

Characteristics of physicians practising in Lebanon: a survey

E.A. Akl,¹ K. El-Asmar,² B. Khater-Menassa,³ N. Maroun⁴ and S. Adib⁵

خصائص الأطباء الذين يمارسون في لبنان: دراسة مسحية

إيلي عقل، خليل الأسمر، بياتريس خاطر – منسى، نانسي مارون، سليم أديب

الخلاصة: كانت آخر المسوحات التي أجريت حول خصائص الأطباء العاملين في لبنان، والذي أجري سنة 1998، مصدرًا للقلق حول الإفراط في أعداد الأطباء ووجود الثغرات في بناء القدرات. وقد أجرى الباحثون هذا المسح عن طريق الهاتف عام 2007 لعينة طبقية عشوائية من الأطباء، لوصف الخصائص الديموغرافية والتعليمية والممارسات لدى 546 طبيباً يمارسون عملهم في لبنان. واتضح أن معظم الأطباء قد تخرجوا من كليات طب في أوروبا الشرقية أو لبنان خلال الثمانينات أو التسعينات من القرن الماضي، مع تدريب بعد التخرج في تخصص لا يتعلق بالرعاية الأولية في أحد بلدان أوروبا الغربية أو الشرقية. وتبين أن معظمهم يمارسون منفردين، لاختصاص طبي أو جراحي، في مستشفى خاص أو في المواقع الحضرية. وكان معدل النسبة المئوية للوقت الذي يقضونه في التعليم وفي البحوث 2.4% و1.2% على التوالي. وتدلل هذه النتائج على وجوب الإقلال من التركيز على التدريب في الرعاية التخصصية بالمقارنة مع الرعاية الأولية والممارسة العامة، وعلى أن السياسات المستقبلية ينبغي أن تهدف لاجتذاب الأطباء إلى المناطق الريفية.

ABSTRACT The last survey of the characteristics of the Lebanese physician workforce, in 1998, raised concerns about the oversupply of physicians and gaps in capacity building. This telephone survey in 2007 of a stratified random sample of physicians describes the demographic, educational and practice characteristics of 546 physicians practising in Lebanon. A majority of the physicians had graduated from an eastern European or a Lebanese medical school, in the 1980s or 1990s, and had postgraduate training in a non-primary care specialty, in a western or eastern European country. The greatest numbers were practising solo, in a medical or surgical specialty, in a private hospital and in an urban setting. The average proportion of work time spent in teaching and research were 2.4% and 1.2% respectively. The findings suggest that less emphasis should be placed on training in specialty care compared with primary care/general practice and future policies should aim to attract physicians to rural areas.

Enquête sur les caractéristiques des médecins exerçant au Liban

RÉSUMÉ La dernière enquête sur les caractéristiques du corps médical libanais en 1998 a soulevé des inquiétudes au sujet du surnombre de médecins et des lacunes en renforcement des capacités. La présente enquête téléphonique menée en 2007 auprès d'un échantillon aléatoire stratifié de 546 médecins exerçant au Liban a répertorié leurs caractéristiques démographiques, académiques et professionnelles. La majorité d'entre eux avaient fait leurs études de premier et de deuxième cycles dans une faculté d'Europe orientale ou du Liban dans les années 1980 ou 1990, puis avaient suivi une formation de troisième cycle dans une spécialité autre que la médecine des soins primaires, dans un pays d'Europe orientale ou occidentale. La plupart exerçaient seuls une spécialité médicale ou chirurgicale, dans un établissement privé et en milieu urbain. La proportion moyenne du temps de travail consacré à l'enseignement et à la recherche était de 2,4 % et 1,2 % respectivement. Les résultats suggèrent qu'une importance moindre devrait être accordée à la formation de spécialité, et une place supérieure aux soins de santé primaires et/ou à la médecine générale. Les futures politiques devraient aussi tenter d'attirer les médecins dans les zones rurales.

¹Department of Medicine, University at Buffalo, Buffalo, New York, United States of America (Correspondence to E.A. Akl: elieakl@buffalo.edu).

²Department of Epidemiology and Population Health; ³Department of Family Medicine, American University of Beirut, Beirut, Lebanon.

⁴Department of Sociology, Buffalo State College, Buffalo, New York, United States of America.

⁵Department of Family Medicine, Saint Joseph University, Beirut, Lebanon.

Received: 17/10/10; accepted: 01/05/11

Introduction

The membership of the Lebanese physician workforce has witnessed many changes over recent years. Indeed the number of medical schools in Lebanon almost doubled over the last decade, increasing the number of Lebanese medical graduates. At the same time, a recent study suggested that a significant number of physicians returned to Lebanon from various parts of the world in the early 1990s, i.e. after the end of the civil war [1]. The repatriation of these physicians appears to have driven recent medical graduates to emigrate [1]. In 2005, 96% of students in Lebanese medical schools intended to travel abroad for postgraduate training [2].

The changes experienced by the Lebanese physician workforce can alter its composition and subsequently its educational, practice and other characteristics. There is a need to closely monitor the characteristics of the Lebanese physician workforce in order to guide human resource planning as well as medical education and medical practice policies [3]. One example of such policies is a recent proposal to regionalize health care in the Middle East and transform Lebanon into an academic medical hub [4].

The last survey of the characteristics of the Lebanese physician workforce was conducted in 1998 and raised concerns about the oversupply of physicians and gaps in capacity building [5]. Thus the objective of the present study was to describe the demographic, educational, and practice characteristics of physicians practicing in Lebanon.

Methods

The study consisted of a confidential, interviewer-administered phone survey of a stratified random sample of all registered physicians practising medicine in Lebanon.

Sample

Our sampling frame consisted of physicians registered with one of the two professional associations of physicians in Lebanon: the Lebanese Order of Physicians (Beirut) and the Order of Physicians in North Lebanon (Tripoli). To be able to practise in Lebanon, physicians have by law to be registered with one and only one of these two Orders. Consequently, the databases of these associations should include all practising physicians in the country. We did not specify any exclusion criteria.

The target population included a total of 10 918 members. Each Order provided us in early 2007 and at no charge with all records of its database in Microsoft *Excel* format, after we had submitted a brief research proposal. The institutional review board of the American University of Beirut approved the study. We obtained the contact information of physicians from the databases of the associations, we stratified participants by their association and then randomly sampled subjects within each stratum in a proportional fashion. We aimed to collect responses 5% of the population ($n = 546$) similarly to the study by Kassak et al. [5]. This number would provide us with widths of confidence intervals between 6% and 8% (depending on the point value for the variable expressed as percentage), which we deemed appropriate. Assuming a response rate of 70%, we planned to contact 780 physicians.

Data collection

We conducted the survey during the summer seasons of 2007 and 2008. The databases include the following for each registered physician: personal information (full name, date of birth, place of birth), educational characteristics (year of medical school graduation, country of medical school, type of specialty training, year of completion of specialty training, country of specialty training),

year of registration (only for Lebanese Order of Physicians) and contact information.

One of the investigators (K.E.A.) with expertise in survey research coordinated the process of data collection. He recruited a sociology student for the role of research assistant then trained her on proper survey interviewing techniques. This included directly supervising the initial interviews and addressing any data collection challenges. During the process of data collection, and as part of data verification, we re-contacted and re-interviewed a randomly selected sample of physicians (20% of our sample). We also double-checked all data entry.

The research assistant made up to two attempts to contact the sampled physicians. When the physician was not available at the time of the call, the research assistant gave her/him the option of calling back at her/his convenience. We classified the reasons for non-response as: explicit refusal to participate, did not call back, had emigrated or invalid contact information. Participants received no monetary or other type of compensation. We informed participants about the possibility of being re-contacted as part of quality assurance.

Both associations collect the information at the time of registration and have no formal mechanism in place to update the contact information (the rest of the information being constant by nature). There was no formal attempt to validate the information in the databases. There were mechanisms, however, in place to avoid dual registration and to remove dead or retired physicians from the databases (personal communication with the executives of the associations). To confirm there were no dual registrations, we checked for duplicate records within and between the 2 databases using the "remove duplicate" function in Microsoft *Excel*; we found none.

Questionnaire

We developed the survey questionnaire based on a previous survey of physicians in Lebanon [5] and a review of the type of data collected for the American Medical Association's *Physician Masterfile* [6]. Two health service researchers reviewed the questionnaire for face and content validity. We pilot tested the questionnaire with 11 physicians to insure clarity comprehensiveness and feasibility. We excluded these physicians from the study sample.

The questionnaire was in Arabic and consisted of 4 sections:

- Demographic characteristics: age, sex, marital status and citizenship.
- Educational characteristics: country of medical school, name of medical school (if region was Lebanon), year of graduation from medical school, country of postgraduate training, postgraduate training, duration of postgraduate training and additional training.
- Practice characteristics: number of years in practice, types of activity, field of practice, primary type of practice and primary location of practice (self-reported). Type of practice referred to the nature of the service that the physician was delivering (inpatient, outpatient, teaching, research, administration). The type of practice related to the organizational structure within which the service (mainly clinical) was being delivered.

Interviews lasted 7 minutes on average.

Statistical analysis

We first conducted descriptive analyses using percentages for categorical variables and means and standard deviations (SD) for continuous variables. Then we crossed-tabulated type of practice with primary site of practice and used the chi-squared test for statistical significance. We categorized internal medicine, family medicine, paediatrics and obstetrics/

gynaecology as primary care specialties [7]. We categorized countries of medical school and of training by world region based on the United Nations classification [8].

We used Microsoft Office *Excel* 2003 for data entry and management. We used *Stata*, version 10, and *SPSS*, version 13.0 for data analyses. We considered a 2-sided P -value < 0.05 as indicative of statistically significant associations.

Results

We sampled and attempted to contact a total of 778 physicians. Of these, 546 participated in the survey (70% response rate, 88% after excluding physicians who emigrated or for whom the contact information was not valid). Causes for non-participation were as follows: explicit refusal to participate (70), did not call back (23), emigrated (63), and invalid contact information (75).

Demographic characteristics

The mean age of participants was 47.4 (standard deviation 10.1) years. They were predominantly male (85.9%) and married (87.0%). All but 6 (98.9%) had Lebanese citizenship.

Educational characteristics

Table 1 shows the educational characteristics of the responding physicians. The top 2 regions of medical school graduation were eastern Europe (35.5%) and Lebanon (30.4%). The most common decades of graduation were the 1990s and 1980s (each about 35% of physicians). While 12.3% had not pursued postgraduate training (i.e. were in general practice), 27.8% reported training in a primary care specialty. The top 2 regions of postgraduate training were western Europe (31.1%) and eastern Europe (25.5%). The mean duration of postgraduate training was 4.4 (SD 1.3) years

Practice characteristics

Table 2 displays the practice characteristics of the responding physicians. The mean number of years in practice was 16.8 (SD 10.5). Most physicians were involved in inpatient care (85.0%) and outpatient care (84.4%); only 14.8% reported teaching activities and 7.9% were involved in research. The average proportion of work time spent in teaching and research were 2.4% (SD 6.8%) and 1.2% (SD 6.9%) respectively. The distribution of the field of practice reflected to a large degree the distribution of the postgraduate training. While 73.8% reported practising solo, only 2.6% reported being a partner in a medical group and only 2.9% reported affiliation with a private university.

The primary location of practice was urban for 71.8% of respondents (Table 2). Table 3 shows that a general practice or a primary care specialty practice was reported by 68.0% of physicians whose primary site was a village versus 39.9% of physicians whose primary site was urban. The results were statistically significant ($P = 0.017$).

Discussion

The educational characteristics applying to a majority of the physicians practising in Lebanon were: graduation from an eastern European or a Lebanese medical school, in the 1980s or the 1990s and postgraduate training in a non-primary care specialty and in a western European or an eastern European country. The practice characteristics showed that a majority of these physicians were practising solo in a medical subspecialty or a surgical specialty, in a private hospital and in an urban setting.

This is the first survey of Lebanese physicians since 1998 [5] and is also the first study to explore certain practice characteristics (e.g. primary employer). In terms of limitations, the sampling frame apparently included a number of physicians who had emigrated but were

Table 1 Educational characteristics of respondents to a survey of physicians practising in Lebanon in 2007–2008 (n = 546)

Variable	No. ^a	%
Region of medical school^b		
Eastern Europe	194	35.5
Lebanon	166	30.4
Western Europe	87	15.9
Northern Africa	37	6.8
Other	53	9.7
Lebanese medical school (n = 166)		
Université Saint Joseph	78	14.3
American University of Beirut	50	9.2
Lebanese University	36	6.6
Beirut Arab University	2	0.4
University of Balamand	0	0.0
Graduation year		
Before 1970	27	4.9
1970–79	73	13.4
1980–89	185	33.9
1990–99	195	35.7
After 1999	63	11.5
Region of postgraduate training		
Western Europe	170	31.1
Eastern Europe	139	25.5
Lebanon	99	18.1
North America	26	4.8
Other	29	5.3
Postgraduate training		
Medical subspecialty	133	24.4
Surgical specialty	132	24.2
Primary care specialty ^c	152	27.8
General practice (no training) ^c	67	12.3
Other	57	10.4
Training in research	183	33.5
Training in teaching	117	21.4
Training in administration	56	10.3
Higher degree		
Masters degree	53	9.7
Doctoral degree	39	7.1

^aMissing observations in some categories.

^bRegions of the world are based on the United Nations classification [8].

^cPrimary care refers to residency training in internal medicine, family medicine, paediatrics or obstetrics and gynaecology. General practice refers to physicians who completed no residency training.

still registered (8% of our sample). However, this should not affect the representativeness of our sample since our target was essentially those physicians actually practising in Lebanon. Also, the characteristics of the survey respondents varied from those of the target population (they

tended to be younger and more likely to have graduated from Lebanon). This leaves some uncertainty about the generalizability of the results to the overall population. In the absence of a standardized and validated classification of the degree of urbanization of Lebanese regions of

Lebanon, we used the respondents' self-reported classification, which limits the validity of the location of practice results.

Compared with the 1998 survey [5], and for variables defined similarly in the 2 studies, the mean age and percentage of males were similar. However, we found a higher proportion of graduation from eastern European countries (35.5% versus 30.4%), and a lower proportion in solo practice (73.8% versus 91%). While in the 1998 survey the percentage of physicians in general practice or primary care was 44%, in our survey this percentage was 38.0%. In the 1998 survey the average number of years of experience was 13 while in our survey the average number of years in practice was nearly 17. These differences likely reflect the time trends of these variables over the last 10 years.

The results of this study highlight the challenges facing physicians as well as the medical education system (e.g. the low percentage of physicians trained in primary care specialties) and medical practice in Lebanon (e.g. the predominance of solo practice and specialty practice in the city). They also show that the great majority of physicians were engaged at the same time in inpatient care (85.0%) and outpatient care (84.4%), signifying that the hospitalist model has not been adopted widely in Lebanon [9]. It is interesting that 14.8% of physicians reported teaching activities, while only 2.9% reported affiliation with a private university. A potential explanation for this finding is that a substantive number of physicians working in non-university hospitals supervise rotating trainees.

The profile of the medical workforce may impact on the services it delivers. For example, in terms of access, it suggests a potential access problem in rural areas. The high percentage of specialization may negatively affect the quality of care delivered. It may also be driving some of the costs of health care; for example, a recent study found a relatively high rate of coronary angiography in Lebanon mostly conducted without appropriate indications [10].

Table 2 Practice characteristics of respondents to a survey of physicians practising in Lebanon in 2007–2008 (n = 546)

Variable	No. ^a	%	Mean (SD) % worktime
Type of activity^b			
Inpatient care	464	85.0	44.0 (28.7)
Outpatient care	461	84.4	48.9 (44.0)
Teaching	81	14.8	1.3 (6.9)
Research	43	7.9	2.4 (6.8)
Administration	20	3.7	1.2 (8.1)
Field of practice^c			
Medical subspecialty	135	24.7	–
Surgical specialty	130	23.8	–
Primary care specialty	146	26.7	–
General practice	77	14.1	–
Other	55	10.1	–
Primary type of practice^b			
Solo practice	403	73.8	–
Partner in medical group	14	2.6	–
Public hospital	131	24.0	–
Private hospital	330	60.4	–
Private university	16	2.9	–
Other	33	6.1	–
Primary location of practice			
City	392	71.8	–
Suburbs	62	11.4	–
Town	63	11.5	–
Village	28	5.1	–

^aMissing observations in some categories. Cross-tabulation revealed that 2 of 132 who reported surgical training reported practising as a general practitioner.

^bRespondents could choose more than 1 option.

^cPrimary care refers to residency training in internal medicine, family medicine, paediatrics or obstetrics and gynaecology. General practice refers to physicians who completed no residency training.

SD = standard deviation.

Future research should continue to monitor the trends of the demographic, educational, practice and economic characteristics of the physician workforce. To that effect, the

Orders of Physicians should consider conducting regular surveys of their memberships using a standardized and validated questionnaire. One efficient way would be a mandatory survey at

the time of the yearly registration renewal.

The results of our survey should be helpful for setting both medical education policies and medical practice policies. On the medical education level, less emphasis should be placed on training in specialty care compared with primary care or general practice. On the medical practice level, future policies and planning should aim to attract physicians to rural areas. There is also a need to reorient health care delivery from specialty care to primary care and encourage group practices as an efficient way to deliver care. The development of publicly accessible and regularly updated data sets through yearly registration would help in monitoring the impact of such policies and plans [11,12].

Acknowledgements

We thank Dr Mario Aoun, Dr Ghasan Raad, Ms Rita Khoury and Ms Rana Machaarani for their assistance.

The World Health Organization (WHO) Eastern Mediterranean Regional Office (EMRO) Special Grant 2007 for Research in Priority Areas of Public Health funded this project. The authors affirm that they have not entered into an agreement with the funding organization that may have limited their ability to complete the research as planned, and that they had full control of all primary data.

Table 3 Location of practice by field of practice of physicians practising in Lebanon in 2007–08

Location of practice	Total ^a	General practice ^b		Primary care specialty ^c		Medical subspecialty		Surgical specialty		Other	
		No.	%	No.	%	No.	%	No.	%	No.	%
City	381	49	12.9	103	27.0	99	26.0	91	23.9	39	10.2
Suburbs	62	12	19.4	11	17.7	9	14.5	21	33.9	9	14.5
Town	63	4	6.3	21	33.3	19	30.2	13	20.6	6	9.5
Village	25	8	32.0	9	36.0	3	12.0	4	16.0	1	4.0

$\chi^2 = 24.61$; $P = 0.017$.

^aMissing observations in some categories; ^bGeneral practice refers to physicians who had completed no residency training; ^cPrimary care refers to residency training in internal medicine, family medicine, paediatrics or obstetrics and gynaecology.

SD = standard deviation.

References

1. Akl EA et al. Did the post war repatriation of Lebanese physicians drive recent Lebanese medical graduates to emigrate? An observational study. *BMC Health Services Research*, 2008, 8:195.
2. Akl EA et al. Post-graduation migration intentions of students of Lebanese medical schools: a survey study. *BMC Public Health*, 2008, 8:191.
3. El-Jardali F et al. Human resources for health planning and management in the Eastern Mediterranean region: facts, gaps and forward thinking for research and policy. *Human Resources for Health*, 2007, 5:9.
4. Badr KF, Akl EA. Regionalizing healthcare: a vision for transforming Lebanon into a regional academic hub. *BMC Health Services Research*, 2010, 10:167.
5. Kassak KM et al. The providers of health services in Lebanon: a survey of physicians. *Human Resources for Health*, 2006, 4:4.
6. *AMA physician masterfile*. American Medical Association [online factsheet] (<http://www.ama-assn.org/ama/pub/about-ama/physician-data-resources/physician-masterfile.shtml>, accessed 13 May 2012).
7. Brotherton SE, Rockey PH, Etzel SI. US graduate medical education, 2004–2005: trends in primary care specialties. *Journal of the American Medical Association*, 2005, 294:1075–1082.
8. *Composition of macro geographical (continental) regions, geographical sub-regions, and selected economic and other groupings*. United Nations [online database] (<http://unstats.un.org/unsd/methods/m49/m49regin>, accessed 13 May 2012).
9. Wachter RM, Goldman L. The hospitalist movement 5 years later. *Journal of the American Medical Association*, 2002, 287:487–494.
10. Sibai AM et al. The appropriateness of use of coronary angiography in Lebanon: implications for health policy. *Health Policy and Planning*, 2008, 23:210–217.
11. Saleh SS, Alameddine MS, El-Jardali F. The case for developing publicly-accessible datasets for health services research in the Middle East and North Africa (MENA) region. *BMC Health Services Research*, 2009, 9:197.
12. El-Jardali F et al. Eliciting policymakers' and stakeholders' opinions to help shape health system research priorities in the Middle East and North Africa region. *Health Policy and Planning*, 2010, 25(1):15–27.

Transformative scale up of health professional education

At the request of its Member States and partners, WHO is developing policy guidelines to assist countries, development partners and other stakeholders in efforts to expand the health workforce and improve the alignment between the education of health workers and population health needs. The first set of guidelines in this process will recommend the transformative scale up of health professional education and aims to increase the quantity, quality and relevance of health professionals to strengthen their impact on population health.

Transformative scale up of health professional education: an effort to increase the numbers of health professionals and to strengthen their impact on population health provides a background and overview of WHO's effort to provide guidance on the transformative scale up of health professional education.

This document is available at: http://www.who.int/hrh/resources/transformative_education/en/index.html