency training opportunities (78%); clinical training (94%); research training (85%); teaching in residency programs (83%); working conditions of residents (86%); financial situation of residents (89%); and impact of residency training on future career (92%). Similarly, most students considered the factors related to working as a doctor as motivators to train abroad:

Table 1. Baseline Characteristics of Respondents to a2005 Survey of Medical Students in Lebanon (N=425)

Age (years)		Mean=23.8; SD=1.4
		n (%)
Sex	Female	174 (40)
Marital Status	Single	410 (96)
	Married	6 (1)
	Divorced	3 (1)
	Widow	0 (0)
Socio-economic status	Lower	7 (2)
	Lower middle	101 (24)
	Upper middle	238 (56)
	Upper	17 (4)
Lebanese citizenship	Yes	401 (94)
Additional citizenship*	Yes	72 (17)
Medical school	American University of Beirut	134 (32)
	Beirut Arab University	51 (12)
	Lebanese University	113 (27)
	Université Saint Joseph	61 (14)
	University of Balamand	66 (16)
Year of medical school	Pre-final year	215 (51)
	Final year	207 (49)
Planned residency type	None	6 (1)
	Surgical	137 (32)
	Medical	241 (57)
	Other	36 (9)

* Indicates having an additional citizenship in addition to the primary citizenship

job opportunities (92%); working conditions of doctors (92%); and financial situation of doctors (92%). About half the students considered the following factors as motivators to train abroad: personal conditions (46%); social conditions (52%); and political conditions (46%).

The associations between the consideration of a particular influencing factor as a motivator, and demographic and educational characteristics were not significant in the multivariable analyses. This suggests that none of these characteristics is independently associated with considering any of these factors as a motivator.

However, the associations between the intention to train abroad and considering the following influencing factors as motivators were statistically significant: clinical training (OR=30.7; 95% CI=4.5-207.8); working conditions of residents (OR=48.5; 95% CI=6.2-382.5); financial conditions of residents (OR=8.5; 95% CI=1.6-45.1); impact on career (OR=15.9; 95% CI=2.8-89.3); job opportunities (OR=11.0;

95% CI=1.9-63.9); working conditions of doctors (OR=78.2; 95% CI=8.6-713.3); financial conditions of doctors (OR=64.8; 95% CI=7.2-581.5); and political conditions (OR=10.1; 95% CI=1.1-94.1).

Societal Expectations

Eighty nine percent of respondents agreed that the Lebanese society expects them to train abroad. The respective percentages of students who thought that the following groups considered doctors trained abroad as more qualified were: the general public (84%), patients (66%), the academic community (59%), and healthcare institutions (56%). About half (48%) the students considered doctors trained abroad as more qualified.

The association between the intention to train abroad and beliefs that the general public considers doctors trained abroad as more qualified than doctors trained in Lebanon was statistically significant (OR=6.3; 95% CI=1.2-33.2).

Marketing of Abroad Training

The conceptual framework related “marketing of abroad training” to getting information about abroad training from a number of sources (see **Appendix**, question 21). The percentages of students selecting those sources were as follows: the media (91%), reports by medical students who completed elective rotations abroad (78%), by comparing doctors trained locally to those trained abroad (66%), reports by family members or friends living abroad (63%), reports by doctors trained or training abroad (44%), and own observations while on elective rotations abroad (16%).

The association between the intention to train abroad and receiving information about abroad training from doctors who trained or are training abroad was statistically significant (OR= 9.7; 95% CI=1.7-56.6).

Culture of Migration

The conceptual framework defined a “culture of migration” in relation to a number of situations (see **Appendix**, questions 16-20). The percentages of students who reported being affected those situations were as follows: residents traveling to retrain abroad (91%); attendings encouraging students to train abroad (79%); and having family members or friends living abroad and who would assist in traveling to train abroad (63%). Only 33% reported the presence of attendings who would assist them in traveling to train abroad while 24% reported having completed an elective rotation

abroad. Half of respondents reported planning for elective rotations abroad with top destination countries being the US (64%), France (12%) and the United Kingdom (5%).

The associations between the intention to train abroad and the 2 following factors were statistically significant: having family members or friends living abroad (OR=6.9; 95% CI=1.4-35.7) and witnessing residents traveling to retrain abroad (OR=22.2; 95% CI=4.5-111.1).

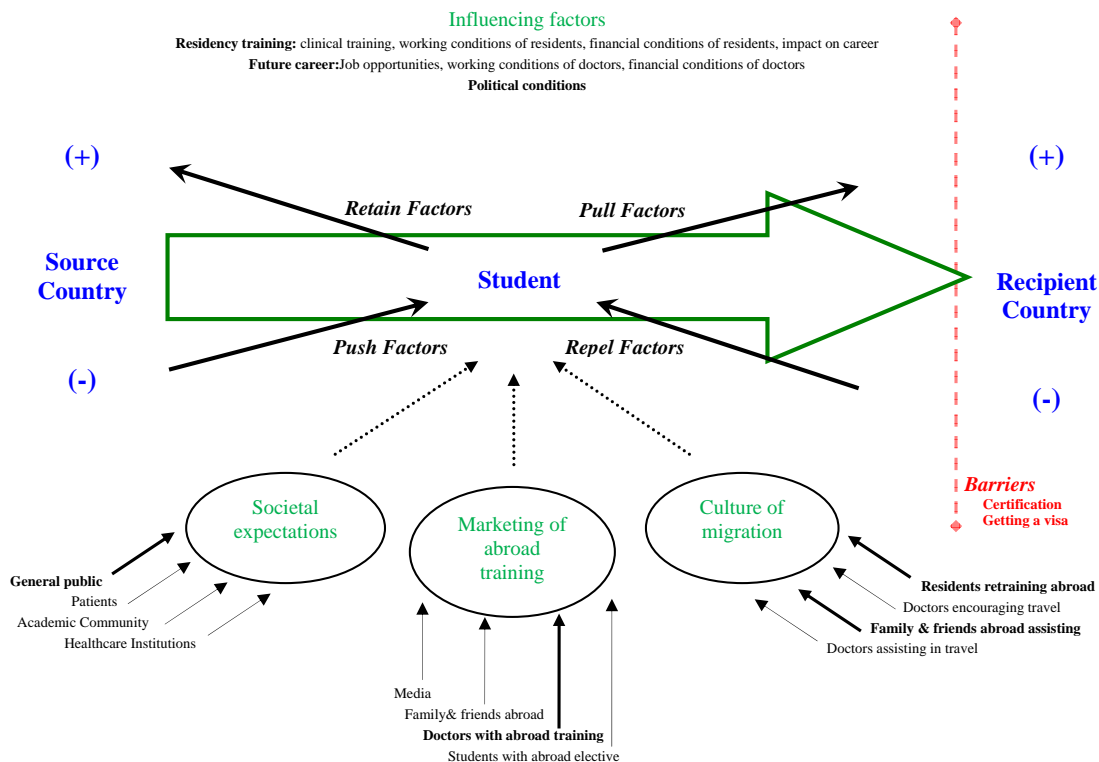
Barriers

Respondents considered the following factors as barriers to train abroad: the expenses associated with training abroad (53%), the required process of certification (52%), and getting a visa (40%).

The associations between the intention to train abroad and considering the 2 following factors as barriers were statistically significant: certification process (OR=6.5; 95% CI=1.1-38.7) and getting a visa (OR=12.7; 95% CI=1.2-132.8).

Modified Conceptual Framework

The modified framework depicts the main influential factors found to be independently associated with the intention to migrate (Fig. 1). It also depicts the most prevalent additional factors and highlights (in bold font) the ones that are independently associated with the intention to migrate.



Bold arrows indicate factors independently associated with intention to migrate. Influential factors listed are those independently associated with intention to migrate.

Fig. (1). Modified conceptual framework for medical students’ decisions to train abroad; survey study.

DISCUSSION

In summary, the factors independently associated with the intention to train abroad relate to residency training, concern with impact on future career and political conditions. The following factors were also found to be important: thinking that the general public considers doctors trained abroad as more qualified than doctors trained in Lebanon; receiving information about abroad training from doctors who trained or are training abroad; having family members or friends living abroad; and feeling encouraged to train abroad by witnessing residents traveling to retrain abroad.

The modified conceptual framework illustrates the relationship between the factors explored in this study and the intention to migrate. It also expresses the relative strengths of these relationships with bold arrows for factors independently associated with intention to migrate. This makes the framework potentially modifiable to fit other specific contexts in which it might be explored in the future.

This study has a number of strengths. First, the validity of the framework in general and of the study questionnaire in particular is strengthened by the fact that it is based on the results of a qualitative study [11]. Second, the relatively high response rate decreases the likelihood of response bias and increases the validity of the results. Third, while we identified one conceptual model of factors influencing Ugandan nursing students' practice intentions [12], we were not able to identify any theoretical framework relating to the intentions of medical students to train abroad or to the international migration of physicians.

This study has some limitations. First, the evidence of an association between the framework factors and the intention to train abroad only suggests but does not prove causality. Second, the intention to train abroad may not translate into actual abroad training or eventual migration. However, this is likely to be the case given the extent and the trend of the migration of Lebanese medical graduates in the past [9] and the fact that abroad training represents a critical step in the migration of physicians [13]. Third, the high percentage of students expressing an intention to train abroad (96%) probably reduced our power to show the significance of associations. It should have not however affected the validity of the results. Fourth, we were unable to distinguish whether a motivating factor was a push factor or a pull factor or both. Finally, it was possible that a student participated more than once given the survey was anonymous and confidential. However, we believe this was unlikely.

Civil instability was the chief motivator for the migration of Lebanese medical graduates in the 1970's [14]. Three decades later these political conditions are still a concern. Underlying fear of conflicts is a persisting phenomenon in Lebanon. Since we collected the study data in late 2005, factors related to civil and political instability may have again gained in importance due to recent political tensions at the national level and military conflicts at the regional level.

Factors related to residency training and future career (e.g. impact of residency training on future career, job opportunities, working conditions of doctors, and financial situation of doctors) were the other dominating factors in our study. Unfortunately we were not able to identify any study

related to the quality of residency training in Lebanon to confirm students' dissatisfaction. Students' concern with future career is apparently related to the crisis of oversaturation of the Lebanese physician job market [15]. In fact, Lebanon has a physician density of 325 physician per 100,000 (2001 data), the second highest in the Middle East and North Africa [16]. As revealed by our earlier qualitative study, students travel abroad to gain a competitive advantage in the oversaturated job market [11].

It is counter-intuitive that although the certification process and obtaining a visa were perceived as barriers, they were associated with increased odds of intending to train abroad. This might be related to the fact that those who intend to train abroad are more aware of and concerned with such barriers.

Lebanon shares with developed countries affected by the international migration of physicians some of the factors motivating graduating medical students to train abroad. In a recent survey of first-year house officers practicing in New Zealand, the 65% of respondents who intended to leave the country within 3 years of graduating were motivated by overseas travel, financial opportunities, job and training opportunities, and student loan debt [17]. In another survey of final year medical students and junior doctors in New Zealand, 69% of respondents planned to work overseas, mostly to travel (70%) and to further their professional training (58%) [18]. In a 2004 survey of Croatian final year medical students, 33% of respondents would have considered emigration if they failed to get the desired specialty [19]. While the above specific motivators vary by country, they all fit the proposed theoretical framework.

The culture of migration and the marketing of abroad training seem to be prevalent in academic institutions raising major concerns. Similarly to our findings, investigators exploring migration of West African physicians described a "well-developed culture of medical migration" [20]. Professors and family members also acted as sources of information for West African students about the benefits of migration. These facts indirectly validate the proposed theoretical framework.

CONCLUSION

We plan to further validate the proposed conceptual framework by following up this cohort of students and comparing their future country of residency training and migration status with their reported intentions. There is also a need to further validate the framework in other countries (especially those suffering from physician migration) and using actual migration as the outcome. The framework could serve as the basis for future research exploring factors affecting intentions of migrant physicians to return to their home countries [21].

Lebanese health policy makers need to take into account the findings of this study and develop strategies to address the problem of migrations of physicians [22-24], as well as other healthcare workers [25]. Such strategies should carefully address the oversaturation of the Lebanese job market and enhance residency training in terms of capacity, to make it responsiveness to the local market needs, and in terms of

quality, to make it appealing for graduating medical students. Research, regulations and monitoring processes are needed to support these strategies.

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CONFLICT OF INTEREST

None declared.

APPENDIX: SURVEY QUESTIONNAIRE

Student Characteristics

1. Your age (Please circle the right answer)

<21 21 22 23 24 25 26 27 28 29 30
 31 32 33 34 35 36 37 38 39 40 >40

Gender

1. Female 2. Male

Marital Status

1. Single 2. Married 3. Divorced 4. Widow

Religion: _____

Lebanese Citizenship

1. Yes 2. No. Citizenship: _____

Do you have a 2nd citizenship or permanent residency?

1. No 2. Yes. Country: _____

Year of Medical School

1. Pre-final year 2. Final year

Your estimated overall ranking in class

1. Top 1/3 2. Middle 1/3 3. Bottom 1/3

What type of residency training do you plan to do? (check only one)

1. None. I desire to be a general practitioner 2. Surgical
 3. Medical 4. Other: _____

How would you rate your socio-economic status?

1. Lower 2. Lower middle 3. Upper middle 4. Upper

Abroad training

Do you intend to do your training abroad?

1. No
 2. Yes, for specialty training
 3. Yes, for subspecialty training, after completing specialty training in Lebanon

If "yes" to q.10, what country would be your first choice? (check only one)

1. United Kingdom 2. Canada
 3. France 4. United States 5. Other: _____

If "yes" to q.10, what is your intention after you finish training abroad? (check only one)

1. Return directly to Lebanon
 2. Work abroad for less than 5 years then return to Lebanon

- 3. Work abroad for 5-10 years then return to Lebanon
- 4. Work abroad for more than 10 years then return to Lebanon
- 5. Never return to Lebanon

If “yes” to q.10, which is the most important goal for you to achieve through training abroad (check only one)

- 1. Excel professionally
- 2. Prosper financially
- 3. Establish myself quickly
- 4. Achieve long-term stability and security
- 5. Keep options open in terms of working in or outside Lebanon
- 6. Obtain the citizenship of the country of training
- 7. Other: _____

What are the barriers for you to train abroad? (check all that apply)

- 1. Required process of certification (exams and tests)
- 2. Expenses (exams, applications, traveling)
- 3. Getting visas
- 4. Other: _____

Influencing Factors

Do you have family members or friends living abroad who would assist you if you travel to train abroad?

- 1. Yes
- 2. No

Are there doctors in your university that encourage you to train abroad?

- 1. Yes
- 2. No

Are there doctors in your university that would assist you to travel and train abroad?

- 1. Yes
- 2. No

Does witnessing residents traveling to retrain abroad motivate you to train abroad yourself?

- 1. Yes
- 2. No

Have you completed an observership or an elective rotation abroad?

- 1. Yes, country: _____
- 2. No, but I am planning to, Country: _____
- 3. No, and I am not planning to

From where did you get your information about training abroad? (check all that apply)

- 1. Media (movies, TV series)
- 2. Reports by family members or friends living abroad
- 3. Reports by medical students who completed observership or elective abroad
- 4. Reports by doctors who trained or are training abroad
- 5. By comparing doctors trained locally to those trained abroad
- 6. My own observations while on observership or elective abroad
- 7. Other: _____

Do you agree that the Lebanese society expects you to train abroad? (circle one number)

- 3	- 2	- 1	0	+ 1	+ 2	+ 3
I strongly disagree			I neither agree or disagree			I strongly agree

Which of the following groups in the population consider doctors trained abroad as more qualified than doctors trained in Lebanon? (check all that apply)

1. General public 2. Patients
 3. Academic community 4. Healthcare institutions
 5. I personally consider so 6. None of the above

Rate the impact of each of the factors listed below on your motivation to train abroad using the following scale:

- 3	- 2	-1	0	+1	+2	+3
I strongly disagree			I neither agree or disagree			I strongly agree

Factors related to residency training

Residency training opportunities	-3 -2 -1 0 +1 +2 +3
Availability of desired specialty, intensity & fairness of competition	
Clinical training	-3 -2 -1 0 +1 +2 +3
Exposure to cases, learning procedures, autonomy, application of theoretical learning	
Research training	-3 -2 -1 0 +1 +2 +3
Financial resources, mentorship, possibility to publish	
Teaching in residency programs	-3 -2 -1 0 +1 +2 +3
Doctors' and programs' commitment to teaching, presence of a curriculum	
Working conditions of residents	-3 -2 -1 0 +1 +2 +3
Amount of work, relationship with doctors and nurses, rewarding and evaluation systems	
Financial situation of residents	-3 -2 -1 0 +1 +2 +3
Income, financial independency, ability to start a family	
Impact of residency training on future career	-3 -2 -1 0 +1 +2 +3
Ability to enter job market in Lebanon or abroad, chance of an academic career	

Factors related to working as a doctor

Job opportunities	-3 -2 -1 0 +1 +2 +3
Intensity and fairness of competition, academic career opportunity, ability to work in your specialty of training	
Working conditions of doctors	-3 -2 -1 0 +1 +2 +3
Amount of work, professional standards, advancement, continuous medical education	
Financial situation of doctors	-3 -2 -1 0 +1 +2 +3
Income, stability of income	

Other factors

Personal conditions	-3 -2 -1 0 +1 +2 +3
Issues related to partner, parents, children	
Social conditions	-3 -2 -1 0 +1 +2 +3
Social norms, social system, social relationships, social and family support, lifestyle, living dependently or independently	
Political conditions	-3 -2 -1 0 +1 +2 +3
Political situation, political system, ability to make changes, personal security	

Any comments? _____

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