

# Human resource evaluation in the public health system in Romania. Perspectives of management system optimisation

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**Abstract:** Human resources are an essential component of every healthcare system. The experience, competence, and devotion of the workers responsible for providing these services are critical to the efficiency of healthcare systems. Despite recognizing the importance of workers, several countries perform ambiguous and ineffective health workforce policies and initiatives. Health workers play a critical role in promoting people-centered health systems, supporting resilient economies, and fostering sustainable development. Success in achieving these global goals depends on the efficient deployment of competent and motivated health workers where they are needed to provide a full range of quality health services in a respectful and accountable manner.

The aim of this study is a spatial analysis of the number of doctors in relationship to the needs of the Romanian population. Data were collected from 42 counties and several spatial analysis tools were applied to measure the optimal distribution of medical human resources in relation to the Romanian population, for the period 2000-2021. As a result, spatial inequalities can be observed which need to be taken into account in public policy and management system optimization.

**Key words:** Public Healthcare, Health Planning, Human Resources for Health, Management of Public Healthcare, Number of doctors

**JEL:** I15, I18, I10

## 1. Introduction

The goal of any healthcare system is to improve public health by ensuring better quality management. Performance measurement is one of the methods of quality management in healthcare (Rasouli and Zarei, 2016). This allows health professionals to discover areas for growth and share their experiences. However, performance measuring methods will be unsuccessful unless the data are backed up by a continual quality improvement approach. As a result, there is a strong link between performance assessment and quality management in healthcare (Cinaroglu and Baser, 2016).

The basic purpose of health policy is to encourage adequate care while taking into consideration patients' desires. As a result, nations are creating strategies to eliminate obstacles to access and use of health care, such as regional inequalities (OECD, 2014). As a result, policymakers require data from geographic information systems (Philips et al., 2000). The accessibility of healthcare is determined by geographical location and level of development. With recent technology developments, current statistics on accessibility, whether rural or urban, are now available (Chirikos and Sear, 2000; Philips et al., 2000). Without a geographic region or level of development, regions cannot properly connect to health effectiveness indicators that have the capacity to influence health outcomes. Variations across some demographic areas are greater in some countries than in others, and differences in development level between rural and urban parts of the country are much higher in developing countries; that is, developing countries are still attempting to meet the basic health needs of their poor population in rural areas.

Health human resources are essential to the operation and development of health systems. The development and upkeep of human resources in the health industry are influenced by a number of variables (Salehi et al., 2021). Effective human resource management in the health sector requires the inclusion of availability, accessibility, acceptability, and quality characteristics in national health policy (Dubey et al., 2021). For the public health sector to retain and engage its personnel, management techniques such as recruiting, remuneration, succession planning, and performance evaluation are essential (Nkala et al., 2021). It is crucial to restructure work through participatory initiatives, adopt cooperative policy-making, and engage in capacity development at all system levels in order to solve weaknesses in health human resource policies (Denis et al., 2021).

The healthcare system and overall health are essential foundations of any society. The healthcare system is essentially dependent on connections established through trust. Trust is the primary foundation for these relationships (Gilson, 2003). In this context, trust is defined as the belief that healthcare personnel will act in the best interest of patients and adhere to the principles of beneficence, fairness, and honesty, reflecting their knowledge, ability, and competence. At the individual level, trust enhances the efficacy of the interaction between doctor and patient, leading to higher levels of patient satisfaction and improved adherence. At the societal level, trust plays a crucial role in achieving the desired impact by meeting expectations and enhancing influence (Davies and Shields, 1999; Pearson and Raeke, 2000; Lee et al., 2007).

The Romanian healthcare system has major issues that must be addressed. People now have less faith in the public health system as a result of its numerous failures. Among the several

difficulties observed in the health system, we may list bureaucracy, patient waiting time, obstruction of the electronic card system, and so on. All of this has an influence on both patients and medical personnel. As a result of the difficult economic times, individuals with more reason choose to rely on rapid solutions and ad hoc results, even if it means curing themselves in their homes rather than going to the doctor (Dinulescu et al., 2018).

## 2. Literature review

According to Chen Xiao-ming (2012), human resources for health refer to the number and skill level of healthcare professionals in a specific time and region. They play a crucial role in maintaining and enhancing healthcare systems, and serve as an important indicator of the quality of healthcare services. Human resources in health are a key factor in the delivery of medical and health services. Therefore, their equitable distribution is crucial to ensuring fair access to healthcare for residents and promoting equity in the healthcare industry (Xu Min-xuan and Jia Li-ying, 2018).

Human resources, in particular, are one of the three major inputs into a health system, the other two being physical capital and consumables (World Health Organization, 2000). Human resources in healthcare relate to the numerous clinical and non-clinical professionals who are in charge of public and individual health treatments (World Health Organization, 2000). The knowledge, skills, and motivation of the personnel accountable for delivering health services are perhaps the most important of the health system inputs, and the system's effectiveness and the benefits it can give are mostly dependent on their knowledge, skills, and motivation (World Health Organization, 2000).

An analysis of healthcare systems on a global level brings up numerous general issues and questions surrounding human resources. The most relevant issues include the size, composition, and distribution of the healthcare workforce, workforce training, the migration of healthcare professionals, the level of economic development, and sociodemographic, geographical, and cultural factors. The diversity in size, distribution, and composition of healthcare workers within a county is a matter of great concern. For instance, the availability of healthcare workers in a country is a crucial indicator of the country's ability to deliver medical services and interventions (World Health Organization, 2003). When determining the demand for medical services in a given country, it is necessary to consider cultural characteristics, sociodemographic factors, and economic aspects (Zurn et al., 2004). Training the workforce is another important aspect to consider. Considering the composition of the health workforce in terms of both skill categories and training levels is essential, according to reference (World Health Organization, 2003). To ensure that the healthcare workforce is aware of and prepared to meet the present and future needs of a particular country, new options for education and in-service training are required (World Health Organization, 2003). Having a competent and well-trained workforce is essential for the success of any healthcare system.

The migration of healthcare workers is a crucial concern when investigating global healthcare systems. Healthcare professionals' mobility tracks other professionals' migration trajectories

since relocating to urban centers is widespread in all nations (World Health Organization, 2003). Employee mobility can lead to imbalances that require enhanced workforce planning, attention to compensation and other incentives, and better overall workforce management. Aside from salary incentives, developing countries employ other strategies, such as providing housing, infrastructure, and chances for job rotation, to attract and retain health professionals (World Health Organization, 2003). This is because numerous health workers in developing countries receive inadequate payment, lack motivation, and express strong discontent (Zurn et al., 2004). Health worker mobility is a critical human resource issue that must be properly analyzed and controlled.

A further issue when analyzing global healthcare systems is a nation's level of economic development. Significant positive correlations have been found between a country's level of economic development and the number of human resources for health (Zurn et al., 2004). Nations with greater GDP per capita spend more on healthcare than nations with lower GDP, and typically have larger health workforces. This factor should be considered while studying and implementing solutions to problems in developing-country healthcare systems.

Socio-demographic characteristics, such as population age distribution, are critical in a country's health-care system. As the population ages, so does the need for healthcare services and staff [3]. An aging population among the healthcare staff has significant implications: younger workers will require additional training to replace the large number of retirement-bound healthcare professionals.

Considering cultural and geographical factors is essential when analyzing global healthcare systems. Geographical elements such as terrain and temperature can have an impact on healthcare delivery. Furthermore, a country's cultural and political values can influence the demand for and supply of human resources in the health sector (Zurn et al., 2004).

Examining global healthcare systems, it is necessary to investigate the effect of human resources on healthcare sector transformation. Although healthcare reform varies by country, certain patterns can be observed. Efficiency, equity, and quality objectives are three major trends (Zurn et al., 2004).

Several human resource initiatives have been implemented to improve efficiency. Outsourcing services have been adopted as a way to change fixed labor expenses into variable costs with the aim of enhancing efficiency. Measures such as contracting-out, performance contracts, and internal contracting have also been employed (Zurn et al., 2004).

Human resource initiatives for health sector reform often include attempts to increase equity or fairness. To promote equity based on needs, specific strategies require more systematic planning of health services. Several strategies can be employed such as introducing financial protection mechanisms, targeting specific needs and groups, and providing re-deployment services (Zurn et al., 2004). Human resource professionals must aim to increase equity in their countries by implementing these and other measures.

The objective of human resources in health sector reform is to enhance the quality of services and patient satisfaction. There are two methods to describe healthcare quality: technical quality and sociocultural quality. Technical quality refers to the impact that accessible health care can have on a population's health (Zurn et al., 2004). Sociocultural quality refers to the level of

acceptability of healthcare services and their ability to respond to patients' expectations (Zurn et al., 2004). Human resource professionals encounter numerous barriers in their endeavors to provide high-quality healthcare to citizens. These impediments consist of budgetary issues, incongruity of values among stakeholders, high absenteeism rates, elevated turnover rates, and low staff morale.

Health sector reform (Kirby, 2002) has recommended better utilization of healthcare providers and improved coordination of patient services through interdisciplinary teamwork. Effective human resources management will be crucial for the success of health sector reform as all healthcare services are ultimately provided by people.

Developing countries invest a significant amount of their national resources in training healthcare professionals. However, many of these professionals relocate to other areas of the world to pursue better opportunities and benefits. Human resource professionals are faced with the task of trying to find and/or retain employees in areas most affected by the loss of valuable workers.

### 3. Research methodology

The aim of this study is a spatial analysis of the number of doctors in relationship to the needs of the Romanian population. Data were collected from 42 counties and several spatial analysis tools were applied to measure the optimal distribution of medical human resources in relation to the Romanian population.

#### Study area

Romania is represented in the  $v_{it} \sim IID(0, \sigma_v^2)$  study area by 42 counties (Bacău, Botoșani, Iași, Neamț, Suceava and Vaslui part of North-East Development Region; Brăila, Buzău, Constanța, Galați, Vrancea and Tulcea part of South-East Development Region; Argeș, Călărași, Dâmbovița, Giurgiu, Ialomița, Prahova and Teleorman part of South-Muntenia Development Region; Dolj, Gorj, Mehedinți, Olt and Valcea part of South-West Oltenia Development Region; Arad, Caraș-Severin, Hunedoara and Timiș part of West Development Region; Bihor, Bistrița-Nasăud, Cluj, Sălaj, Satu Mare and Maramureș part of North-West Development Region; Alba, Brașov, Covasna, Harghita, Mureș and Sibiu part of Center Development Region and Municipality of Bucharest and Ilfov part of Bucharest-Ilfov Development Region) which were analyzed spatially.

Figure 1: Study area - Romania



Source: Data provided by <https://www.naturalearthdata.com/>

### Spatial analysis

On the data spread over 42 counties, conventional spatial analysis was done. A database containing the number of doctors and population at the county level was constructed. The geographical analysis was carried out using the county-level datasets comprising the number of doctors and population for the period 2000-2021 as follows: specific intervals have been created for each studied type (number of doctors and population number), a group of 21 distinct maps (choropleth map) were developed for each type of data, representing: the year 2000 (the first year of the analysis), the years 2009 and 2010 (when the economic crisis was felt in Romania) and the last 2 years - 2020 and 2021 (the beginning and duration of pandemic crisis).

The plotting method used is called a bivariate choropleth. The first variable is represented by the number of doctors, oriented vertically in the legend (see Figure 2) with values from small to large (top@bottom), and the second variable is represented by the size of the population, oriented horizontally in the legend with values from small to large (left@right). The aggregation of the 2 variables can be seen in the Data Show Agreement Between the number of doctors and population number. The color of the map is given by the number of classes resulting from the aggregation of the 2 variables. QGIS (spatial analysis) and Inkscape (vector graphics) were used.

Figure 2: Bivariate Choropleth map legend

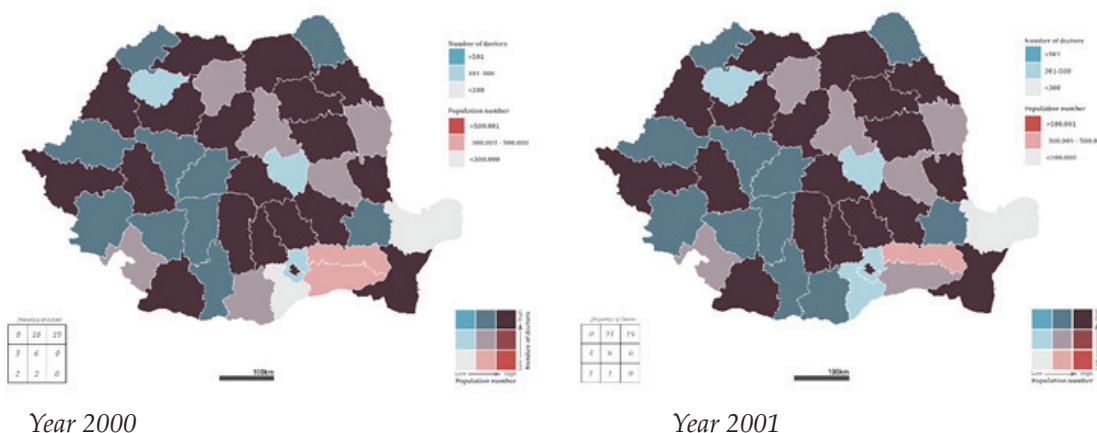


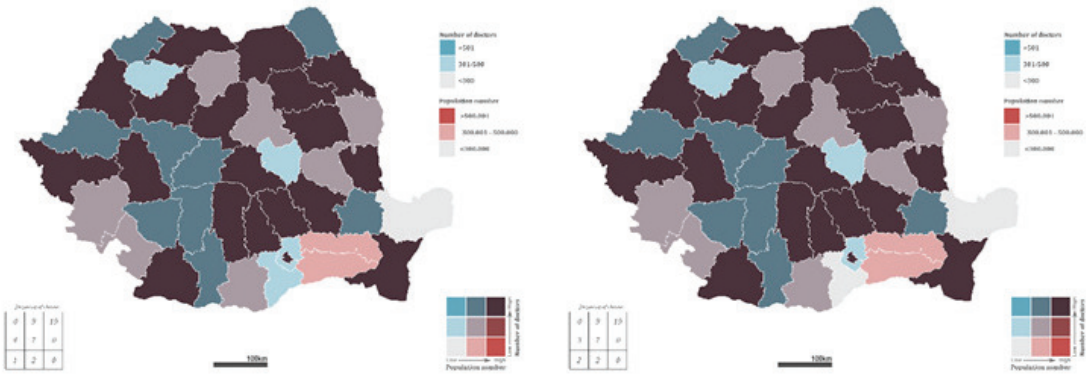
Source: Authors' own research contribution

### 4. Results and discussions

In 2000 there are several situations: the lowest values of the number of doctors are recorded in the counties of Ialomița (with 284 doctors for a population of 309,984 inhabitants) and Tulcea (with 284 doctors for 264,449). At the opposite pole, the highest values of doctors are recorded in the counties of: Timiș (2,304 doctors), Iași (2,779 doctors), Cluj (2,891 doctors) and Bucharest (7,076 doctors) (Figure 3).

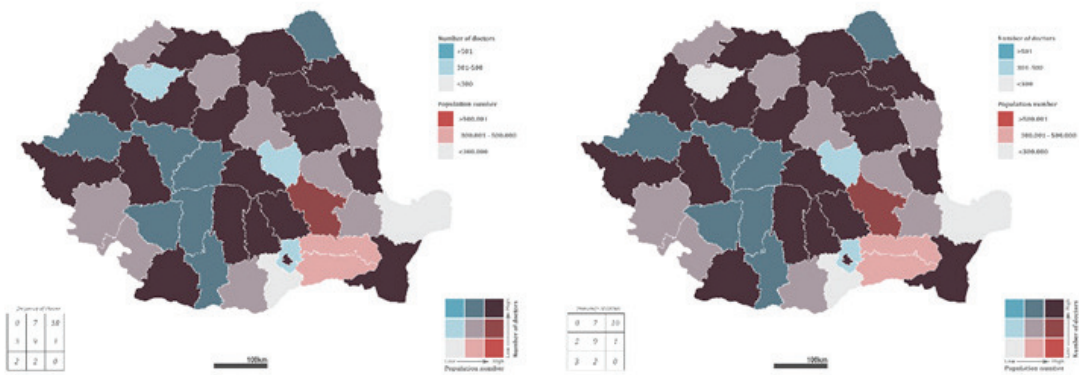
In 2021 we had the following situation: the counties of Giurgiu, Calarași and Tulcea had the lowest number of doctors with 174, 188 and 198 doctors respectively. The highest values being recorded by the counties of Timiș, Cluj, Iași and Bucharest, with values of 3,324 doctors, 3,674 doctors, 3,688 doctors, respectively 11,034 doctors (Figure 3). The spatial distribution reveals very clearly the situation of human resources in the Romanian health system.





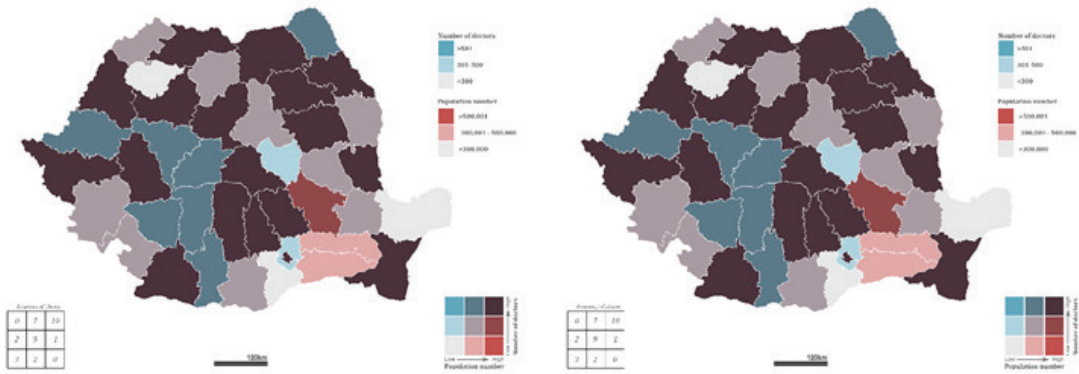
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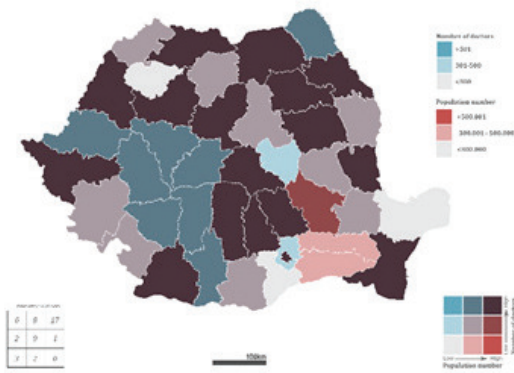
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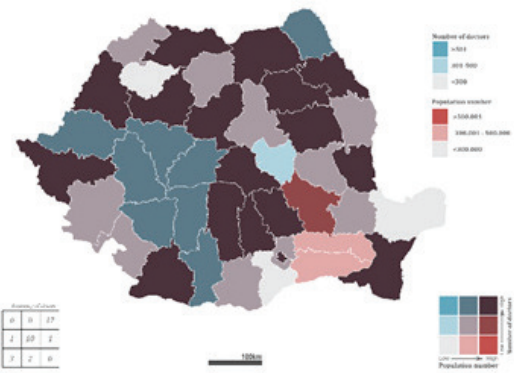
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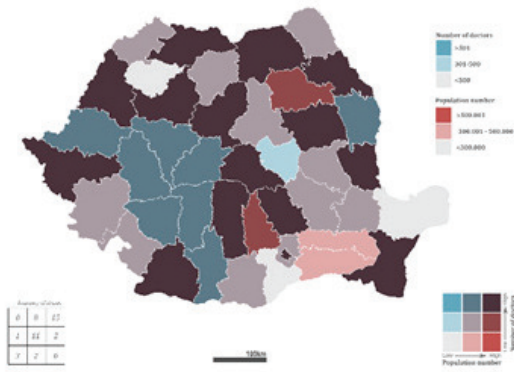




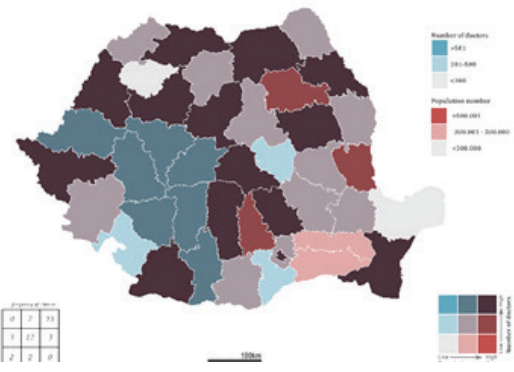
Year 2008



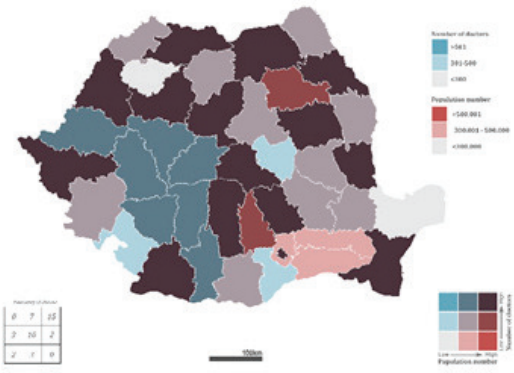
Year 2009



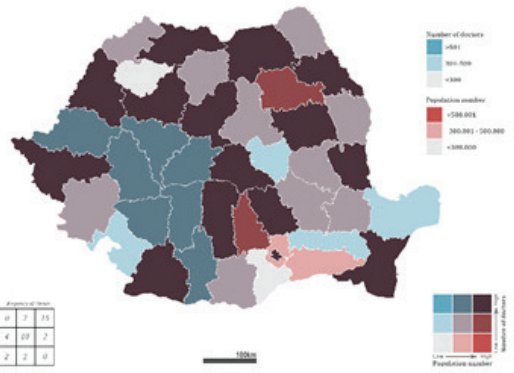
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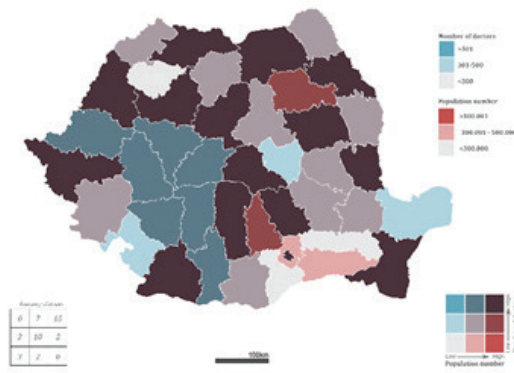
Year 2011



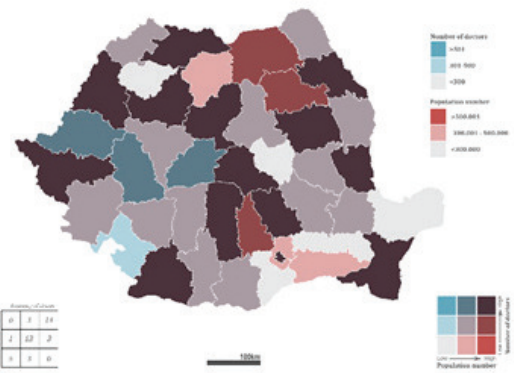
Year 2012



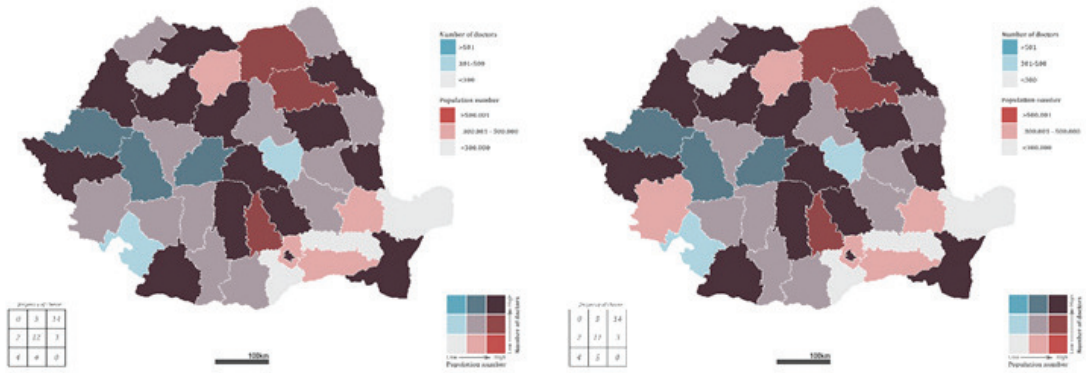
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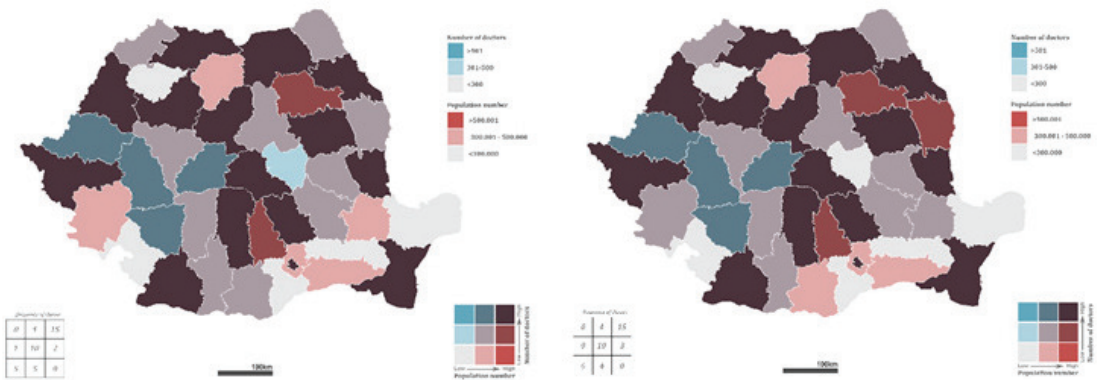


Year 2015



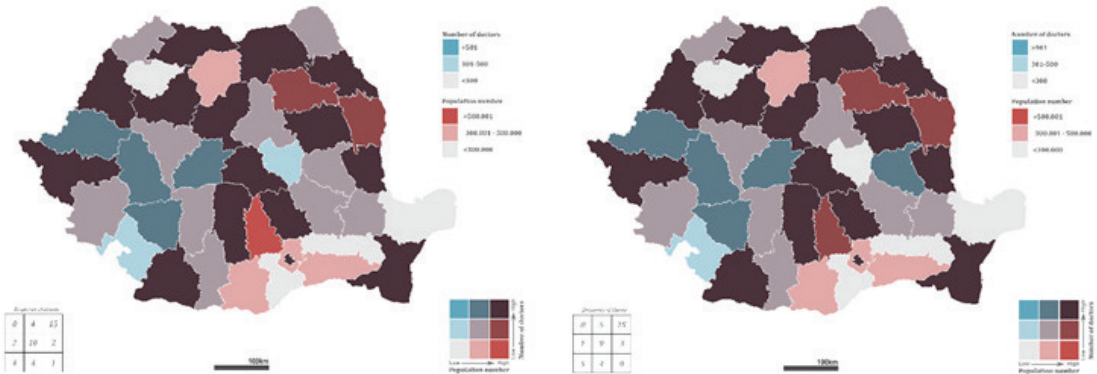
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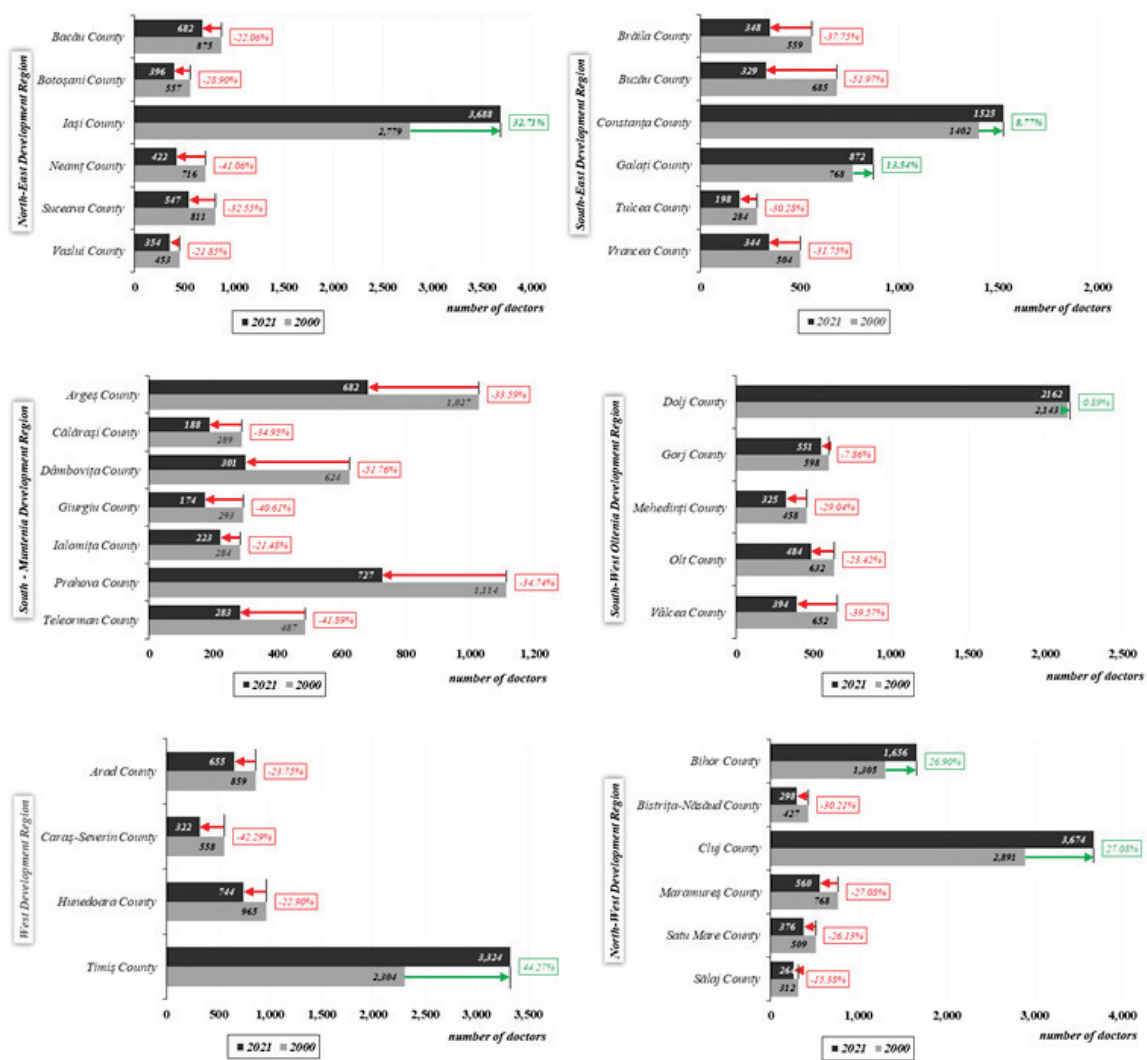


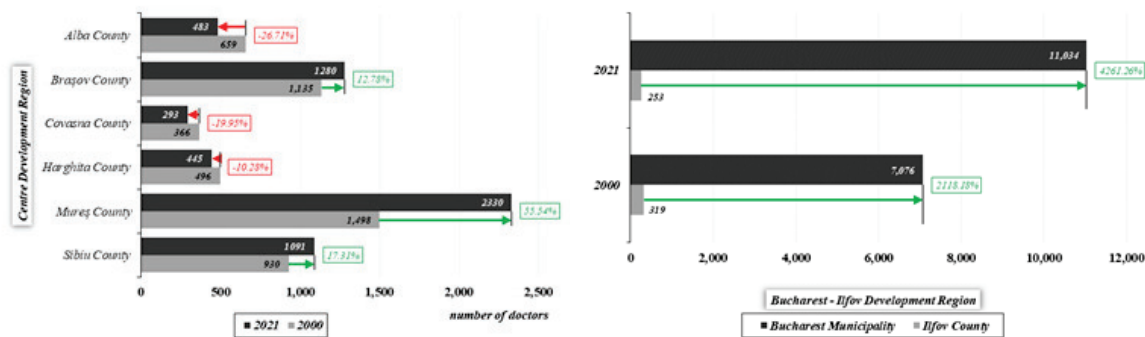
Year 2020

Year 2021

It can be seen that during the period analyzed, 2000-2021, at county level, the situation of the number of doctors worsens, with decreases in almost all counties (Figure 4). Growing inequalities in health status, access problems, declining returns on healthcare investment and the challenge of controlling rising costs are some of the major issues in the health sector. Achieving health objectives for a population largely depends on the delivery of effective, efficient, accessible, viable, and high-quality services by personnel. The workforce must be available in sufficient numbers and appropriately distributed across different professions and geographic regions. In most countries, the absence of clearly defined policies for human resources for health development has led to imbalances that jeopardize the ability of healthcare systems to achieve their objectives. The workforce in the healthcare sector possesses distinct characteristics that must be acknowledged.

Figure 4: Evolution of the number of doctors for the year 2000 and 2021 at county level





Source: Data provided by the National Institute of Statistics (INS)

Health employees are in low supply and are distributed inequitably in the industry. An increasing need for healthcare is being created by an aging population, as well as an increase in chronic and age-related disorders (Blštáková and Palenčárová, 2021).

One of the most important components of a health system is its human resources. The efficiency of healthcare systems relies on the expertise, competence, and dedication of the workforce responsible for delivering these services. Though acknowledging the significance of personnel, various nations enact ambiguous and inefficient policies and programs related to health workforce (Gorji et al., 2018).

Including workforce issues in the political agenda and establishing clear health workforce policies can help clarify objectives and priorities in this area. This approach can also bring together all the involved sectors and promote a more comprehensive and systematic approach to human resources management. Long term, this opens up the possibility of establishing healthcare systems that are more responsive to the population’s expectations and requirements.

### 5. Conclusions

The development of a growing society and the medical and healthcare systems depend heavily on human resources for health. Human resources for health are necessary for economic and social development and for meeting the healthcare needs of the population. When planning and implementing human resources for health, it is crucial to develop and enhance creative methods and processes to enhance health workforce growth. This should be done from a structural, quantitative, quality-oriented, environmental, and managerial standpoint.

When seeking to integrate human resource planning across key health services, three concerns must be addressed: why integrate, what to integrate, and at what level of care. It is critical to recognize that efficiencies might be obtained by combining some of the duties done by separate employees for various health services.

A solid comprehension of human resources management issues is necessary to ensure the success of any healthcare program, as ultimately, healthcare is delivered by and to people. Many healthcare systems require additional human resources initiatives, and deeper research is needed to develop new human resources policies and practices which will benefit individuals globally.

Achieving a sustainable health workforce presents growing challenges. Provider

organizations and health systems face challenges due to skill imbalances, shortages of healthcare professionals, and the lack of needs-based competencies and integrated workforce governance; mobility only exacerbates problems for many countries. This compromises the goal of universal health coverage as well as the quality and safety of health-care services. Although certain nations and areas are hit more than others, all healthcare systems, including the EU's resource-rich welfare states, are affected.

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