

GRADUATES AND THE LABOR MARKET DEFICIT IN THE ROMANIAN HEALTH SECTOR

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Abstract

The main directions of the migratory flow of health specialists are towards more developed countries. Around 1/3 of Romanian health professions graduates are working abroad while the national health system faced with a chronic shortage of staff. The paper highlighted the fact that the increase in the number of graduates in recent decades did not ensure coverage of the deficit, because only a small part of them remain on the Romanian labor market, the motivation of migration being much higher income, lack of equipment and low level of transfer technological as well as working conditions. The lack of an integrated and realistic national plan for health care reform runs counter to developed countries' measures to attract and hire migrant physicians, and rapid integration facilities for new jobs promoted during the pandemic have kept the migration alternative as a solid alternative for graduates to pursue and progress in their careers abroad.

Keywords: Medical staff, health graduates, health workforce migration, Romania, linear model regression.

1. Introduction

The challenges of the external labour migration of health professionals are not a new problem, being specific to most developing countries. The demand for human resources in health care sector is growing rapidly worldwide due to a) last demographic transition and medical care for all principle implementation, b) shortage of graduates in health professions in developed countries and c) epidemiological conditions, especially in the context of the COVID-19 pandemic. The expansion of the migration phenomenon both at European and national level in the context of globalization attracts the interest of experts from different fields of activity, who turn their attention to the analysis of the consequences of this phenomenon on health services (Teodorescu, 2012).

The main directions of the migratory flow of health specialists are towards more developed countries from developing ones, known as "brain drain" (Mullan, 2005). There is an established link between an adequate level of staff and the positive outcomes of healthcare (Chen et al., 2004).

International recruitment and migration of medical staff has become a common practice for many economically prosperous countries to fill vacancies, but with negative externalities for developing countries of origin, which remain in (even more) employment deficit. The migration of medical staff unbalances

national health systems, which are already threatened by financial shortage and the lack of medical staff in relation to the needs of the population. The increased deficit of medical staff, including highly qualified staff, is a matter of particular importance for the performance of health systems and undermines the ability of these countries to achieve sustainable development and to provide quality health services for all, both for preventive care and for treatments.

Romania is among less developed countries of EU that is facing an acute shortage of employment in health care sector, and the migration of both experienced specialists and health graduates is a high challenge having complex impact of the whole society. The crisis of the health system in the current pandemic conditions has highlighted the profound negative effects of the migration of medical graduates in the last two decades as its have spread within health systems across all disciplines.

The purpose of this research is to identify the impact of the mobility of health graduates on the shortage of medical staff in Romania and on the size of the stock of Romanian medical staff working abroad.

2. Literature review

The process of globalization and the growing demand for medical services worldwide have determined both the development of trade in services, equipment, and technologies in the medical field, and

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have encouraged the mobility of medical staff in this sector.

The cost and duration of training for the health professions are substantial and, therefore, the most effective option for developed countries is to cover staff shortages by recruiting them from the international labor market, both recent graduates and young staff with several years of experience / practice, offering comparative advantages. So, among the determinants of the decision to migrate of the medical staff we can identify: salary differential and opportunities for career development and promotion, better working conditions, the desire to acquire new skills and knowledge, for family reasons (Apostu et al., 2020; Apostu et al., 2020; Vasile et al., 2018; Buchan et al., 2014; Humphries et al., 2015; Boboc et al., 2011). Also, a number of other factors shape the geographical distribution and intensity of mobility flows of medical staff, including doctors, nurses or other categories of health workers. De Vries (et al., 2016) studied the typology of migrants in the field of health, and their results highlight the fact that a large part of medical staff are motivated by higher salaries compared to the country of origin and a more flexible work schedule. While for other categories of doctors included in the study, the language spoken in the destination country is important, in consequence they migrate to countries in the same language basin.

At European Union level, some Member States are paying more attention to the phenomenon of medical staff mobility and building databases on these categories of migrants, and a wide range of studies have been carried out (Buchan, 2006; Cehan, 2013; Humphries et al., 2008; Humphries et al., 2012; OECD, 2008; WHO, 2008). These studies give a realistic analysis of the medical staff mobility, but also highlight variations in terms of detailing the topics to be studied, and analytical depth or of statistical research that do not allow comparisons. An analysis of the data provided by the Romanian College of Physicians on Current Professional Certificates issued to work abroad (Apostu et al, 2020) only partially highlighted the size of the phenomenon, namely the intention to mobilize for a job abroad, without measuring statistically and the proportion in which this intention was materialized. So, at the national level, there is a lack of data on Romanian doctors who emigrated abroad, and studies on the size and structure of migrant flows in the field of health care are limited. Thus, in the research conducted by Suciuc (et al., 2017) on a sample of 975 graduates from medicine faculties for the period 2013-2015, are analyzed their intentions to work abroad. The study's results indicate that 84.7% of these graduates plan to look for jobs abroad, and of these, 44.5% have already taken language courses that can help them to integrate in the destination country, while 26.5% have already looked for jobs abroad using online medical platforms. The migration determinants for Romanian graduates are higher salaries, better living and working conditions, professional opportunities, "lack of

internships" in the chosen specialty and disappointment regarding the medical system in Romania.

The migration process of Romanian medical staff is also studied by Dornescu & Manea (2013). They support the development of control levers for the migration of physicians, such as codes of ethics for medical staff that should be used by all developing countries facing this phenomenon. Similar policy measures in order to restrict migration are supported by Cehan and Teodorescu (2012). Medical staff is involved not only in permanent migration, but in temporary too, most often for carrier opportunities. When the medical staff migrates temporarily, they return with a much wider experience in the field and with examples of good practices that they can implement in the Romanian medical system and can lead to an increase in the quality of services offered to the common public.

But, unfortunately, examples and situations of temporary migration among medical staff are very rare, and the effects of permanent migration are overwhelming for the country of origin.

3. Research methodology

Current research uses linear model regression in order to analyze the impact of the mobility of health graduates on the shortage of medical staff in Romania and on the stock of Romanian doctors practicing abroad. Therefore, the dependent variables used in the research are:

- a) the number of medical staff in Romania;
- b) the number of Romanian medical staff abroad.

In order to investigate the impact between the listed variables included in the present research, we formulated the resulting economic hypotheses:

- H_1 - the increase in the number of health graduates contributes to the growth in the number of employed medical staff in Romania;
- H_2 - the increase in the number of health graduates contributes to the increase in the number of Romanian medical staff working abroad.

Using linear model regression, we will observe if exists a statistically significant and direct relationship between the variables by elaborating several equations.

The general linear model regression has the following form:

$$Y_i = \beta_0 + \beta_1 X_i + e_i \quad (1)$$

where:

Y_i represents the dependent variable,

X_i is the independent variable,

β_0 is a parameter and shows the mean value of the dependent variable when X is equal to 0,

β_1 represents the slope and indicates the mean variation of Y when X variable vary with a unit,

e_i is the residual variable.

Parameter estimation of the linear model regression will be performed using the statistical software R.

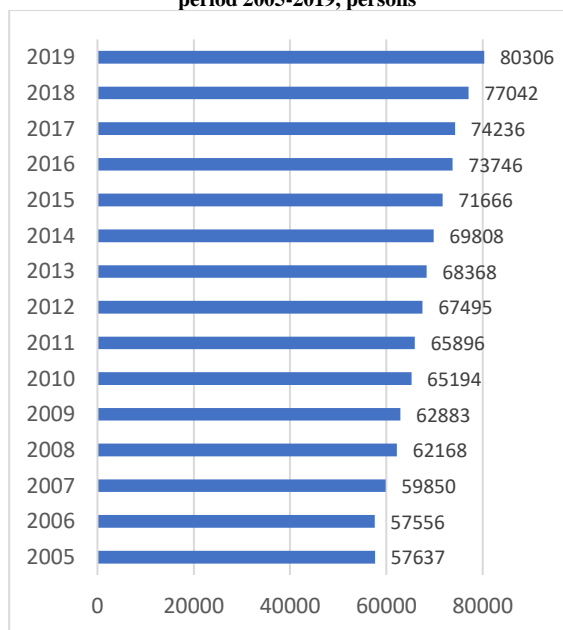
4. Data description

The data used in the research are provided by the National Institute of Statistics of Romania and the OECD for the period 2005-2019.

The importance of the phenomenon of migration of Romanian doctors derives from the shortage of doctors registered by Romania.

As we can see in Figure 1 the number of Romanian doctors working in Romania is increasing, reaching the value of 80306 in 2019.

Figure 1. The evolution of medical staff in Romania in the period 2005-2019, persons



Source: Author's calculation based on Romanian National Institute of Statistics, 2021

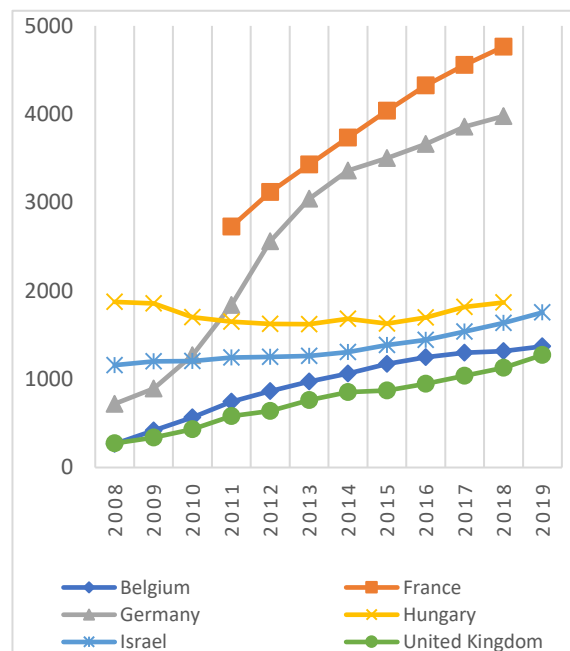
However, according to the latest report of the European Commission „State of Health in the EU” the country profiles of the Member States (European Commission, 2019) the Romanian health system still suffers from a lack of sufficient medical staff (doctors and nurses) compared to 1,000 inhabitants. In 2017, there were 2.9 practicing physicians per 1,000 inhabitants, the third lowest value in the EU (EU average 3.6) and 6.7 nurses per 1,000 population (EU average 8.5). And in the context of the COVID-19 pandemic, when the importance of doctors increased even more, 231 medical staff from Romania and Bulgaria decided to go to practice in Austria (Romania Insider, 2020), although in Romania the epidemiological situation was not under control, with many areas of the country where there were cases of infection and death among doctors.

According to the data presented by the OECD, (2021) we notice that the Romanian medical staff is increasing in different destination countries (Annex 1), and among the preferred destination we can mention France, Germany, Hungary or Israel with 4764, 3978,

1870 and 1755 Romanian medical staff, respectively (Figure 2).

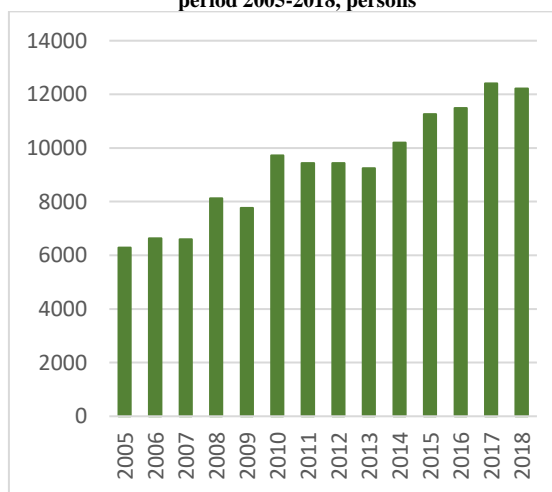
Figure 2. Top countries of destination for Romanian medical staff in 2008-2019, persons

Source: Author's calculation based on OECD data (2021)



As we can see from the existing research on medical staff in Romania and especially young graduates in the field of health, the migration trend has existed since the student years. Thus, it is important to analyze the trend of the number of graduates of medical specializations at the national level (Figure 3). Thus, we find an increase in the number of medical graduates throughout the analyzed period, which means that this specialization is in high demand by young high school students.

Figure 3. The evolution of health graduates in Romania in the period 2005-2018, persons



Source: Author's calculation based on Romanian National Institute of Statistics, 2021

Comparing with the data from figure 1 it is found that: a) the dynamics of the number of graduates is more accentuated than of the employment in the health sector, the field of professional specialization being of interest for young people.

a) the annual contingents of graduates, which represent about 10-15% of the annual staff of medical staff are found in the staff increases only in very small proportion, respectively less than 1/3 of the number of graduates, which cannot be justified only by replacement rate by age (at retirement), but especially by migrating for a job abroad;

b) if we associate the available data on the applications for Current Professional Certificates issued to work abroad with the aspects mentioned above, although we cannot make an accurately statistical determination, we can still conclude that we have much enough cases of graduates who, after completing their studies, do not work in the medical sector, migrating to other activities in the business environment, capitalizing on the specialization acquired through school or even giving it up.

5. Results and discussion

In order to determine the impact generated by health graduates on the shortage of medical personnel in Romania and on the Romanian medical staff abroad, we decided to apply a linear regression model on the research data.

Table 1. Impact of health graduates on medical staff in Romania using linear model regression

	Coefficient	Standard error	t test
Intercept	39143,58	1812,38	21,59
Health graduates	2,94	0,18	15,53
p-value 2,6057e-09			

Source: Author's calculation

According to Table 1, we find that the independent variable - medical graduates of higher education institutions in Romania - shows a statistically significant influence. Thus, the regression equation has the following form:

$$Med\ staff\ Ro_i = 39143,58 + 2,94 * health\ grad_i + e_i$$

Therefore, we notice that with the increase of the number of graduates in the medical field, on average the number of employed medical staff in Romania increases. The obtained results allow us to ascertain the fact that some of the medical graduates stay at home and practice in the hospital units in Romania, thus contributing to the reduction of the shortage of doctors.

Table 2. Impact of health graduates on Romanian medical staff abroad using linear model regression

	Coefficient	Standard error	t test
Intercept	-9560,00	2296,93	-4,16
Health graduates	2,01	0,24	8,36
p-value 2,37955e-06			

Source: Author's calculation

Applying the same method of quantitative analysis, we observe a similar result in the case of the relationship between the impact of health graduates and the number of Romanian medical staff abroad, with the following mathematical representation:

$$Med\ staff\ abroad_i = -9560 + 2,01 * health\ grad_i + e_i$$

Even if the influence is statistically significant, the overall generated impact is negative. Thus, the increase in the number of health graduates determines on average an increase in the Romanian medical staff who practice in hospitals abroad.

The results allow us to conclude that young graduates are not only assimilated by the domestic labor market, but also, many of them tend to migrate to other countries of destination for various economic, social, family etc., reasons, results also supported by other research in the field.

6. Conclusions

Most Romanian medical graduates consider migration an alternative for continuing their professional activities and an opportunity for future career advancement. The results of this study are important in terms of supporting the shaping future migration of Romanian doctors and have implications for both policy development and future research.

During the first year of pandemic crisis the health system in Romania faced with the challenge of retaining the graduates for decreasing staff deficit. According to last OECD report on doctors migration Romania has the highest number of Romanian-graduates who have emigrated and carry out their professional activity abroad (about 1/3 according to OECD, 2021¹), and in countries like Germany the highest number of migrants doctors are Romanians. Although salaries in Romania for doctors have increased significantly since 2017, "OECD member states have taken decisions that have facilitated the recognition of the professional skills of foreign doctors and their rapid entry into the national health system"², making the migration option an important alternative for graduates.

In order to reduce the propensity for migration of graduates from health professions, public authorities must ensure an articulated reform and finance the health

¹ <http://www.oecd.org/coronavirus/policy-responses/contribution-of-migrant-doctors-and-nurses-to-tackling-covid-19-crisis-in-oecd-countries-2f7bace2/>.

² <https://www.g4media.ro/raport-ocde-o-treime-din-medicii-romani-au-emigrat-record-absolut-in-lume.html>.

system (health financing in Romania is about half of the EU average). Romanian authorities must develop a comprehensive national health workforce employment plan to mitigate the migration of medical staff. The recovery of the health system through technology / endowments and working conditions will attract graduates and probably some of the migrants who have left their families in the country. However, the shortage of doctors on Romania's labour market still cannot be covered, health sector being confronted with a critically short of nurses and doctors in general and in particular for the specialisations related to pandemic crisis. This issue remains equally important as investments in health sector for equipments, technology in order to shift the working condition and significantly improve the

efficiency of health services, both from the client (patients) and health staff perspectives. Retaining graduates to work in Romanian health sector is the main challenges of the public authorities in the context of commitments undertaken by Romania to implement the Millennium Development Goals.

Acknowledgement: This paper received financial support through the project entitled „DECIDE - Development through entrepreneurial education and innovative doctoral and postdoctoral research, project code POCU / 380/6/13/125031, project co-financed from the European Social Fund through the Operational Program Human Capital 2014 – 2020”.

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Appendix

Table 1. Evolution of Romanian medical staff abroad by country of destination in 2005-2019, persons

Year	Austria	Belgium	France	Germany	Hungary
2005		7		500	1898
2006		9		534	1895
2007	4	135		619	1883
2008	6	267		721	1875
2009	13	420		895	1858
2010	16	566		1269	1701
2011	22	744	2726	1840	1652
2012	23	866	3118	2559	1624
2013	31	975	3431	3042	1623
2014	51	1064	3734	3363	1683
2015	53	1172	4040	3503	1630
2016	51	1247	4324	3661	1699
2017	55	1300	4558	3857	1819
2018	62	1319	4764	3978	1870
2019		1371			

Year	Ireland	Israel	Netherlands	Sweden	United Kingdom
2005		1173	13	250	
2006		1156	13	263	
2007		1147	18	313	
2008		1159	28	363	274
2009		1201	35	385	338
2010		1206	43	421	435
2011	226	1245	47	485	582
2012	286	1252	43	564	639
2013	341	1263	45	628	764
2014	487	1308	46	735	852
2015	625	1388	57	568	872
2016	723	1445	60	728	949
2017	733	1539	64	812	1037
2018	715	1636			1129
2019	709	1755			1274

Source: Author's calculation based on OECD data (2021)