

## The Analysis of Medical Brain in North Macedonia-Its Consequences and Future

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## Abstract

Medical brain drain is a phenomenon that is rising over time. While the migration of healthcare professionals brings some advantages for the destination country, the country of origin loses qualified and sometimes well-educated people. This process affects the efficiency of the health care system and the quality of the medical system service. North Macedonia is facing a medical brain drain in the health sector, and most of the migration is happening in Germany. The purpose of this research paper is to identify the factors that affect the decision to move from North Macedonia.

Moreover, the paper tackles data collection and provides information to understand medical brain drain as a phenomenon. This study examines the causes and motivations behind the migration of healthcare professionals from North Macedonia to Western Europe, as well as some of the solutions the North Macedonian government could employ to lessen the phenomenon's unfavorable effects. What is important is the concept of medical brain drain is prevalent in developing or underdeveloped countries. The recent migration of medical staff in North Macedonia has demonstrated that there is a difference between less developed nations and high-performing nations like Germany when it comes to luring and keeping medical employees in their healthcare institutions.

Keywords: Medical brain drain, Germany, Health education, Motives, Healthcare professionals

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## Introduction

Migration of healthcare professionals refers to the movement of health personnel to another developed country with the aim to have a better standard of living, higher salaries, quality, and access to technology. North Macedonia is an example of the migration of healthcare professionals in recent years as the phenomenon of medical brain drain continues to rise. North Macedonia has a total number of 2,097,319 inhabitants based on the State Statistical Office that published the numbers as part of the 2021 Census. The census shows that 54% of the population is Macedonian, while 29% is Albanian, 4% are Turks, 2% are Roma, Serbs 1% Bosniaks 0,87%, and Vlachs 0,47 %.<sup>1</sup>

Regarding the economy, North Macedonia is a developing country like other Western Balkans countries that are facing a recession due to the global pandemic. Following the economic turbulence and the pandemic situation, the government of North Macedonia took support measures to reduce the impact on its citizens. Even with the measures, the North Macedonian economy reached a rebounding economy in 2021 with external and domestic demand, job opportunities, and wage growth. Nonetheless, the war in Ukraine caused inflation to rise.<sup>2</sup>

Additionally, the delay of the EU accession has also impacted the reform efforts that are crucial to increase growth in the economy.<sup>3</sup> Regardless of the worsened situation and its impact; the most drastic challenge remains the medical brain drain. The migration of health workers remains a concern for North Macedonia and its healthcare system. Moreover, medical brain drain in North Macedonia is a phenomenon happening not only in the country but also in the whole region of the Western Balkan.

Therefore, the objective of the research paper is to understand and provide information on the issue of the migration of healthcare professionals in North Macedonia by ensuring recommendations to the government of North Macedonia on what to undertake in this particular case. On that account, the research paper also examines the consequences of healthcare professionals' migration from North Macedonia to Germany.

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<sup>1</sup> State Statistical Office, "Census of Population, Households and Dwellings in the Republic of North Macedonia, 2021 - First Dataset," State Statistical Office: Census of Population, households and dwellings in the Republic of North Macedonia, 2021 - First dataset, accessed September 20, 2022, [https://www.stat.gov.mk/PrikaziSoopstenie\\_en.aspx?rbtxt=146](https://www.stat.gov.mk/PrikaziSoopstenie_en.aspx?rbtxt=146).

<sup>2</sup> Gjorgjioska M. Adela, "North Macedonia economy briefing: Early assessment of the economic consequences of the war in Ukraine," China-CEE Institute 49, no 2 (2022), p.3, [https://china-cee.eu/wp-content/uploads/2022/07/2022e03\\_North-Macedonia.pdf](https://china-cee.eu/wp-content/uploads/2022/07/2022e03_North-Macedonia.pdf)

<sup>3</sup> Katerina Kolozova, "North Macedonia's EU Path Is under Threat from an Unlikely Actor," European Union | Al Jazeera (Al Jazeera, September 18, 2022), <https://www.aljazeera.com/opinions/2022/9/18/north-macedonias-eu-path-is-in-danger>.

The research paper was conducted in North Macedonia from September 12th until 23rd to provide information about the migration of healthcare professionals and their impact on the economy and health system. This topic is selected because the current situation in North Macedonia is a concern due to the critical staff migration in the healthcare sector, and the medical brain drain underpinning the country's economy. In the end, the research paper tries to conceptualize the consequences and future implications of the migration of healthcare professionals.

## Research questions and hypothesis

North Macedonia is a developing country, a non-European Union member state, and one of the countries exporting healthcare professionals from its territory to other states. This fact implies that the medical brain drain has led to a negative impact on North Macedonia's economy, healthcare system, health education, and future development, and population. Therefore, it is interesting to preserve the situation in North Macedonia and understand some points of the government's role and its handling of this particular situation. Based on the health system and economy, this research paper demonstrates that: *“The medical brain drain is causing a negative outcome for North Macedonia and factually should push the government to take measures to handle this phenomenon.”*

This research paper addressed in particular three questions regarding the medical brain drain in North Macedonia. The main research questions are:

- *What are the motives for doctors' and nurses' migration to European countries? Particularly in Germany?*
- *How has the migration of healthcare professionals affected North Macedonia's economy?*
- *How is the government of North Macedonia handling the phenomenon of medical brain drain?*

Nonetheless, this research paper also argues how Germany treats migrants regarding working conditions, wages, and other potential factors. In the end, the research paper presents three main recommendations for the medical brain drain in North Macedonia based on the most common factors of it.

## Research methodology

This research paper analyzes the drivers and motives of health professional migration in the European Union or Western European countries, by going in-depth about its consequences, and some of the strategies that the government of North Macedonia should use to mitigate the negative impact of this phenomenon. The study used mixed methods to analyze the medical brain drain in North Macedonia.

Consequently, the research paper includes descriptive, quantitative, qualitative, primary, and secondary research on information from publications, writings, books, reports, and online information and a personally made survey about healthcare professionals. The primary sources helped to gather data that is important and specific for the topic and is reliable when it comes to the medical brain drain. In addition, the research paper also used secondary sources by using the available material like other research papers, papers, online information, documentaries, and reports from international organizations as a source of information and data in the research paper.

The qualitative analysis is conducted to understand the intentions of healthcare professionals leaving North Macedonia for other countries and its effects. The quantitative analysis collected the data from the survey distributed to the healthcare professionals to better grasp which country they would like to migrate to, what should the government of North Macedonia do, and what the dissatisfaction with the current situation in the country regarding medicine.

This research paper interprets data based on tables, graphs, statistics, and explanations regarding the numbers. Based on an excel sheet, the data produced are from questionnaires and secondary sources such as World Bank, OECD, Eurostat, State Statistical Office, and others. Most of the data will be about the number of physicians, the satisfaction with the healthcare system of North Macedonia, the number of graduated healthcare professionals, the number of healthcare professionals migrating to Germany, the number of graduated nurses, and midwives, the share of GDP of Macedonia per public health.

The survey has a total of 5 questions with multiple choices, and the final question is open, where the respondents expressed their feedback regarding the medical brain drain in North Macedonia. The total number of answers to the survey is 88. Likewise, the survey was distributed with the help of ESTIMA's channels and its contacts throughout the country.

## Literature review

The phenomenon of medical brain drain is a concern in the whole world, not only in North Macedonia. According to the World Health Organization (WHO) report, only 55% of WHO Member States report having less than 20 medical doctors per 10,000 population. Healthcare systems in the world face shortcomings when it comes to brain drain from low-income to high-income countries.<sup>4</sup>

Based on the global shortage of healthcare professionals, developing countries invest their money and time to recruit migration health professionals. Recruitment agencies in receiving countries have simplified the migration process by providing and offering compensation for moving, employment, and working conditions. One of the concerns about the receiving countries is that they are not trying to meet their healthcare needs. The recruitment strategies used by the

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<sup>4</sup> WHO, "Health Workforce: Medical Doctors," World Health Organization (World Health Organization, January 24, 2022), <https://www.who.int/data/gho/data/themes/topics/indicator-groups/indicator-group-details/GHO/medical-doctors>.

receiving countries are the media sources, local newspapers, internet sites, and recruitment workshops to attract highly-skilled healthcare professionals. It can be argued as morally wrong for the developing countries that are losing healthcare professionals to high-income countries.<sup>5</sup>

According to Skeldon, international migration has shifted its attention from significant development issues such as domestic policies to education. There is a danger of brain drain because if the countries want to restrict the migration of highly skilled it will motivate people to seek another alternative migration. The channels to migration can be illegal such as entering without authorization, and lead to brain waste.<sup>6</sup>

On the other hand, Mejia studied the international migration of physicians in 137 countries and highlighted the characteristics, dimensions, and possible determinants and consequences of migration. He showed that the countries that do not have the economic capacity to attract more physicians have higher rates of losing physicians and vice-versa. In addition, he empathized that the income of physicians in the exporting countries is higher than the capital income of the population in regards to the receiving countries which is higher. In this case, the number of physicians is higher in receiving countries compared with exporting countries.<sup>7</sup>

The empirical models specified that the child mortality rates and infant percentage of children vaccinated against diseases showed a link between literacy rates and healthcare services in developing countries. Moreover, health care and physicians are measured by reducing maternal and infant mortality. However, the limited number of time observations and countries in the sample provided can have a complicated estimation of model parameters.<sup>8</sup>

The existing research literature also points to cases where the immigrant perspective provides sufficiently high incentives for healthcare professionals to invest in education to achieve net welfare benefits in their countries of origin. Nurse migration had a slight downward trend before the 2000 visa policy regime of the United States. For example, in 2007, the nurse migration dropped by 4.20 nurses per 100,000 and continued after 2007 to drop again.<sup>9</sup>

For sure it is known that physician migration to wealthier countries will unbalance the global workforce, affect healthcare systems in their countries of origin, and have significant adverse effects on physician-population relations. Nationality, education, and qualifications abroad were factors influencing physician migration. Studies have shown that the push factors for health

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<sup>5</sup> Faith, Atte, "The moral challenges of health care providers brain drain phenomenon." *Public Policy and Law* 16, no.2 (2020): p.4, <https://doi.org/10.1177/1477750920946614>

<sup>6</sup> Ronald Skelton, "International Migration as a Tool in Development Policy: A Passing Phase?," *Population and Development Review* 34, no.1 (2008), p.11, <http://www.jstor.org/stable/25434656>

<sup>7</sup> Alfonso Mejia, "Migration of Physicians and Nurses: A World-Wide Picture," *International Journal of Epidemiology* 7, no. 3 (1978): p.212, <https://doi.org/10.1093/ije/7.3.207>.

<sup>8</sup> Alok Bhargava, Frédéric Docquier, and Yasser Moullan, "Modeling the Effects of Physician Emigration on Human Development," *Economics & Human Biology* 9, no. 2 (January 15, 2011): p.175, <https://doi.org/10.1016/j.ehb.2010.12.004>.

<sup>9</sup> Paolo Abarcar and Caroline Theoharides, "Medical Worker Migration and Origin-Country Human Capital: Evidence from U.S. Visa Policy," September 3, 2020, p.18, <https://doi.org/10.31235/osf.io/m79h2>.

professionals to migrate are poor motivation, low wages, dangerous working conditions, persistent shortages of basic medical supplies, lack of supervision, limited career opportunities, and outdated equipment.

There are also involuntary push factors such as ethnic and religious tensions, political persecution, human rights violations, and economic collapse. The pull factors can be economic reasons, job security, and access to professional development opportunities. In the end, many developing countries have insufficient healthcare professionals, and both developed and developing countries should take action to prevent migration.<sup>10</sup>

## Results of the research

The research paper presents the results based on the survey, data from international and national organizations in North Macedonia, and statements from the responders. However, Western Balkans countries have improper data collection, and one of the cases is North Macedonia which has a lack of information due to the Census.<sup>11</sup> Nonetheless, the data for healthcare professionals is based on the statistics taken from the World Bank because of last year's research paper on healthcare mobility.<sup>12</sup>

Other data for the migration of healthcare professionals and the destination country is analyzed from the survey and other international and local organizations responsible for healthcare mobility. Furthermore, one of the main indicators for the migration of healthcare professionals is the nominal wages that decrease the motives to work in the country and increase the attractiveness to go to the European Union countries.<sup>13</sup> The possibility to earn wages in a developed country helps the economy of North Macedonia to receive more remittances to their families in the country. However, the type of migration in North Macedonia includes the temporary and circular in some cases because the high-skilled professionals in the medical profession move abroad and do not always return to their country.<sup>14</sup>

The results are divided into three major points related to the research questions.

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<sup>10</sup> Omar B Ahmad, "Managing Medical Migration from Poor Countries," *BMJ* 331, no. 7507 (2005): p.43, <https://doi.org/10.1136/bmj.331.7507.43>.

<sup>11</sup> Tim Judah, "Wildly Wrong: North Macedonia's Population Mystery," *Balkan Insight*, May 18, 2020, <https://balkaninsight.com/2020/05/14/wildly-wrong-north-macedonias-population-mystery/>.

<sup>12</sup> The World Bank, "Europe and Central Asia Health Workforce Mobility from Croatia, Serbia and North Macedonia to Germany (World Bank , February 12, 2021), <https://documents1.worldbank.org/curated/en/489881614056529442/pdf/Main-Report.pdf>.

<sup>13</sup> MojaPlata. "Medicine & Social Care, Macedonia Salaries." Paylab - Salary survey, Compare salary, Salary data. Accessed September 30, 2022. <https://www.mojaplata.mk/en/salaryinfo/medicine-social-care>.

<sup>14</sup> Daniel Costa and Philip Martin, "Temporary Labor Migration Programs: Governance, Migrant Worker Rights, and Recommendations for the U.N. Global Compact for Migration," *Economic Policy Institute (Economic Policy Institute , August 1, 2018)*, <https://www.epi.org/publication/temporary-labor-migration-programs-governance-migrant-worker-rights-and-recommendations-for-the-u-n-global-compact-for-migration/>.



### 1. Motives, healthcare system and Germany

Evidence from the survey indicates the percentage of healthcare professionals residing in North Macedonia. Based on 88 responses, 98.9% responded that they are living in North Macedonia. (Figure 1). There is a connection between the two variables (living and migrating). In the second question of the survey, the respondents answered that they want to leave North Macedonia at some point in their career and plan to do so in the future.

#### 1. Do you still reside in North Macedonia?

88 responses

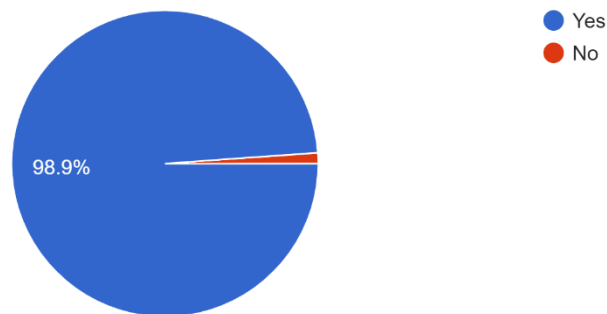


Figure 1. Healthcare professionals residing in North Macedonia

Based on 88 responses, 33% responded that they have not yet left North Macedonia, 17% answered that they have not left, and 37,5% claimed that they have left North Macedonia at some point in their career and returned. Other responses included that they perhaps will leave North Macedonia, others claimed that they should have left North Macedonia many years ago, other respondents answered to leave North Macedonia shortly, others claimed that they plan to do it, and one responder stated that will leave North Macedonia this year (Figure 2).

2. Have you left North Macedonia? If no, do you plan to leave?

88 responses



Figure 2. Intention of leaving North Macedonia

a) Concerning which are the motives for the healthcare professionals to leave the answers are as it follows:

Based on 88 responses, 33% declared that one of the main reasons to leave North Macedonia is working conditions. 25% of the respondents claimed that the reason for leaving is the hiring and employment opportunities, while 21,6% stated that one of the reasons is the wages. However, the other respondent mentioned that better wages, working conditions, and employment opportunities are one of the main intentions for migration. Others claimed that law, justice, and everything in North Macedonia are enough reasons to leave (Figure 3).

4. What does or what would your destination country offer more and better than North Macedonia?

88 responses

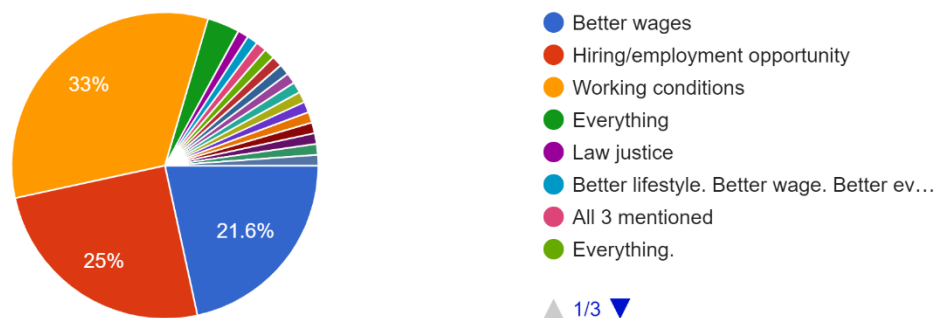


Figure 3. Motives for leaving North Macedonia

Most healthcare professionals in North Macedonia want to go to Germany and work there. Of 88 responses, 27,3% stated that they would like to go to Germany, while the other percentage of 21,6% declared to go to another Western European country. Additionally, 21% claimed to go to Scandinavian countries such as Sweden, Denmark, and Norway. Others stated to go to the United States or Canada with a percentage of 13,6%, and 8% would like to go to Australia and New Zealand. Others answered to go to Spain, or countries that are mainly English speaking, and others claimed Swiss too. Some mentioned living and going in Panama, others anywhere but not in North Macedonia. They also mentioned Spain, Serbia, Italy, and Croatia (Figure 4).

3. Which country did you go or would go, if possible?

88 responses

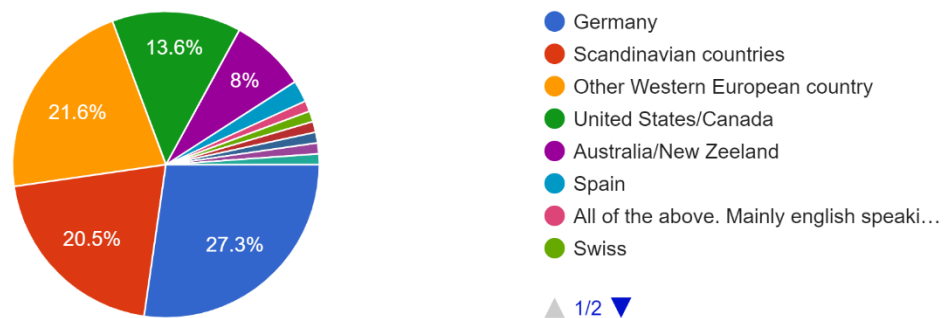


Figure 4. Countries for leaving the North Macedonia

b) *Push and pull factors*

The push factors and pull factors of migration include the motives for people to leave a particular country and move to another based on the attractiveness of the receiving country. The case of North Macedonia includes low wages, political instability, worse working conditions, and a low health education system. The pull factors include higher wages, better working conditions, higher quality of the health education system, and better opportunities (Table 1). Based on the push factors, Germany has attracted healthcare professionals from North Macedonia based on the better working conditions, better wages, healthcare system, working conditions, better opportunities, and standard of living.

THE FACTORS OF MIGRATION	
PUSH	PULL
<ul style="list-style-type: none"> <li>• Low wages</li> <li>• Political instability</li> <li>• Worse working conditions</li> <li>• The low health education system</li> </ul>	<ul style="list-style-type: none"> <li>• Higher wages</li> <li>• Better working conditions</li> <li>• Higher quality of the health education system</li> <li>• Better opportunities</li> </ul>

Table 1. The factors of migration

*c) Number of healthcare professionals and health education in North Macedonia*

Concerning the migration of nurses, based on figure 5, the number of healthcare professionals (nurses, midwives, and caring personnel) is calculated per a ratio of 100,000 inhabitants. In North Macedonia, there are practicing nurses and caring personnel, 9,296 nurses, 904 midwives, and 323 caring personnel (Figure 6). Based on the 100,000 inhabitants, there are 448,5 practicing nurses, 43.6 midwives, and 15.6 caring personnel (Figure 6). In addition, 4,870 nurses and 303 healthcare assistants are employed in hospitals (Figure 5).

This information is based on Eurostat which collects data in three concepts such as professionally active that are currently practicing their profession, practices that are connected with patients, and licenses that are entitled to healthcare professionals.<sup>15</sup> Additionally, the number of graduates nurses is 7,4% for 100,000 inhabitants (Figure 7).<sup>16</sup> Moreover, the low degree of recognition and education, the absence of adequate educational systems push nurses to work in a lower-paid nurse assistant job.

According to the National Statistics, the employees in health care institutions in 2020 are as follows: 1,409 graduated, 258 with higher education, 7,562 with medium qualifications, and 323 with lower education. Skopje as the capital city of North Macedonia has the highest number of healthcare professionals that graduated with a total of 1,319.<sup>17</sup> The total number of physicians is 6,127, dentists 1,633, pharmacists 1,039, and healthcare associates 2,374.<sup>18</sup> The number of physicians is about 2,8% of the 1000 inhabitants. There was a lack of information when it came specifically to physicians.<sup>19</sup> Compared to previous years, North Macedonia has a surplus of medical staff in its country. For example, in 2014, the number of nurses with higher education was 396, and medium with 7,191, and lower at 345.<sup>20</sup> When it comes to physicians, the number has been raised over the years but not by a significant number. In 2013, there were 5,804

<sup>15</sup> Eurostat. "Statistics Explained." Statistics Explained. Eurostat, July 2022.

[https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Healthcare personnel statistics - nursing and caring professionals#Healthcare personnel](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Healthcare_personnel_statistics_-_nursing_and_caring_professionals#Healthcare_personnel).

<sup>16</sup> Ibid.

<sup>17</sup> State Government. "04. Health, Social Conditions and Culture." State Government, 2021.

<https://www.stat.gov.mk/Publikacii/SG2021/SG2021.pdf/04-Zdravstvo-Health.pdf>

<sup>18</sup> Ibid.

<sup>19</sup> The World Bank. "Physicians (per 1,000 People) - North Macedonia." Data, 2015.

<https://data.worldbank.org/indicator/SH.MED.PHYS.ZS?locations=MK>.

<sup>20</sup> State Government. "04. Health, Social Conditions and Culture." State Government, 2014.

<https://www.stat.gov.mk/Publikacii/PDFSG2015/04-Zdravstvo-Health.pdf>

physicians, 1,705 dentists, 930 pharmacists, and 1,888 healthcare associates.<sup>21</sup> Nonetheless, there is not a major increase compared from 2013 to 2020.

The number of nurses that applied for a degree application in 2018 was around 206 nurses compared to 2017 has increased. However, the number of applications from North Macedonian healthcare professionals is increasing steadily. When it comes to numbers, North Macedonia has the lowest recognition rates for its nurses and medical degrees which lead to another finding in the research that the quality of health education is poor and needs improvement.<sup>22</sup> Some state nursing schools, as well as private nursing schools, provide "non-attending" degrees for adults. Despite not requiring students to attend classes, these degrees are accepted by the government as being equal to traditional nursing degrees.<sup>23</sup>

Medical and nursing education in North Macedonia is of poor quality, especially at private institutions. Although medical schools and faculties have staff, there are significant differences in the quality.<sup>24</sup> On the other hand, Germany has higher salaries for health work professionals because in North Macedonia they get paid less even though a pay raise of 6.0% has been included in the government health budget for 2020, still, migration happens. The idea of increasing the health budget is to promote the public sector because doctors and nurses gain more in the private sector with a percentage of 30%.<sup>25</sup>

Germany is well-known for international hiring yet it faces problems when it comes to the recognition of medical and nursing degrees from North Macedonia. There is a need for Germany to implement any programs that will improve the quality of the recognition of degrees because it will enhance the quality of education in North Macedonia. Nonetheless, Germany has embraced new legal and policy changes to attract high-quality medical degrees.<sup>26</sup> With higher compensation and improved working conditions, Germany has increased its investments in the healthcare industry. To have a better integration of foreign medical experts, Germany must ensure their integration.

## 2. Effects of medical brain drain in North Macedonia's economy

The labor force in North Macedonia remains a challenge because more than half of the population is inactive or unemployed. For example, young people are particularly inactive, and

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<sup>21</sup> Ibid.

<sup>22</sup> Ibid.

<sup>23</sup> Ibid.

<sup>24</sup> Ibid.

<sup>25</sup> Ibid.

<sup>26</sup> The World Bank. "Europe and Central Asia Health Workforce Mobility from Croatia, Serbia and North Macedonia to Germany." World Bank, February 12, 2021.

<https://documents1.worldbank.org/curated/en/489881614056529442/pdf/Main-Report.pdf>.

the unemployment rate in North Macedonia is 38%. Women have lower activity when compared to men because of the childcare options and social norms in some parts of society.

In addition, the median age in North Macedonia is 39 years old, and high emigration happens among the high-level skilled youth which challenges the economy of North Macedonia. In 2018 2,1% of North Macedonia emigrated, and what is concerning is the high level of migration that results in high-level skilled migrants and adults that drain the economy and prospects for development particularly for developing the country in the future.<sup>27</sup>

The medical brain drain in North Macedonia affects the economy because of a shortage of qualified healthcare professionals, negative development opportunities, lack of training for a specialist, and employment in the private sector is worse for nurses and doctors. Most of the reasons include the salary, wages, and working conditions, for them to be in another country and position the country without proper doctors. Over 2,300 nurses and doctors are listed as unemployed. According to the data of the Employment Agency as of October 31 of 2020, 249 doctors of medicine, 19 specialists in general medicine, and one internist were registered as unemployed. As many as 225 of them have been unemployed.<sup>28</sup>

A total of 2,098 healthcare professionals are recorded as unemployed in the Agency. Of them, 939 have the title of medical technician, 873 people have the title of nurse, 21 are specialist nurses, and 63 are graduate nurses, 4 unemployed nurses are intensive care specialists. In the conditions of the health crisis that began in March, 1,214 have been unemployed for less than 11 months. Over 300 nurses have been unemployed for so long. There are also 150 unemployed midwives in the records of the Agency.<sup>29</sup>

North Macedonia is implementing a number of important reforms in its health sector. The Ministry of Health has identified key policy areas for improvement. Health care costs, healthcare income, payment increase, information systems, and public awareness strategies. In addition to the World Health Organization (WHO), the major contributors to reforming the health system in North Macedonia are the World Bank, other UN agencies, and the government.

### 3. The role of government of North Macedonia

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<sup>27</sup> OECD (2021), "North Macedonia profile", in Competitiveness in South East Europe 2021: A Policy Outlook, OECD Publishing, Paris, <https://doi.org/10.1787/cf2e0fc7-en>.

<sup>28</sup> Skorje Info. "Во Болниците Недостасува Кадар, а Над 2.000 Медицински Сестри и Повеќе Од 250 Лекарѝ Се Невработени." skorjeinfo.mk, November 17, 2020. <https://skorjeinfo.mk/vo-bolnicite-nedostasuva-kadar-nad-2000-medicenski-sestri-i-povekje-od-250-lekari-se-nevraboteni?fbclid=IwAR2YBoS65hJ69XCqfREERU5JNK59-E2YfiqjY-hOH6H6LC0PkKV7NV8ooA>.

<sup>29</sup> Ibid.

The government of North Macedonia 2019 adopted a national strategy to cooperate with the diaspora. The main purpose of the national strategy is to create legal and institutional in order to develop a comprehensive framework between the government and the diaspora. The idea of this initiative is to turn the brain drain into more brain circulation by transferring the technology to different areas, increasing activities in the area of education, cooperation with youth, and sharing cultural identity. Nonetheless, North Macedonia benefits from the remittances of the citizens abroad, in the long term the high level of migration has a negative outcome on population growth, economic growth, and public finances.

When the 88 responders were asked about what should the government of North Macedonia do to minimize the medical brain drain, the responses included a 51% increase in the salaries of healthcare professionals. The other percentage of 14,8% claimed to invest more in hospitals, and 11.4% claimed to improve North Macedonia's health education. Others mentioned the crimes, corruption, and all the above forms that the government of North Macedonia can reduce the medical brain drain. (Figure 8)

5. What should the Government of North Macedonia do in order to minimize the medical brain drain?

88 responses

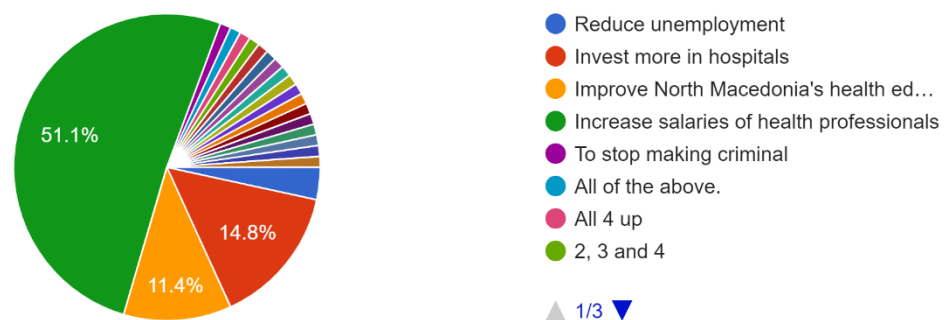


Figure 8. The government of North Macedonia and measures against medical brain drain

The survey had one open question for discussion, and most of the comments were related to the working conditions and dissatisfaction with the system. Here are some of them listed:

- *There is no progress in the workplace where you're stationed. You are just existing. No change in wages, education, no new educational programs, etc. The ministry of health sees us as a number, not quality, and doesn't put any effort to change that, and they are led by the*

*parole "everybody is replaceable". When that mindset is changed, maybe the new generations won't be leaving this country.*

- *Macedonia needs to improve education for all medical staff, doctors and nurses. More practice during education, recognition of nursing like professions with competencies and their right place in society!*
- *From a doctor's perspective, I consider the period after graduating until receiving the medical license to be a doctor to be crucial for doctors to leave because we are not allowed to work as doctors, but yet still we are expected to pay for the license, which isn't cheap at all. That time period of 6 months, where a graduated doctor is supposed to work something unrelated to medicine or seek money from his relatives is the moment when we all decide to leave. So, this has to change in order to keep the young doctors in the country.*
- *Not enough professional upgrading. Low wages. Lack of motivation to keep the healthcare professionals in the country. Too much corruption. The overall system failed.*
- *Stop insulting the intelligence of the doctors and stop underpaying them.*
- *Not just the salaries and education, there are many issues in this society that have to be fixed.*

As a matter of fact, the government of North Macedonia spends 7.5% of the current health expenditure as % of GDP.<sup>30</sup> North Macedonia and other Western Balkans countries created the Education Reform Initiative of South Eastern Europe Joint Working Group for academic recognition. The prime ministers of the region stated the recognition of the professional qualification. The initiative includes a joint online system to share data between higher education institutions and improve cooperation in quality assurance. The benefits of this initiative are the improvement of the quality of tertiary education in North Macedonia. The main purpose of the SEE is to modernize countries, living standards, jobs, and socioeconomic changes.<sup>31</sup>

The MoH's eHealth Directorate debuted an electronic registration for the public sector's medical personnel in 2019. Nowadays, doctors are permitted to work past the age of mandatory retirement, which is 64. Workplace conditions are being improved by infrastructural and medical equipment investments. Private practice medical residents will be compensated. The application process for jobs in the health industry is being streamlined. Today's employment contracts only

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<sup>30</sup> The World Bank. "Current health expenditure (% of GDP) - North Macedonia." 2019.

<https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS?locations=MK>

<sup>31</sup> Education Reform Initiative of South Eastern Europe Secretariat. "Education Reform Initiative of South Eastern Europe (Eri See) Work ...," 2021.

[https://www.erisee.org/wp-content/uploads/2022/02/ERISEE\\_Work-Programme-2022-2023.pdf](https://www.erisee.org/wp-content/uploads/2022/02/ERISEE_Work-Programme-2022-2023.pdf).



last four to six months before becoming permanent, improving job security. Currently, newly graduated medical experts must spend ten years working at the institution where they specialize, or else they must pay a fee.<sup>32</sup>

As the cornerstone of the country's post-COVID-19 recovery, the WHO Regional Office for Europe is assisting North Macedonia to establish an adaptable and evidence-based health system. The work on universal health coverage refers to enhancing the standard and breadth of primary care. By conducting an evaluation of the capacity of essential health services, and providing technical knowledge and best practices, WHO has assisted the Ministry of Health in its efforts to preserve vital health services during the pandemic. To motivate and retain the current workforce, North Macedonia should support national initiatives for enhancing working conditions and wages.

### **The significance of the research paper**

Given that healthcare professionals play a key role in society, well-being, and the growth of the state, the outcomes of this study will help North Macedonia's society, healthcare professionals, hospitals, and the state. This study reveals crucial topics in the quality, migration, and economic sectors for the researchers. As a result, the research paper's generalization will significantly advance our understanding of North Macedonia's medical system. The findings of this study are also advantageous for the following outcomes:

- 1) The results of the research topic based on the qualitative and quantitative analysis lead to a better understanding of the current situation in North Macedonia concerning healthcare professionals.
- 2) The findings of the research paper can have a positive impact on the recommendations, practices, or policy across the institutions, government, NGOs, public and private institutions, and other crucial stakeholders.
- 3) The research paper contributes to the knowledge in the field of the migration of healthcare professionals as a phenomenon happening in the entire region.
- 4) The research paper demonstrates the contribution by expanding the knowledge on the topic of medical brain drain.
- 5) The research paper helps organizations by filling a gap in the existing problem of the medical brain as a phenomenon.

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<sup>32</sup> The World Bank. "Europe and Central Asia Health Workforce Mobility from Croatia, Serbia and North Macedonia to Germany. World Bank, February 12, 2021.  
<https://documents1.worldbank.org/curated/en/489881614056529442/pdf/Main-Report.pdf>.

## Conclusion and recommendations

Medical brain drain is a phenomenon that affects less developed countries or countries that are developing. The medical brain drain consists of the migration of physicians, and most healthcare professionals because of economic motives, political instability, low quality of health education, salaries, and working conditions. The mobility of the healthcare professionals in North Macedonia shown in recent years has confirmed there is a gap between the less developed countries and high-performing countries such as Germany when it comes to attracting and retaining medical staff in their health institutions.

The findings showed that university-educated healthcare professionals prefer to migrate to Germany as their preferred country of residence. According to the research paper's findings, North Macedonia is a fragile nation with a poor healthcare system and educational system, necessitating a decrease in healthcare workers' emigration and an improvement in the country's capacity to withstand health crises.

Regarding the research question about the motives, the main findings found that working conditions, wages, and opportunities hurt migration. The results demonstrated that North Macedonia is facing a challenge in the economy because of the medical brain drain and health system regarding the second research question. In addition, the results show that several healthcare professionals intend to leave the country at the first opportunity. Referring to the last research question, the government of North Macedonia is trying to sustain the healthcare system and improve working conditions and wages by implementing new programs and initiatives. Still, the hypothesis is confirmed that the medical brain is causing a negative outcome for North Macedonia, and the government is trying to handle the phenomenon in most cases.

At some point, healthcare professionals will still relocate, and their migration routes will go where doing their work is made simpler or where there are comparable employment advantages. Public policies in less developed countries will not be effective unless they are flexible and focused on the specific area of need for health services. Public policies still have a role to play in ensuring the balance between needs and resources because the degree of economic development and patient purchasing power in less developed nations are important impediments to access to healthcare. As we all can understand from the findings, there is a lack of proper initiatives or platforms that would minimize the medical brain drain. Therefore, this research paper recommends:

### Recommendation 1:

The government of North Macedonia needs to strengthen the training for the unemployed and career counseling to help healthcare professionals to find employment locally in clinics and hospitals. The government of North Macedonia should introduce mentoring programs for the new graduates of the medical sphere and integrate them into the workforce. Develop alternative work arrangements in the health institutions such as job-sharing, and part-time to increase the

health staff within the current budget. In addition, North Macedonia needs to invest more in medical schools and hospitals because it can have a positive impact on the recognition and accreditation of university credentials by increasing the standard of education. As North Macedonia attempts to gain the status of a full member state of the European Union, programs like Erasmus student exchange, and German university's collaboration with national universities, would help the state to overcome the migration and increase the level of quality.

### **Recommendation 2:**

Germany needs to train more healthcare professionals by integrating, planning, and financing high-quality medical education for foreigners. This can be done either by enhancing the procedures and reforms to comply with the EU requirements for health education or by partnering with universities in North Macedonia. By partnering with universities in North Macedonia, the quality of education will improve and bring positive outcomes to the medical research programs.

### **Recommendation 3:**

North Macedonia should gather and analyze data on the health workforce, the current state of health service delivery, the specialty-specific migration of doctors and nurses, the length of time spent working abroad, the scope of any return migration, and the educational attainment and professional experience of the migrants. North Macedonia should analyze the length of unemployment among healthcare professionals according to their professional and educational backgrounds. It should use these unemployment statistics to define higher education finance and plan and attract the health workforce. Also, North Macedonia should gather information on the financial health and effectiveness of the healthcare system, and nursing faculties, taking into account both learning results and quality. In the end, the government should utilize these conclusions to enhance the health care quality and minimize migration.

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## Figures

	Head count (number)		Full-time equivalents (number)		Full-time equivalents (per 100 000 inhabitants)	
	Nursing professionals and midwives	Health care assistants	Nursing professionals and midwives	Health care assistants	Nursing professionals and midwives	Health care assistants
Belgium (*)	83 216	10 663	63 144	6 161	549.6	53.6
Bulgaria	21 276	394	..	..	..	..
Czechia	58 170	21 739	52 840	21 097	493.9	197.2
Denmark	42 322	10 072	37 490	7 155	642.9	122.7
Germany	534 000	66 000	403 000	49 000	484.6	58.9
Estonia	6 073	3 641	4 921	2 970	370.1	223.4
Ireland	27 840	6 329	24 294	5 670	487.3	113.7
Greece (*)	23 983	5 897	..	..	..	..
Spain	182 439	141 216	..	..	..	..
France (*)	385 611	245 227	357 056	227 209	531.0	337.9
Croatia	6 196	588	..	..	..	..
Italy	274 395	..	..	..	..	..
Cyprus (*)	4 306	..	4 306	..	488.2	..
Latvia	5 716	2 196	..	..	..	..
Lithuania (*)	14 661	4 360	15 467	4 441	553.4	158.9
Luxembourg	..	..	..	..	..	..
Hungary	29 082	13 648	28 164	13 258	288.9	136.0
Malta	3 249	1 978	2 776	1 937	538.6	376.0
Netherlands	78 711	16 964	61 515	12 300	352.7	70.5
Portugal (*)	63 844	9	..	7 936	584.8	89.0
Poland (*)	13 453	..	..	..	..	..
Portugal (*)	8 255	37	..	..	..	..
Romania	12 176	46	..	..	..	..
Slovenia	5 143	..	..	..	..	..
Slovakia	..	..	21 445	7 966	392.9	145.9

Practising nurses and caring personnel, 2020

	Head count (number)			Ratio (per 100 000 inhabitants)		
	Nurses	Midwives	Caring personnel	Nurses	Midwives	Caring personnel
Belgium (*)	126 496	8 416	71 927	1 107.0	73.3	629.4
Bulgaria	29 160	3 251	583	420.5	46.9	8.4
Czechia	92 664	4 248	25 490	866.2	39.7	238.3
Denmark (*)	58 910	2 179	92 452	1 013.2	37.5	1 590.1
Germany (*)	1 003 000	26 000	629 000	1 206.1	31.3	757.0
Estonia	8 484	483	4 083	638.1	36.3	307.1
Ireland (*)	80 620	10 518	26 325	1 617.0	211.0	528.0
Greece (*)	36 251	2 854	5 897	338.1	26.6	55.0
Spain (*)	289 100	9 593	519 200	610.4	20.3	1 096.2
France (*)	764 260	23 503	1 094 525	1 134.3	34.9	1 624.4
Croatia	28 081	1 567	614	693.8	38.7	15.2
Italy	373 064	17 239	609 076	627.5	29.0	1 024.5
Cyprus (*)	4 778	319	.	541.8	36.2	.
Latvia	7 952	396	2 268	418.4	20.8	119.3
Lithuania	21 818	875	5 536	780.6	31.3	198.1
Luxembourg (*)	6 992	214	3 644	1 172.5	35.9	611.1
Hungary	64 197	2 282	27 291	658.4	23.4	279.9
Malta	4 131	254	4 213	801.6	49.3	817.5
Netherlands	193 206	4 342	232 000	1 107.7	24.9	1 330.2
Austria	93 477	2 499	47 984	1 048.3	28.0	538.1
Poland (*)	193 700	22 742	6 748	510.1	59.9	17.8
Portugal (*)	75 009	2 844	37 573	728.5	27.6	364.9
Romania	148 739	3 190	73 653	772.4	16.6	382.5
Slovenia	22 002	308	2 691	1 046.5	14.7	128.0
Slovakia (**)	31 604	1 773	11 197	579.0	32.5	205.1
Finland (**)	74 824	2 361	118 412	1 356.6	42.8	2 146.9
Sweden (*)	111 533	7 899	.	1 085.1	76.9	.
Iceland	5 727	263	6 500	1 562.8	71.8	1 773.7
Liechtenstein	338	15	786	868.9	38.6	2 020.5
Norway	96 900	2 968	92 654	1 801.3	55.2	1 722.4
Switzerland	158 714	2 934	67 474	1 837.7	34.0	781.3
Montenegro (**)	3 118	256	.	501.9	41.2	.
North Macedonia (**)	9 296	904	323	448.5	43.6	15.6
Serbia	42 568	1 083	91	617.0	15.7	1.3
Turkey (**)	227 292	59 040	.	272.6	70.8	.

(\*) Nurses and caring personnel: 2018. Midwives: 2019.

(\*) 2019.

(\*) Caring personnel: 2019.

(\*) Nurses and midwives: licensed to practise.

(\*) 2019. Only people working in hospitals.

(\*) Nurses: please refer to the article's section on data sources for information on the deviations from the standard definition.

(\*) Midwives: licensed to practise.

(\*) Nurses and caring personnel: professionally active.

(\*) 2017.

(\*) Midwives: professionally active.

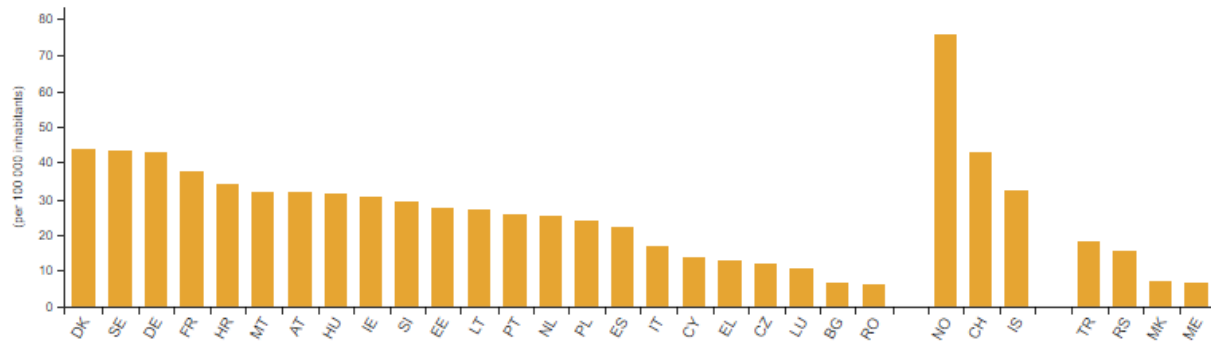
(\*\*) Professionally active.

(\*\*) 2018.

Source: Eurostat (online data code: hlth\_rs\_prsns)

Figure 6. Practising nurses and caring personnel, 2020.

Graduates – nursing professionals, 2020



Denmark, Greece, Cyprus and Iceland: 2019. Croatia, Poland and Slovenia: 2018.  
Italy: provisional. Austria: estimate.  
Spain and Poland: please refer to the article's section on data sources for information on the deviations from the standard definition.  
Source: Eurostat (online data code: hlth.rs.grd)

eurostat

Figure 7. Graduates-nursing professionals, 2020

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